The Korea Rural Economic Institute (KREI) is a government-funded research organization. In 1978, KREI was established by the Korean government to play an important role of developing sound policies in the fields of agriculture and forestry for the balanced development of urban and rural areas. Our research covers agricultural economics in general, agricultural product marketing, rural development, agricultural outlook and international agricultural trade negotiations. About 100 experts are working to provide new visions for agriculture.
AGRICULTURE IN KOREA 2010

Korea Rural Economic Institute
CONTRIBUTORS

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1. Farmland
2. Agricultural Structure
3. Farm Household Economy
4. Agricultural Cooperatives

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1. Overview of Korea’s Agricultural Policy
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1. Overseas Agricultural Development
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Chapter 8 • The Prospects and Visions for Korean Agriculture

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Over the past four decades or so, the Republic of Korea has recorded an unprecedented economic growth. However, at the same period, its rapid industrialization and urbanization posed serious challenges to Korean rural areas, including rapid decrease and aging of the farming population and widening income gap between urban and rural areas. In the case of Korean agriculture, the 1950s was a period when the staple grain rice was in short supply as the industry relied on traditional agriculture. However, in the 1960s and 1970s, the industry was able to lay down the ground for supplying the staple grain on its own through technical innovation. In the 1980s and 1990s, the industry saw the birth of modern agriculture, and it is shifting toward an eco-friendly high-tech agriculture in the 2000s. In recent years, Korean agriculture is faced with various problems, such as aging and worsening financial situation of farmers and underdevelopment of farm villages amid increasing opening of the domestic market to foreign agricultural products due to free trade agreements.

Korea Rural Economic Institute published Agriculture in Korea in 1999 and Agriculture in Korea 2008 in 2008 with revisions. One of the main purposes of publishing this manuscript series is to explain which roles Korean agriculture has played and how agricultural policies have changed in the economic development process. The publication reviews the current situation and problems in each sector of Korean agriculture and seeks to find their solutions. Also, it aims to help readers outside of Korea to better understand Korean agriculture by introducing and explaining the internal and external roles of the
industry and the direction it is headed in the age of globalization. Correct understanding of Korean agriculture will greatly help mitigate frictions with trading partners externally and reach consensus on agricultural policies at home.

We hope this book can be useful to readers deeply interested in Korean agriculture. Since this book presents an overall picture of agricultural policy in Korea, it may help acquaint readers with policy changes in Korea and provide insights into the development of agricultural policy for countries that are in a situation similar to the one Korea was in.

I would like to sincerely thank the authors, translators, and editors of Agriculture in Korea 2010.

December, 2010

Oh Se-Ik
President, Korea Rural Economic Institute
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Chapter 1

Introduction

1. The Land and Population
2. The National Economy and Agriculture
3. Transition of Agriculture and Agricultural Policy
Chapter 1. Introduction

Korea is a country situated on the Korean Peninsula at the eastern end of the Asian continent. It has a history of about 5,000 years. Gochosun, the first country on the Korean Peninsula, had existed until 108 B.C. In the beginning of modern times, the Korean Peninsula had gone through colonial rule by imperialist Japan in the early 20th century. After World War II, the Korean Peninsula experienced a division by the military stationing of the United States and the Soviet Union, and the Korean War caused the division of the peninsula into South Korea and North Korea. In the south, the Republic of Korea was established in 1948, and in 2010 the country observed its 62nd Independence Day.

Korea is located on the mid-latitude of the globe. It has a temperate climate. Its four seasons are distinct as it has a continental climate with a large climate range with seasonal winds blowing from the Asian continent and broad seasonal differences of precipitation. In the summer, temperature and humidity are high. And, in the winter, the country is cold and dry. Although the country is small in size, it is extensively mountainous. And it has the geographical features of a peninsula in that the three sides of the peninsula are coastlines. Due to these characteristics, there are rather big changes in the weather in the four areas of the east, west, south, and the north.

With the backdrop of Asia’s monsoon climate of high temperature and humidity in the summer, rice farming was developed early. Historically, the ‘agriculture first’ principle, which considered farming as the foundation of the country, had prevailed. Because there had been little agricultural land while there were a lot of farmers, the country could hardly escape from
small-scale farming. In the modern times, the number of farmers leaving agriculture rose during the industrialization process, and agricultural restructuring is currently underway. To cope with the globalization era of the 21st century, the country is seeking a niche in the agricultural market while complying with international norms.

Before taking up the main subject, we will provide an overview of Korean agriculture with respect to the country’s territory, population, economic development and changes in agriculture and agricultural policy.

Section 1. The Land and Population

1.1. Area and Topography

The Korean Peninsula, which is situated on the eastern end of the Asian continent, is located at $33^\circ TM~43^\circ TM$ latitude and $124^\circ TM~132^\circ TM$ longitude. The Korean Peninsula stretches from north to south and there are 3,418 islands. On the northern border, there are Aprok and Tumen rivers. On the eastern side, there is East Sea and, to the south, the South Sea. To the west, there is Yellow Sea lying between mainland China and the Korean Peninsula.

The total area of the Korean Peninsula is 221,336 $m^2$, with South Korea occupying 99,370 $m^2$ of the land. Farmland makes up 19.4% of the country, forests 65.7% and others 14.9%. During the past 50 years, the total land area increased by 6%, whereas farmland has steadily declined. The decline, however, has been stagnant recently.

The total length of coastline of South and North Korea combined is 8,593 km. Of this, South Korea’s coastline reaches 6,098 km. The elevation
of the land rises from west to the east and thus high mountains are found mostly on the eastern side of the peninsula. Rivers flow to the west and south along mountain slopes. At the mid- and lower streams of rivers, there are relatively wide plain regions.

1.2. Climate

Geographically positioned in the mid-latitudes of the northern hemisphere, Korea has a temperate climate. The four seasons of spring, summer, autumn, and winter are distinct. Situated between the Asian continent and the Pacific Ocean, the country has a continental climate that is influenced very much by seasonal winds. As a result, and unlike the seasonal changes of West European countries and other mid-latitude countries, the Korean winter is comparatively cold and the summer is very hot. In the spring and autumn, there are many clear and dry days due to the monsoons. The average annual temperature ranges from 6°C to 16°C and
the regional differences in average annual temperature are rather dramatic. If the mountainous areas are excluded, the distribution ranges from 10°C to 16°C. The monthly average temperature of August, which is the hottest month of the year, is 25°C. And the monthly average temperature of January, which is the coldest month of the year, is -0.7°C.

The annual amount of precipitation is 1,500mm in the southern region and 1,300mm in the central region. By season, about 50% to 60% of annual precipitation falls in the summer and 5% to 10% falls in the winter. Northwesterly seasonal winds are generally stronger than the southwesterly winds and especially from December to February, northwesterly winds are strong. The months of September and October are in the fall season when southwesterly winds change into northwesterly winds. Normally winds are weak and the effect of land and sea breezes becomes clear in coastal
regions. Humidity is the highest in July. The humidity nationwide ranges from 80% to 90%. The months with the lowest humidity are January and April during which humidity ranges from about 30% to 50%. September and October are pleasant with humidity around 75%.

The torrential rain during the rainy season starts from the south coastal region in late June, gradually reaches the central region, and continues for about 30 days. Occasionally the fall rainy season comes in early September. The typhoons from outside of Korea are mainly created between June and October, and about two or three of them directly or indirectly affect Korea.

1.3. Population

In 2009, the population of South Korea was 48.75 million, or 0.7% of the world’s 6.83 billion. South Korea’s population has multiplied 2.3 times during the 60 years since the country’s founding in 1948. The population growth rate had gradually declined from about 2% in 1970 to 0.5% after 1990. In terms of population density, Korea ranked third in the world in 2005 with a population density of 490 persons/㎢.

According to the population census of 2005, those aged less than 14 (children) accounted for 19.1%, those aged between 15 and 64 (youths and the middle-aged) accounted for 71.6%, and those aged 65 or older (the elderly) accounted for 9.3%. In terms of population structure, one of the main characteristics that have appeared recently is the aging population. The aging index (the elder-child ratio) has steadily been rising from 6.9% in 1960 to 48.6% in 2005. During the same period, the cost of supporting the old (old population/youth and middle-aged population) has increased from 5.3% to 13.0%. The difference between the aging indices of cities and rural areas has been widening greatly. In 2005, the aging indices of cities
The farm population in 2009 was 3.12 million, which accounted for 6.4% of the total population. And the number of farm households was 1.2 million. Although the number of farm households had increased to 2.6 million in the latter half of the 1960s, it started to decrease afterwards and became quickly reduced. The main causes were the industrialization and urbanization that had taken place in the process of rapid economic development. The ratio of farm household population has gradually been shifting to that of advanced countries, such as the United States, Japan, France, Germany, and Australia, where the ratio of farm households stands between 2% and 4%.

The economically active population accounted for 61.5% of the total population in 2008. The number of people working in agriculture and forestry was 1.63 million, or 6.9% of the total population. Although the ratio of economically active population has been increasing little by little, the number of those working in agriculture and forestry has steadily been falling like the farm household population.
Section 2. The National Economy and Agriculture

2.1. An Overview of Korean Economy

The modern era of Korea began in a depressing way. In the beginning of the 20th century, when Korea had sought a change from a feudalistic system to a western-style economic system, the country had to cry out loud about the colonial rule of the imperialist Japan. Afterward, the country had to experience the Korean War that began in 1950. The country had to rebuild the economic foundation that had been ruined.

Korea pursued economic growth in the 1960s led by the government and established the Economic Planning Board in 1961. The government established an agency to formulate five-year economic development plans for advancement of industrial structure and increase in exports. It increased domestic industrial investment to support economic development and improve export financing and the export supporting system to increase Korean exports.

The high growth in the 1960s and 70s supported both the government’s intervention in the market and the leadership role in efficiently distributing resources. There had been much room for the government to play a positive role during the initial phase of economic development, when market competition had not been intensive. However, the government intervened heavily due to inefficient distribution of resources and economic instability.

At the end of the 1970s, the Korean economy did not show the ripple effects that should have followed the heavy chemical industry. Instead, the second oil shock and the death of former President Park Chung-Hee induced the Korean economy to go through a crisis of unstable commodity
price and negative growth. Taking this crisis experienced during the high growth period as an opportunity, the government had emphasized economic stability, financial market reform, and industrial restructuring. Thanks to the successful implementation of such policy, the increase rate of commodity prices was lowered from 21% in 1981 to 2% in 1984, and economic growth rate rose from 6% to 9%.

From the mid-1980s, the so-called era of “triple lows” began with a drastic fall in the value of US dollar, oil prices, and international interest rates. In this environment, the Korean economy enjoyed a prosperous time by seizing the ‘three rabbits’ of large-scale current account surplus, high levels of growth, and stabilization of commodity prices for the first time since the founding of the country. Nevertheless, the demand for economic democratization by social echelons who had been alienated during the economic development started to grow fierce. In 1987, the government

<table>
<thead>
<tr>
<th>Year</th>
<th>Nominal GDP (US$1 billion)</th>
<th>per capita GNI (US$)</th>
<th>Growth Rates (%)</th>
<th>The exchange rate against the US dollar (won/US dollar)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gross Domestic Product (GDP)</td>
<td>Gross National Income (GNI)</td>
</tr>
<tr>
<td>1970</td>
<td>8.1</td>
<td>254</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1975</td>
<td>21.5</td>
<td>602</td>
<td>5.9</td>
<td>4.1</td>
</tr>
<tr>
<td>1980</td>
<td>63.8</td>
<td>1,645</td>
<td>-1.5</td>
<td>-4.2</td>
</tr>
<tr>
<td>1985</td>
<td>96.6</td>
<td>2,309</td>
<td>6.8</td>
<td>6.3</td>
</tr>
<tr>
<td>1990</td>
<td>263.7</td>
<td>6,147</td>
<td>9.2</td>
<td>8.9</td>
</tr>
<tr>
<td>1995</td>
<td>517.3</td>
<td>11,432</td>
<td>9.2</td>
<td>9.5</td>
</tr>
<tr>
<td>2000</td>
<td>511.8</td>
<td>10,841</td>
<td>8.5</td>
<td>5.5</td>
</tr>
<tr>
<td>2005</td>
<td>791.9</td>
<td>16,413</td>
<td>4.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Source: National Accounts, the Bank of Korea.
began to emphasize the importance of fairness and welfare together with efficiency and growth. Due to the increasingly vocal demands by the Korean society for democracy, large-scale labor-management disputes occurred frequently and wages rose sharply. In 1990, the current account balance turned to a deficit.

In the presidential election of 1992, a civilian government took power. In order to differentiate itself from the military regime of the past, the civilian government announced ‘The Five-Year Plan for a New Economy,’ and had emphasized participation and creativity of citizens instead of governmental control. It closed down the Economic Planning Board, which had been a symbol of economic development, and pursued market economy through economic reforms and liberalization. Korea became a member of the World Trade Organization (WTO) and the Organization for Economic Cooperation and Development (OECD). However, despite such efforts, Korea had gone through a financial crisis at the end of 1997. Consequently, it requested a financial bailout from the International Monetary Fund (IMF), and the foundation of Korea’s high levels of economic growth was fundamentally changed.

A new government was installed in 1998 and it sought to restructure the overall society aggressively. Thanks to such effort by the new government, the Korean economy quickly escaped the shock of the financial crisis. In August 2001, Korea completely came out of the IMF’s bailout program. Unlike the situation in which Korea’s foreign currency reserves were nearly exhausted 10 years ago, the amount of foreign currency reserves in 2007 rose to be the world’s fourth largest.

After the financial crisis, the Korean government abolished the economic management practice of the industrialization period and followed
a path of simultaneously achieving market competition, economic democratization, growth, and distribution. With the world economy in recession recently, the Korean economy, too, has slowed down. As a result, recovery of growth potential and creation of employment have arisen as policy tasks.

In April 2007, the World Bank unveiled the ‘World Development Indicators 2007.’ According to this report, the nominal gross domestic product (GDP) of Korea in 2005 was approximately US$791.3 billion. It ranked 12th among 184 countries surveyed. The size of nominal gross national income (GNI) was approximately US$765 billion, placing the country at the 11th rank among 208 countries surveyed. Furthermore, GDP growth rate in 2005 was approximately 4.2% (world average: 3.5%), placing Korea at the 25th rank among 50 largest economies (based on the GDP in US dollars in 2005). Korea’s per capita GNI in 2005 was US$15,840, 49th among 208 countries surveyed.

2.2. Economic Development and Role of Agriculture

Korea has walked the path of modernization and industrialization in the past 60 years, and it has grown to become an economic power that ranks approximately 10th in the world. When we look at the economic structure of Korea, we can briefly describe it as having grown through primary, secondary, and tertiary industries. Although there were not enough statistics available at the time of the country’s establishment, the working population in the primary industry, which includes agriculture, must have reached at least 80 to 90%. However, the population of workers in agriculture, forestry, and fisheries in 2008 was about 1.69 million, which was merely about 7% of the total economically active population.
The reduction in agricultural workforce resulting from economic advancement is a common phenomenon among advanced countries. Korea had experienced changes in its industrial structure at a speed that had been two to five times quicker than those of advanced countries. For example, the advanced countries of Europe and America had gone through a industrialization process that lasted about 100 years. However, in Korea, the transformation of industrial structure had taken place over merely 30 years. The average time needed for the ratio of agricultural GDP to total GDP to be reduced from 40% to 5% were as follows: 120 years for the 5 European countries of Great Britain, Germany, France, the Netherlands, and Denmark; 95 years for the United States; 75 years for Japan; and 30 years for Korea.

<table>
<thead>
<tr>
<th>Classification</th>
<th>The relative ratios in GDP</th>
<th>The relative ratios of employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture, forestry, and fisheries</td>
<td>Agriculture</td>
</tr>
<tr>
<td>1970</td>
<td>29.2</td>
<td>25.5</td>
</tr>
<tr>
<td>1975</td>
<td>27.1</td>
<td>24.0</td>
</tr>
<tr>
<td>1980</td>
<td>16.2</td>
<td>13.8</td>
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<td>1985</td>
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<tr>
<td>1990</td>
<td>8.9</td>
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<td>1995</td>
<td>6.3</td>
<td>5.5</td>
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<tr>
<td>2000</td>
<td>4.9</td>
<td>4.2</td>
</tr>
<tr>
<td>2005</td>
<td>3.4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: National Statistics, the Bank of Korea.
The Korean economy is often said to be on the level of advanced countries, but its agriculture is in fact on the level of developing countries. If the relative ratio of agriculture in OECD countries is considered, which was about 1% in 2005, Korea’s figure shows a level that is about two times higher. And the same is true for the relative ratio of number of farmers to total population, which was about 2 to 3 percent in OECD countries.

The ratio of agricultural GDP to total GDP decreased over time, from 25.5% in 1970 to 13.8% in 1980, 7.8% in 1990, and 2.9% in 2005. The average annual reduction rate from 1970 to 2005 was 6.0%. With respect to agricultural workforce, the ratio of number of farmers to total population decreased from 49.5% in 1970 to 32.4% in 1980, 17.1% in 1990, 10.2% in 2000, and to 7.6% in 2005. Agricultural employment fell by 5.2% on average annually from 1970 to 2005. In this way, the agricultural GDP ratio was reduced quickly, whereas the ratio of those employed in the agricultural sector was reduced relatively slowly. For that reason, overemployment became apparent in the agricultural sector.

Such changes in industrial structure can be considered a decline of agriculture. But these are industrial changes in a comparative sense, and there is no need to stretch the meaning to indicate a definite reduction in industrial scale.

In most countries, the dynamic force for industrialization was found in agriculture during the initial phase of economic development regardless of type of national system. The ground for capital formation was laid through the dissolution of pre-modern land ownership, which had been the production base for agriculture. And the high levels of growth had been achieved through the supply of cheap labor from rural villages. Such cases are the empirical facts experienced by a number of countries, including the
U.K., which had gone through the Industrial Revolution in earlier days, and Japan that had emerged as an industrially advanced country in the 20th century.

The roles of agriculture in the Korean economy can be summarized as follows:

First, agriculture plays the role of producing and supplying food. The fact that Korea achieved self-sufficiency in rice production in 1978 through Green Revolution was a big achievement considering that the staple grain of Korea is rice. Although self-sufficiency rate of the staple crop has continued to fall since then, stable supply of food has been firmly established as an important role to be played by agriculture.

Second, agriculture contributes to the development of other industries. It brought forth the advancement of commerce and transportation through the exchange of agricultural products with other daily necessities, and industrial crops and livestock products have been supplied as industrial raw materials, thus forming a part of the manufacturing industry. The agricultural materials industry, which is related with the production of fertilizer, agricultural chemicals, machinery, etc., has been developed as an upstream industry, while the food industry has been developed as a downstream industry where agricultural produce is processed.

Third, agriculture plays the role of preserving the natural environment and the national territory. Agriculture is basically an environment-friendly industry. In the modern times, agriculture has caused some pollution problems with the use of synthetic chemicals. Even so, there are more positive functions in agriculture in terms of environmental preservation. Green plants refine air, and the green space has been providing amenities. Recently, non-economic functions of agriculture, such as flood control,
water resource development, air purification, and land preservation, have been emphasized. Evidence has also been found repeatedly that the economic values of such “public good” functions are much greater than the amount of agricultural production.

Fourth, agriculture promotes the preservation of genetic resources. At present, there are over one million species living on Earth. Such a diversity of biological species plays an important role both in maintaining the harmony of nature and in achieving the serenity of the natural world. In the case of Korea, in particular, it can be said that the country with its four distinct seasons is blessed by heaven. The country has the world’s sixth largest genetic resources of plants. The potential of advancing bio-industries by utilizing agricultural genetic resources is very high.

Fifth, agriculture promotes economic and social stability. Food is an indispensable element for humans to live. Therefore, a decline of agriculture will soon bring about a decline of related industries and thus make the nation’s economic and social life unstable. In addition, agriculture maintains the population of rural villages through the creation of income by employing the labor force of rural villages. When a regional society in rural areas collapses, urban problems will be more serious accordingly, and it is a matter of course that the traditional culture of rural villages disappears. The natural scenery, which provides rest to citizens, can only be maintained through the continued existence of agriculture, forestry, and fisheries.
Section 3. Transition of Agriculture and Agricultural Policy

3.1. Changes in Food Consumption and Agricultural Production

Ever since Korea achieved rice self-sufficiency in 1978, rice consumption has been decreasing quickly due to westernization of eating habits, and the consumption of fruits and meat has been increasing gradually. As has been said, Korea has entered an era of commercial agriculture since the 1980s, and agricultural production is showing the propensity to react sensitively to market demand.

In terms of consumption trends of major agricultural crops, the annual amount of rice consumption has continuously been on a decreasing trend since reaching the peak of 197kg per person in 1967. Consumption amount per person had quickly declined from 135.6kg in 1979 to 75.8kg in 2008, which was an annual decline rate of 2% on average. As for the consumption amount of other grains in 2008, wheat was consumed the most with 33.7kg, followed by soy bean (8kg), corn (5kg), potatoes (3.6kg) and barley (1.1kg).

Although consumption of vegetables, fruits, and livestock products has been increasing continuously, their rates of increase, except for meat, have been stagnant recently. In the case of vegetables, consumption increased from 120kg in 1980 to 154kg in 2009. In the case of fruits, consumption increased from 22kg in 1980 to 68kg in 2009. In the case of meat, consumption increased from 11kg in 1980 to 37kg in 2009.

If agricultural production trends in the past half century are examined, it can be seen that there have been large changes twice, one in the 1970s
Introduction 33

and the other in the 1990s (Figure 1-4). In other words, with the mid-1970s as the turning point, production of food crops had changed its trend to be either stagnant or decreasing. The relative weights of fruits, vegetables, and livestock products, on the other hand, had begun to increase, but a new situation emerged as the production of fruits and livestock products, the so-called growth crops, levelled off since the mid-1990s.

Especially since the 1990s, agricultural production started to react sensitively to market demand, and a division of agricultural crops began to emerge gradually between those growth crops, the production of which increases according to market demand, and non-growth crops, the production of which does not increase according to market demand. In the 2000s, growth and decline by item were shown clearly while the total amount of agricultural production did not increase very much (Figure 1-5), and it looks like such a trend will continue for some time in the future.

Specialization of agriculture by region, along with the exposure of production growth and decline by item, is an important feature of the change in the production structure. If we look at the production ratios of cities and counties that ranked high with respect to specialization coefficients of major items, the regional concentration of production and the tendency to form main production areas have been evident since 1990. Also in the case of rice that has low specialization coefficients, the ratio of rice cultivation in the top 20 cities and counties had increased from 17% in 1990 to 32.7% in 2005. In the case of apple, which has high specialization coefficients, the ratio of apple cultivation in major production areas had increased from 57.5% to 79.6% during the same period.
If we look at crop production trends in major production areas, the formation of major production areas based on the benefits of nature was evident in the case of fruits and vegetables, and the formation of major production areas is increasing for greenhouse horticulture and livestock farming as large farms are formed in the industries based on technology and capital. In addition, the economic functions of major production areas, i.e. organizational power and marketing capability rather than natural
conditions and market location, have become important elements in the formation of major production areas. In particular, the major production areas that heighten negotiating ability or brand power through systematization of individual farms have continued to grow, and it is judged that the formation of major production areas by item and regional specialization will accelerate in the future, too.

3.2. Transition and Characteristics of Korea’s Agricultural Policy

This section presents a brief outline of the time periods and characteristics of the government’s agricultural policy before the year 2008, the year when Korea marked its 60th anniversary of founding. The criteria used to distinguish the policy time periods are based on changes of economic conditions, policies, and agricultural structure. If the time periods are classified by applying these criteria, the following five policy periods can be distinguished: first, system organization period from 1948 to 1967; second, production expansion period from 1968 to 1977; third, policy
conflict period from 1978 to 1985; fourth, transition period from 1986 to 1994; and fifth, policy reform period from 1995 until now. The characteristics of the policy time periods are summarized as below.

The first period (1948~1967) was a system organization period for firmly building up the foundation of the country after the launch of Korea’s first government. However, due to the outbreak of the Korean War in 1950, social confusion continued until the mid-1950s. Farmland reform was implemented from 1950 to 1957, and it thus contributed to both the abolition of the landlord-tenant relationship and the establishment of self-employed farmers. The national economy, in short, was an agricultural economy prior to industrialization, and it required the supply and accumulation of capital for industrialization. Since agriculture had contributed to alleviating potential unemployment, the ratio of those employed in the industries of agriculture, forestry, and fisheries stood high at around 80%, and agriculture continued to wield an overwhelming influence in the national economy.

The role of agriculture was focused on solving food shortage. Some of the major policies were centered around government procurement of rice, the U.S. assistance of surplus grains according to the U.S. Public Law 480 (PL480, introduced in 1956), and the food production expansion plan. Although the U.S. assistance of surplus agricultural products had greatly contributed to solving the immediate problem of food shortage, it had the effect of lowering the prices of Korea’s agricultural products, thus worsening the economy of farm households. Moreover, the government’s plan to increase grain production did not bring tangible results because of lack of necessary means of support (i.e., technological development and farmland expansion).
Policy-wise, it was a period of establishing an institutional base to carry out modern agricultural policies. The Rural Development Administration, the Maritime Affairs Office, and the Korea Forest Service were inaugurated, and a comprehensive agricultural cooperative system was founded through the enactment of the Agricultural Cooperative Law (1961). At the industrial level, discussions were held to improve the agricultural structure, and ‘The Basic Agricultural Law (1967)’ was
enacted to foster self-employed farmers.

The second period (1968~1977) can be characterized as the agricultural production expansion period. The number of farms and farmers that had been increasing ever since the establishment of the republic had reversed its course to a decline from 1968, and the total area of farmland began to decrease from 1969. With the rapid progress of industrialization, great amounts of land and labor started to be utilized for industrial purposes rather than for agriculture. The main focus of the agricultural policy in this period was how to maintain the self-employed farming system that had been created through farmland reform in the process of urbanization and industrialization. To this end, a proposal was made to enact a farmland law, but it fell apart due to the public opinion against the bill.

Since the food problem resulting from industrialization remained serious, the goals of the government’s agricultural policy were aimed at increasing food production and modernizing the production process. The means to achieve this were development and dissemination of agricultural technologies, provision of guidance to farming villages, creation and consolidation of farmland, development of agricultural water resources, seed improvement, and mechanization of agriculture. In addition to these, various policies were adopted: rural development through supply of electricity and expansion of roads, farm income assistance through a special project to increase farmers’ and fishermen’s income, and price support through a high-rice-price policy and a barley price forecasting procurement system to stabilize its price. A new, high-yield rice variety called Tongil Byeo was developed and supplied from 1971. As a result, rice yields increased greatly and made self-sufficiency of rice possible in 1977.

Also, a new village development movement called ‘Saemaul Undong’
began in 1970, giving rise to a boom in rural development. During this period, farm household income increased significantly, and the farm economy became more stable than any other period thanks to increased production of and the price support for rice. Because of Saemaul Undong, the daily living environment in rural villages and farmers’ understanding of the economy started to change immensely. However, farmland leasing started to increase without improvement of the agricultural structure that is based on poor self-employed farming.

It can be said that the third period (1978~1985) was a period of conflicting interests for agricultural policy. This is because the Korean agriculture had experienced a lot of conflicting interests while making a transition to commercial farming after achieving food self-sufficiency. The direction of economic policy during this period shifted from high growth to stable growth and from government-led protectionist policy to private sector-led open market policy. The direction of agricultural policy, too, shifted from a policy of increasing agricultural income through increased production of staple grains and price support to a policy of increasing farm income through non-farm earnings, diversified agriculture, and cultivation of cash crops and products such as meat, fruits, and vegetables. As a result, rural industrial development began with the formation of agricultural industrial complexes, and cultivation of seasoning vegetables and animal husbandry were greatly expanded. And in 1978, the government liberalized the domestic market for agricultural imports.

Unfortunately, in 1980, rice production fell 36% from the previous due to damage from cold weather. In the following year, Korea had to import rice. Furthermore, the increase in beef imports caused a sharp price drop of beef in 1984. As the prices of seasoning vegetables and livestock products
became extremely volatile, farm household economy worsened and debts increased significantly. Food self-sufficiency rate fell, and agricultural imports increased sharply. The so-called open market policy, which aimed to stabilize agricultural commodity prices through imports and compensate reduced income through non-farm earnings and diversified agriculture, caused harm to the economy of farm households.

Under such a background, a comprehensive plan was put together in March, 1986 to revive the rural economy. The main contents of the plan were expansion of agricultural industry zones to increase non-farm income, provision of more tax benefits to factories in farming regions, supply expansion of agricultural assistance funds to increase farm income, and strengthening of the project to foster future farmers.

The fourth period (1986~1994) can be called policy transition period. The year 1986 saw the start of the Uruguay Round (UR) negotiations, which determined the course of global trade liberalization. South Korea graduated from the GATT-sanctioned balance of payments protection after the country posted trade surplus from 1986 to 1989. At the same time, the pressure to open the agricultural products market started to become more intense. With the conclusion of Uruguay Round negotiations at the end of 1993, Korean agriculture could not but adopt an open market policy. As a result, it became an impending task to improve the industry structure of agriculture in step with the progress of market opening and increase the industry’s international competitiveness.

Having examined measures to improve the agricultural structure in response to market opening, the government announced three comprehensive plans during the period from 1989 to 1994. The first plan was the Comprehensive Plan to Develop Farming and Fishing Villages,
which was announced in April 1989. The plan called for the creation of a farmland management fund to help finance purchase of farmland and accelerate the structural improvement of agriculture. In addition, the plan introduced an agricultural corporation system. Other key policy goals included in the plan were development of non-farm income sources, development of residential zones, and development of the agricultural products processing industry and export businesses. As the second phase of the comprehensive plans, the Plan for Structural Improvement of Farming and Fishing Villages was announced in 1991. As a more specific version of the 1989 comprehensive plan, the second-phase plan has set the goal of investing 42 trillion won for structural improvement of farming and fishing villages during the 10-year period from 1992 to 2001. Succeeding the two comprehensive plans announced since 1989 was the Plan for Agricultural Policy Reform and Development of Farming and Fishing Villages of 1994. The plan set the goal of completing the 42-trillion-won structural improvement project for agriculture and fisheries by 1998, ahead of the original completion year of 2001, and expanded the investment fund by creating a 15-trillion-won special tax for rural development.

In the meantime, Korea experienced a financial crisis in November 1997, only one year after it became a member of the Organization for Economic Cooperation and Development. Because of this, the country’s whole economy was placed in a dire situation. In order to actively cope with the financial crisis, the government made a request to the International Monetary Fund (IMF) for capital support and so began the so-called “IMF managed system.” The IMF provided bailout fund and, at the same time, requested Korea an intense social and economic reform. In response, the government launched intense organizational restructuring of
The fifth period (1998~present) can be called the period of agricultural policy reform. Korean agriculture, which had already entered a period of great transition with the inauguration of the World Trade Organization (WTO), experienced difficulties again at home and abroad. Due to the financial crisis of 1997, agricultural material prices had rapidly been rising since the beginning of 1998. Consequently, the circumstances for agriculture greatly worsened, and farms went bankrupt. The government, therefore, put highest priority on stabilizing the economy of farm households and recovering the rural economy. To do so, the government enacted the Special Law on the Reduction of the Debts Owed by Farmers and Fishermen and postponed the reimbursement of debts owed by farm households and reduced or exempted the interest.

The basic direction of agricultural policy made a turn from the previous government’s farm scale expansion to fostering of environment-friendly agriculture based on small and mid-sized farming and enhancement of quality. In particular, the government forcefully carried out measures to reform the distribution of agricultural products. This included expansion of direct transaction, diversification of transaction methods at public wholesale markets, and introduction of a distribution ordering system. In 1998, the government enacted the Agriculture and Rural Communities Basic Act and embarked on reforming agriculture related organizations. In 2000, the government merged the National Agricultural Cooperative Federation, the National Livestock Cooperatives Federation, the Korea Ginseng Cooperative Federation, the Rural Development Corporation, which manages water supply facilities, and the Farmland Improvement Association. The fact that a solidarity was formed among
farmers, consumers, and the government was also an important change as farmers and consumers could participate in the making of agricultural policies.

With the beginning of 2000, negotiations for free trade agreement (FTA) started to make progress amid a global wave of trade liberalization. Although Korea was passive about FTA initially, the country saw a turning point with the conclusion of an FTA with Chile in 2002. From the following year on, Korea actively took part in the negotiations. As of 2010, the number of countries with which Korea has signed a free trade agreement that went into effect stands at 16. These include 10 ASEAN countries, 4 EFTA countries, and Chile and Singapore. If the countries that have either signed or concluded negotiations with Korea are included (that is, US, 27 EU countries, and Peru), the number rises to 45. Negotiations are also underway with 12 countries, which include Canada, Mexico, Australia and Turkey.

In order to cope with the changing market situation, the basic direction of agricultural policy has shifted to one that is oriented towards consumers. The government raised the trust and satisfaction level of consumers by building up the production and distribution base for safe and high-quality agricultural products and by greatly improving the safety examination, labeling of product origins, and the quality assurance system of agricultural products. The updating of the policies on farmers’ income and rural communities was also a big change in agricultural policy. The government introduced a direct payment system for rice farming in 2000 after examining similar direct payment schemes adopted in advanced countries. In 2002, it introduced a direct payment system to complement the income of rice farmers. In 2005, the government enacted the Special Law for the
Improvement of Quality of Life to improve the welfare in rural villages by updating related policies. To revive the stagnant rural economy, the government improved related rules and systems so that urban capital can flow into rural areas. The government also aggressively pursued policies aimed at promoting rural-urban exchanges and green tourism.

The fact that exchanges between South and North Korea advanced quickly with the beginning of 2000 was also a big change. South Korea’s assistance to North Korea in the agricultural sector, too, increased after the two countries signed the June 15th Joint Declaration in 2000 regarding cooperation and peace on the Korean Peninsula. In the private sector, too, many kinds of exchanges and cooperation projects were carried out to help North Korea restore its agricultural production capacity. Humanitarian aid of rice was also provided to North Korea which had been suffering from chronic food shortage. However, exchanges at the government and private sector level came to a standstill with the deterioration of the bilateral relations since 2008.
Chapter 2

Agricultural Resources and Structure

1. Farmland
2. Agricultural Structure
3. Farm Household Economy
4. Agricultural Cooperatives
Chapter 2. Agricultural Resources and Structure

Section 1. Farmland

This section examines Korean farmland, related institutions and policies. The first to be looked into are distribution traits of farmland and state of farmland use, transformation of farmland institutions and policies resulting from changes in the socio-economic structure, and a variety of farmland related laws that affect ownership and use of farmland. In examining the use and conversion of farmland, we will discuss farmland traits by analyzing changes in the distribution of farmland by size, structural changes of farmland lease, and trend and causes of farmland conversion and noncropping. Also, we will analyze the current state of farmland mobilization which has been pushed aggressively as a policy to reform the agricultural system and cope with expanding agricultural imports. Lastly, we will describe the following major pending issues of farmland policy while forecasting circumstantial changes in the use of farmland in the future: laying the principles of ownership and use of farmland, management of idle farmland, stable securement of farmland for future farmers, farmland price stabilization, and prevention of thoughtless development.

1.1. Farmland Facts and Figures

As of end of 2008, the total size of Korea’s national territory is 9,983,000ha, and 1,759,000ha, or 17.6% of the territory, is farmland. The farmland is further divided into 1,046,000ha of rice fields and 713,000ha...
of coarse fields. If we classify the farmland according to whether or not it is designated as agriculture-promoted area, which belongs to the same category as preserved farmland, the size of agriculture-promoted areas is 1,033,000ha, or 58.7% of total farmland, whereas the farmland that has not been designated as agriculture-promoted area is 726,000ha (Table 2-1). The total size of farmland has been declining since 1969, whereas the size of agriculture-promoted areas had continued to increase since 1992 until 2004 when it stagnated until 2006. The size of agriculture-promoted areas had decreased dramatically due to the lifting of agriculture-promoted areas in 2007 and 2008.

### Table 2-1  Designation of Agriculture Promoted Areas

<table>
<thead>
<tr>
<th>Zone category</th>
<th>Agriculture promoted zone</th>
<th>Agriculture protected zone</th>
<th>Non-arable land</th>
<th>Farmland (C) Ratio (C/A)</th>
<th>Rice fields</th>
<th>Coarse fields</th>
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</thead>
<tbody>
<tr>
<td>------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
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<tr>
<td>Size of total farmland (A)</td>
<td>1,889</td>
<td>1,876</td>
<td>1,863</td>
<td>1,846</td>
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<td>Size of agriculture promoted area (B) ratio (B/A)</td>
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<td>952</td>
<td>953</td>
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<td>957</td>
<td>957</td>
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<tr>
<td>Non-arable land</td>
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<td>85</td>
<td>86</td>
<td>87</td>
<td>88</td>
<td>90</td>
</tr>
<tr>
<td>Rice fields</td>
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<td>770</td>
<td>770</td>
<td>770</td>
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<td>771</td>
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</tbody>
</table>

Source: Korea Rural Community Corporation, statistics on conversion of farmland 2008.
Korea’s cultivated land per capita is 0.04ha, which is very small compared to major advanced countries (U.S. 1.5ha, France 0.5ha, UK 0.3ha). Therefore, food sufficiency rate is very low. Although the self-sufficiency rate of rice, the staple crop, is almost 100% because of government investment in the production base and decline in rice consumption, the self-sufficiency rate of grains as a whole is merely 27.8% as of 2008. Despite the low self-sufficiency rate of food, a considerable share of farmland under worsening farming conditions has become idle land or forest due to continued expansion of agricultural imports, and such a trend is projected to continue. In recent years, about 40,000ha of farmland have become idle every year, and much of the deserted land have turned into a land that is difficult to use again. Apart from the idling of farmland, about 20,000ha of farmland are converted to other uses every year. As a result, farmland continues to decrease despite various efforts to create and preserve farmland.

1.2. Transformation of Farmland System and Policy

According to the current Farmland Act, “farmland is the foundation for supplying food and preserving the territorial environment of the country. Since it is a precious resource that has influence on balanced development of agriculture and national economy, it should not only be preserved carefully, but properly managed in tune with the public interest, and the exercise of rights entails necessary restrictions and obligations”
(Farmland Act Article 3). The law explicitly states that “farmland cannot be owned by anyone other than those who use it or intend to use it for farming of his or her own self”. Specifically, the law has adopted an acquisition qualification system titled “Issuance of Qualification Certificate for Acquisition of Farmland” and authorizes the acquisition of farmland to only eligible applicants after checking and examining the eligibility and ownership ceiling of a prospective buyer. The law has also adopted “Disposition Order” and “Charge of Forcing Execution” as post-management tools to handle the failure to comply with the original purpose of the acquisition. In other words, the land-to-tiller principle forms the basis of farmland ownership and use.

Such a farmland ownership and usage system that centers around farmers who own farmland was established through a farmland reform in 1950 in accordance with the Farmland Reform Act and forms the basis of today’s farmland system.1) The main purpose of the Farmland Reform Act was to end the abuses of the past landlord-tenant system and foster self-employed farmers as a means to build a stable social foundation. Specifically, the government created self-employed farmers by buying the farmlands of landlords and distributing a maximum of 3ha of farmland to actual farmers. Acquisition of farmland by non-farmers and ownership of more than 3ha of farmland were restricted, and the government regulated the acquisition of farmland by issuing farmland transaction certificates. The basic structure of “upper limit of farmland ownership” and “farmland transaction certification” has been maintained until recently.

1) The Farmland Reform Act was enacted in June 1949 and was enforced right before the outbreak of the civil war on June 25, 1950. The law was abolished on January 1, 1996. It was replaced with the Farmland Act which was enacted in December 1994.
In the 1960s and 1970s, physical expansion of farmland through reclamation and restoration of land was at the center of agricultural policy to address the worsening food shortage resulting from the division of South and North Korea and the subsequent Korean War. The farmland expansion policy was implemented in earnest with the enactment of Reclamation Promotion Act in 1962 to accelerate the development of uncultivated mountainous areas. In 1967, Farmland Development Act was enacted. In the case of Farmland Development Act, development was limited due to high financial burden on landowners. After the global food crisis in 1974, Farmland Expansion and Development Promotion Act was enacted in 1975.

Since the late 1960s, the use of farmland for purposes other than farming increased rapidly due to urbanization and industrialization, and in the 1970s, the world experienced an oil crisis and food shortage. Alarmed by these challenges, the government enacted Farmland Preservation and Utilization Act in 1972 and strictly restricted the diversion of farmland for non-agricultural purposes. The core content of this law was to selectively protect farmland by designating them as “absolute farmland” and “relative farmland.” Absolute farmland was designated for mostly rice paddies and other farmland that need to be strictly protected, and “relative farmland” for other types of farmland. The government also required anyone who intends to use farmland for other purposes to obtain government permission and pay a fee to Farmland Management Fund to bear the “farmland creation cost” in making alternative land available for farming. During this period, the government’s will to preserve farmland was stronger than in any other period.
However, the number of non-farmers owning farmland rose due to desertion of farming and inheritance of farmland, and farmland price rose and became high relative to the profitability of farming. As these problems emerged, it became difficult to follow the land-to-tiller principle.\(^2\)

Accordingly, the realistic question of whether or not to recognize and authorize the legally banned farmland lease from the perspective of reforming the agricultural structure attracted attention and prompted the legislation of Farmland Lend-Lease Management Act in 1986.\(^3\)

In addition to the discussions in the late 1980s and afterward on further opening of the domestic agricultural market, the need to foster competitive agricultural enterprises was raised. As a result, the Act on Special Measures for Development of Agricultural and Fishing Villages was enacted and enforced, authorizing farmland ownership of agricultural enterprises and relaxing regulations on farmland. The Farmland Reform Act of 1949 did not allow farmland ownership of enterprises, but rather recognized the ownership and use of farmland by self-employed family farms. The authorization of farmland ownership of enterprises was a big change. Also, the means of preserving farmland, too, has changed. The plot-based farmland preservation system of designating absolute and relative farmland was abolished and a new system of designating good collectivized farmland as “agricultural development region” was introduced, replacing the plot-based system which was introduced in 1972. In other words, the plot-based

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2) If farmland price becomes excessively high compared to the profitability of farming, this would make it practically impossible to adhere to the land-to-tiller principle since even the farmers cannot engage in the farming business. From the farmer’s point of view, too, it would be more profitable to rent the land and expand farming than to buy the farmland.

3) However, due to the resistance of absentee landlords, the enforcement of the law was postponed.
farmland preservation system has been converted to region-based farmland preservation system. In addition, the government eased restrictions on farmland use and conversion and raised the ownership ceiling to 10ha from 3ha to flexibly respond to agricultural imports.

Also, the Farmland Act was enacted in 1994 by combining all the preexisting laws related to farmland, such as Farmland Reform Act (1949), Farmland Preservation and Utilization Act (1972), Farmland Lend-Lease Management Act (1986), and Rural Development Special Act (1990). The Farmland Act, which is a comprehensive legal system related to farmland, was implemented in 1996 and is currently in force today.

Even though Farmland Act clearly stipulates strict compliance with the land-to-tiller principle, regulations on ownership and use of farmland have been greatly eased in accordance with changes in socio-economic circumstances. Restrictions on farmland ownership were reduced greatly, too. An amendment to the Farmland Act in 2003 enabled non-farmers to own a land of less than 1,000m² for the purpose of using it to experience farming or as a weekend farm. Also, a farmland bank was introduced in 2005. As a result, it became possible for non-farmers to own a limited amount of farmland if they lease it to the farmland bank on a long-term basis. Such an authorization of farmland ownership partially broke the principle that strictly restricted farmland ownership for reasons other than farming, and brought about a de facto effect of allowing non-farmers to own farmland. Also, the scope of authorized farmland ownership was further expanded and it became possible for agricultural stock company to own farmland.

In the meantime, the ownership ceiling of 10ha of farmland in agriculture-promoted regions under the Farmland Reform Act was raised to 20ha on condition of approval by municipal governments of cities and
counties. In 1999, the ownership ceiling itself was abolished for farmlands in agriculture-promoted regions. Ownership limit for farmland outside of agriculture-promoted regions was expanded to 5ha in 1999, but abolished in 2002 after 50 years in existence.

1.3. Legal System for Farmland

Even though many laws related to farmland were integrated, the farmland system is still based on a variety of laws (Table 2-1). Specifically, there are the Constitution, the highest law in the land, the Basic Law on Agriculture and Rural Communities which sets the basic direction for rural and agricultural development, the Act on Planning and Utilization of National Territory, which deals with the use and management of the national territory, the Rearrangement of Agricultural and Fishing Villages Act, which deals with development and maintenance of living environment, tourism and leisure resources, and low-productivity

<table>
<thead>
<tr>
<th>Table 2-2 Coverage of Farmland by Major Laws</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Farmland Act</strong></td>
</tr>
<tr>
<td>Ownership</td>
</tr>
<tr>
<td>Use</td>
</tr>
<tr>
<td>Preservation</td>
</tr>
<tr>
<td>Conversion</td>
</tr>
<tr>
<td>Rearrangement</td>
</tr>
<tr>
<td>Creation</td>
</tr>
</tbody>
</table>

○: stipulated in detail, △: partial reference
farmland, the Islands Development Promotion Act, and Small Rural Municipalities Development Promotion Act, and other individual laws. Therefore, it is not only difficult to compile all farmland related laws into a single legal system but it is also inappropriate to simplify and interpret the multi-faceted nature of farmland based on one perspective.

In summation, the basic philosophy and principles about farmland in legal sense are clearly stated in the Constitution and the Basic Law on Agriculture and Rural Communities, and the methods of achieving this institutionally are stipulated in the Farmland Act.

In regard to land ownership as indicated above, the Constitution and the Farmland Act clearly state the land-to-tiller principle: “The farmland shall not be owned by any person unless he or she uses it or is going to use it for their own purpose of managing agriculture.” However, even though farmland ownership is limited to farmers and agricultural enterprises, there are exceptions for non-farmers who happen to own farmland as a result of people leaving the farming profession and people inheriting the land. Also, exceptions are granted to those non-farmers who use farmland to have experience in farming and who use it as a weekend farm under the condition that the farmland does not exceed a certain size.

Although the Constitution prohibits the semi-feudal tenant farming, lease and entrusted management of farmland are allowed on a limited basis according to law. The Farmland Act allows leasing of farmland if the ownership of the farmland to be leased changed hand due to migration of farmers or succession to property. In 2005, the Farmland Act was revised and the revised law granted Korea Rural Community Corporation the right to perform the role of a farmland bank. If farmland is entrusted to the bank for long-term lease, all were allowed to lease the entrusted farmland. With
the introduction of such a farmland banking system, farmland lease is expected to increase significantly.

In regard to preservation of farmland, the government introduced a prime farmland designation system to preserve premium farmland that has been rearranged or collectivized. The system requires permission, registration and consultation to convert farmland for non-farming purposes. In the case of collectivized high-quality farmland that are designated as prime farmland, the government restricts farmland conversion except for installation and construction of agricultural facilities and social infrastructure to help preserve the farmland.

Meanwhile, the National Territory Planning Act manages the development and preservation of the entire national territory by specifying and placing different zones and restrictions based on a zoning system. The farmland management system was transformed as the Act on the Planning and Utilization of the National Territory was enacted on January 1, 2003. The new law was created by combining the Act on the Utilization and Management of the National Territory with the Urban Planning Act. Of the existing five zones, semi-urban and semi-agricultural zones were integrated

<table>
<thead>
<tr>
<th>Table 2-3</th>
<th>Change in Land Use Designation under the Act on the Planning and Utilization of the National Territory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>Urban Region (residential · commercial · industrial · green)</td>
</tr>
<tr>
<td>Revised</td>
<td>Urban Region (residential · commercial · industrial · green)</td>
</tr>
<tr>
<td>Size (km²)</td>
<td>16,157</td>
</tr>
<tr>
<td>Ratio (%)</td>
<td>16.1</td>
</tr>
</tbody>
</table>

into “management zones,” and “management zones” were subdivided again into “planned management zones,” “production management zones” and “preservation management zones.” Farmlands in general are found mainly in “agricultural zones” and “production management zones.” Even so, a lot of farmland exist in urban regions in the form of green areas. As restrictions vary from zone to zone, the demand for farmland conversion differs.

1.4. Use and Conversion of Farmland: Facts and Figures

Amid an overall decline in the size of cultivated land, the number of farms fell sharply, whereas cultivation area decreased relatively gradually. As a result, average size of cultivated land per farm increased from 0.93ha in 1970 to 1.19ha in 1990, 1.37ha in 2000 and to 1.43ha in 2005 (Figure 2-1). Cultivation area per farm is, of course, very small compared to the United States, France, the U.K. and Germany and, accordingly, an aggressive expansion of cultivation area is required.

![Figure 2-1 Farm and Cultivated Area Trends](image)

Source: Ministry of Agriculture and Forestry, major annual statistics on agriculture and forestry.
A change took place around 1990 in the composition of farmers with respect to the size of cultivated land after the farmland reform. From 1965 to 1990, the numbers of small farms and relatively big farms decreased continuously, whereas mid-size farms increased. However, a polarized distribution of cultivated land began to appear since the 1990s. The ratio of mid-size farms with a cultivated land of 0.5~2.0ha decreased, whereas farms with cultivated land of less than 0.5ha and over 2ha increased in comparison. While average size of cultivated land per farm is increasing slowly, the concentration of farmland to relatively big farms is increasing at a fairly rapid pace. During the 1990-2005 period, the number of farms with over 3.0ha of farmland increased 12.4 percent annually on average. However, the size of cultivated land per farm still remains small.

Meanwhile, the ratio of leased farms rose from 17.8% in 1970 to 37.4% in 1990 and to 43.0% in 2008 even though the Farmland Act prohibits farmland leasing. In terms of ownership of leased farmland, only
about 20% of leased farmland is owned by farmers, whereas 60~70% of leased farmland is owned by non-farmers (Table 2-4).

The reason for the rise in farmland lease is that, on one hand, farmland ownership by non-farmers has increased due to farmers leaving the profession and non-farmers inheriting the land and, on the other hand, most farms are expanding their business scale by leasing relatively economical farmland than buying high-priced farmland.

Farmland increased due to reclamation projects that continued to be carried out since the 1950s, but it continuously decreased since 1968 due to

<table>
<thead>
<tr>
<th>Year</th>
<th>Farmers</th>
<th>Non-Farmers</th>
<th>Public</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>174 (21.1)</td>
<td>569 (69.1)</td>
<td>33 (4.0)</td>
<td>48 (5.8)</td>
<td>824 (100)</td>
</tr>
<tr>
<td>2001</td>
<td>175 (21.0)</td>
<td>578 (69.6)</td>
<td>29 (3.5)</td>
<td>49 (5.9)</td>
<td>831 (100)</td>
</tr>
<tr>
<td>2002</td>
<td>166 (19.9)</td>
<td>590 (70.7)</td>
<td>28 (3.3)</td>
<td>51 (6.1)</td>
<td>835 (100)</td>
</tr>
<tr>
<td>2003</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2004</td>
<td>127 (16.3)</td>
<td>551 (70.9)</td>
<td>37 (4.8)</td>
<td>62 (8.0)</td>
<td>777 (100)</td>
</tr>
<tr>
<td>2005</td>
<td>161 (20.8)</td>
<td>476 (61.7)</td>
<td>38 (4.9)</td>
<td>97 (12.6)</td>
<td>772 (100)</td>
</tr>
<tr>
<td>2006</td>
<td>153 (19.8)</td>
<td>489 (63.2)</td>
<td>28 (3.6)</td>
<td>104 (13.4)</td>
<td>774 (100)</td>
</tr>
</tbody>
</table>

conversion of farmland resulting from urbanization and industrialization. In the course of rapid economic growth, farmland was converted to other uses, such as housing, commercial-industrial, and public space, at a high rate as population grew and urbanization and industrialization progressed. In addition, the worsening conditions for agriculture have steadily increased the amount of idle farmland. Accordingly, farmland was reduced from 2.298 million ha in 1970 to 1.759 million ha in 2008.

Currently, idle farmland is larger than converted farmland. During the early to mid-1990s, there were cases where idle farmland was two to three times larger than converted farmland. Caused by inadequate maintenance of production infrastructure and shortage of labor, the amount of idle farmland increased greatly due to further opening of the domestic agricultural market and reduction in rice consumption. In the future, too, idle farmland is expected to grow since the circumstances for farming are forecast to worsen due to further opening of the domestic market for agricultural imports.

Today’s problem with farmland conversion is that even prime farmland is being converted to other uses in large scale. If we look at the trend of farmland conversion by type of land use, public use in general accounts for the largest share of the conversion, whereas the use for agricultural facilities accounts for only a small portion except in the early and mid-1990s and the mid-2000s. The early and mid-1990s was a period when restrictions on farmland conversion were eased greatly. Farmland conversion for agricultural use increased a lot as the period coincided with the expansion of greenhouse agriculture. But in 2008, only 4.9% of converted farmland was for the installation of facilities for agriculture and fisheries (Table 6). The revision of Farmland Act in 2007 allowed farmers
to build livestock barns without government permission, and it seems like
that this has partially contributed to the increase in farmland conversion.
But when seen on a larger scale, it can be seen that socio-economic
conditions have caused a change not only in the amount of converted
farmland but also the purpose of the conversion.

1.5. Farmland Mobilization Policy

Farmland mobilization accelerates the business expansion-driven
improvement of agricultural structure, and farmland mobilization tasks are
carried out through the Farm Scale Expansion Project and the Farmland
Banking Project. The Farm Scale Expansion Project began in 1990 as a

Table 2-6  Farmland Conversion by Type of Use

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Converted Area</th>
<th>Government and Public Facilities</th>
<th>Housing Facilities</th>
<th>Mining and Manufacturing Facilities</th>
<th>Agricultural and Fishery Facilities</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>975 (100)</td>
<td>289 (29.6)</td>
<td>264 (27.1)</td>
<td>125 (12.8)</td>
<td>30 (3.1)</td>
<td>267 (27.4)</td>
</tr>
<tr>
<td>1985</td>
<td>2,122 (100)</td>
<td>1,327 (62.5)</td>
<td>296 (13.9)</td>
<td>200 (9.4)</td>
<td>50 (2.4)</td>
<td>249 (11.7)</td>
</tr>
<tr>
<td>1990</td>
<td>10,593 (100)</td>
<td>4,474 (42.2)</td>
<td>2,229 (21.0)</td>
<td>2,415 (22.8)</td>
<td>593 (5.6)</td>
<td>882 (8.3)</td>
</tr>
<tr>
<td>1995</td>
<td>16,295 (100)</td>
<td>5,252 (32.2)</td>
<td>2,352 (14.4)</td>
<td>1,675 (10.3)</td>
<td>4,687 (28.8)</td>
<td>2,313 (14.2)</td>
</tr>
<tr>
<td>2000</td>
<td>9,883 (100)</td>
<td>4,059 (41.1)</td>
<td>1,742 (17.6)</td>
<td>1,142 (11.6)</td>
<td>1,581 (16.0)</td>
<td>1,359 (13.8)</td>
</tr>
<tr>
<td>2005</td>
<td>15,659 (100)</td>
<td>7,396 (47.2)</td>
<td>2,340 (14.9)</td>
<td>862 (5.5)</td>
<td>2,245 (14.3)</td>
<td>2,816 (18.0)</td>
</tr>
<tr>
<td>2008</td>
<td>18,215</td>
<td>8,369 (45.9)</td>
<td>2,424 (13.3)</td>
<td>2,490 (13.7)</td>
<td>893 (4.9)</td>
<td>4,039 (22.2)</td>
</tr>
</tbody>
</table>

Source: Korea Rural Community Corporation, statistics on farmland conversion in 2008,
central project contributing to mobilizing farmland. It is a temporary project which will end in 2013. The Farmland Banking Project was launched to cope with changes in the agricultural market environment home and abroad, such as further opening of the domestic agricultural market, reduction of farming population, and aging of farmers. The project began with the revision of Farmland Act in July 2005, the contents of which included the function of farmland banking. The Farm Scale Expansion Project, which had been carried out as a separate project from the farmland banking project, is currently managed as part of the banking project.

The Farmland Banking Project is carried out to optimize the scale of farming, promote efficient use of farmland, improve the agricultural structure, and stabilize the farmland market and farmers’ income. According to Article 10 of the Law on Korea Rural Community Corporation and Farmland Management Fund, farmland banking project activities are ① sales, lease, exchange, and separation and merger of farmland, ② supply of information about farmland price and transaction trends, ③ farmland purchase to assist revival of farming, ④ leasing of entrusted farmland, and ⑤ assistance to stabilize the income of retired farmers with farmland as collateral. But the actual activities performed in regard to farmland mobilization are farm scale expansion, sale and lease of entrusted farmland, and purchase of farmland.

The Farm Scale Expansion Project began in July, 1990 to increase farm scale, promote farmland collectivization, reduce production cost, and increase competitiveness through farmland sale, long-term lease, and exchange of farmland. Since then, it has gone through changes with respect to project goal, eligibility for assistance, loan rate and others. Then in
December 2004, a comprehensive program for the rice industry was launched with the goal of creating 70,000 rice farms. Under the program, each farm will have 6ha of rice field, and the rice farms will take charge of half (420,000 ha) of rice fields in Korea by 2013. During the period from 1988 to 2008, the farm scale expansion project succeeded in expanding and collectivizing 186,000ha of farmland with 6.5337 trillion won of loan. The project of buying farmland saw an increase in project scale until the mid-1990s as rice price remained stable and the unit cost of assistance was raised from 25,000 won per 3.3㎡ to 30,000 won per 3.3㎡. But in 1997, when a direct payment was launched to subside old retired farmers who transferred their farmland, the implementation of the farm scale expansion project was changed from purchasing of farmland to leasing of farmland.

The farmland lease project is for leasing entrusted farmland to full-time farmers on a long-term basis. The leasable farmland here refers to rice paddies, coarse farmland, orchards and facilities attached to entrusted farmland, all of which are actually used for farming. The lease period is five years, and the rent paid each year is determined between the farmland bank and the lessee. The bank then pays the rent to the lessor after deducting 8-12% from the rent as a commission. In a way, the entrusted farmland lease project is more disadvantageous than the regular farmland lease project because lenders have to pay a commission. Yet, the project is brought to life as it is used as a means of leasing the farmland by the lenders who cannot cultivate the farmland by themselves. The entrusted farmland lease project began in October 2005 and leased 12,921 ha of farmland by the end of 2008. The number of farmers who participated in the project increased every year from 6,613 in 2006 to 7,997 in 2007 and 9,738 in 2008. And the average size of leased farmland was 0.5ha.
Buying and stockpiling farmland is a key function of the farmland banking project. Farmlands are bought and stockpiled when farmland price is expected to fall due to a rise in the amount of farmland on sale resulting from a sharp drop in the number of farmers, and especially when farmers are expected to suffer a big loss due to a big price fall of prime farmland in agriculture-promoted areas where the demand for farmland for non-agricultural use is low. The farmland banking project aims to stabilize the farmland market, accelerate the improvement of agricultural structure, and preserve farmland, as well as cope flexibly with the demand for farmland for non-agricultural use and foster large-scale agricultural businesses. The farmlands bought under the project are farmlands in agriculture-promoted areas and were previously owned by farmers retiring or leaving the business. The farmlands are leased on a long-term basis under the principle that farmland ownership is maintained and selling it is exercised on a limited basis to stabilize the farmland market. Those persons and entities who are eligible to lease farmland are individuals or companies that intend to work at farming, and the principle that lease period is over 5 years should be maintained. This project has been in progress since 2010.

1.6. Prospects and Tasks

As the domestic market further opened to agricultural imports, the business conditions for agriculture worsened. As a result, the amount of idle farmland has been increasing and this trend is expected to continue in the future too. The total farmland size is also expected to continue decreasing along with the rise in the amount of farmland being converted to other uses. The amount of farmland either owned by non-farmers or leased is also expected to rise due to deregulation of ownership and use of
farmland. The situation is that it is necessary to continue making efforts to increase the farm scale per farm as part of the effort to improve competitiveness. And it is expected that leasing farmland will be a more preferred method of increasing the cultivated land per farm over purchasing farmland.

In addition to such circumstantial changes, various pending issues related to the current farmland policy are expected to remain as major tasks that need to be performed in the future, too. What comes to mind as a primary task concerning the current farmland problem is how to legitimize the disparity between the reality of increasing ownership and use of farmland by non-farmers and the ideal of the land-to-tiller principle stated in the Constitution and the Farmland Act. The perception is spreading that the present farmland system, which allows only farmers to own farmland, should be rectified to better suit the reality and that it is no longer viable to adhere to the land-to-tiller principle when farmland price is relatively high. There is even an argument that abandoning the land-to-tiller principle and fully authorizing farmland lease is more advantageous to improving the agricultural structure. In this respect, the question as to how to actively utilize farmland banking becomes a major pending issue as it requires a realistic approach to enable relatively competitive professional farmers to secure more farmland in a more stable manner.

The second question as to how to improve the farmland system under the current condition when grain self-sufficiency rate is below 30% and when idle farmland is growing is the question of how to secure an appropriate amount of farmland needed to build a base for stable food self-sufficiency. On the one hand, there is a need to ease farmland regulations for the efficient use of idle farmland while, on the other hand, there is a
need to preserve and manage farmland to build a base for stable food security in preparation for uncertain times. Under such circumstances, voices are raised on the need to reach a social consensus on preserving an optimum amount of farmland and the need to seek ways of managing idle farmland and securing farmland that can be utilized in times of food crisis.

Third, the reality is that about 60% of farmers are aged 60 years or more and that most farms have not yet secured new farmers who can succeed their farming business. In view of the situation, it is necessary to actively seek policies that can improve conditions for retiring and selling farmland and that can help future farmers secure farmland. Allowing non-farmers to buy farmland will enable real estate speculators to obtain farmland and thus encourage speculation and make it difficult for farmers to secure farmland with ease. Possession of farmland for speculative purpose can prevent farmers from acquiring land on lease and make it difficult for them to efficiently and stably use farmland. Measures should be found to improve the liquidity of farmland and supply farmland to future farmers while avoiding these problems.

Fourth, change of thinking is needed concerning the policy on farmland price. Under the current circumstances where most farmers want to see farmland price rise and demand that non-farmers be allowed to buy farmland freely, the government policy of preserving farmland and stabilizing farmland price will face many difficulties. Even though farmland price in suburban areas can skyrocket with the deregulation of farmland, farmland price in rural areas will fall because of deteriorating net profit of farming, and this will cause problems in maintaining the asset value of farms and lower the ability to pay back debts. Accordingly, the problem of maintaining farmland price at an appropriate level is expected
to emerge as a new policy agenda.

Fifth, under the current environment where the multi-functionality of agriculture and rural villages is stressed, planned management of rural space and prevention of thoughtless development have become major challenges. Important rural amenity resources are disappearing due to emergence of buildings that do not blend with the landscape, livestock barns that are not in harmony with the ploughing and sowing of agriculture, and various facilities installed randomly in different locations. As this problem is related with farmland conversion and planned management of space, it is necessary to seek a comprehensive way to manage rural space under a plan. For instance, various action plans, such as the adoption of the 'plan before development' principle, are required to prevent thoughtless development of farmland.
Section 2. Agricultural Structure

2.1. Agricultural human resources and management units

Since the creation of the owner-farmer system through sweeping farmland reform, the foundation of Korea’s agricultural policy has been the development of sound family farms, and recently the nation has been focusing its efforts on fostering competitive full-time farmers through agricultural structure-related policy.

Farm management by families has decreased during the process of economic development and industrialization. The aging of the rural population has increased leased farms and farmland trusts while the lack of successors to full-time farmers presents a barrier to the transition of farming to the next generation of farm operators. The collapse of the middle-class farming families that started in the mid-1990s explicitly presents a bi-polarization in which the number of smallholder farmers rapidly increased while resources such as farmlands and livestock increasingly became concentrated among large farm operators.

Many experts point out that change in agricultural structure since the 1990s is a significant one that can condense Korea’s agricultural policy of the past half a century, and they point out that as agricultural production sensitively responds to market competition between farm households, the competition between production areas is becoming more intense. Thus, experts predict that the next 10 years will be a watershed moment for agriculture of Korea as market liberalization is expected to further progress due to DDA and FTAs.

Agricultural restructuring characterized by expansion of farm size and specialization will continue in line with market opening for agricultural
products as well as DDA and FTA, and the management character of farm household and labor structure is expected to go through a significant change at the same time. Therefore, analyzing the current status of farm households and predicting how it will be changed in the future is important in fostering agricultural human resources and management units, and in setting the direction of agricultural restructuring policy.

2.1.1. Concept of farmers and farm households

Farmland in Korean agriculture where arable farming, such as rice farming, forms the industry’s backbone is an important production element. Accordingly, the concept of farmer since the land reform has been defined based on the qualifications of one to own farmland. The concept of “self-tilling farmers” has been emphasized to such an extent that even the Constitution stipulates the “land-to-tiller” principle.

In 1990, the word “Nongeopin (farm operator)” was selected to replace the traditional term “Nongmin” in the Special Rural Development Law. The reason was that the traditional word had a feudal connotation designating a farmer as a social status rather than a profession. The current nomenclature designates a farmer as either an operator of an agricultural business, or an investor, or an employee of an agricultural firm.

The Agriculture and Rural Communities Basic Act of 1998 specifies the criteria for Nongeopin as, first, individuals who manage or cultivate more than 1,000 square meters of farmland, second, farm managers whose annual sales of agricultural products exceed one million won, and third, those who engage in agricultural activities for more than 90 days per year. Only one of these three criteria needs to be met for an individual to be classified as a farmer under the Korean law.
Meanwhile, there is the concept of “agricultural corporation” as the counterpart concept of Nongeopin. The farm corporation system was devised in 1990, and today it refers to farm associate corporations and farm business companies under the Agriculture and Rural Communities Basic Act.

Thus, the current agricultural business units can be divided into individual farm operators (family farms) and agricultural corporations. The farming organizations created by farmers are classified as voluntary organizations, and only a small number of incorporated bodies exist as agricultural business units for the management of reclaimed farmland and corporate livestock farms.

The key to a successful reform of the agricultural structure lies in the development of farm management units, and it can be summed up as fostering individual management units while nurturing organized management entities.

While individual farm households continue to pursue self-sustainable farming by enhancing their business scale and managerial expertise,
attempts are made to organize multiple management groups at the regional level to overcome the limitation of a self-sufficient growth model. In particular, efforts are underway to organize farming at the regional level as a way to reduce production and distribution cost, and to secure product and marketing competitiveness.

Initially, agricultural corporation was introduced as a systematic device to foster cooperative farming, but it is increasingly being adopted as a means to modernize farm management rather than as a means of cooperative farming. Incorporation of agricultural corporation is being explored as a new means to support the entry of new farmers into the industry, and to separate farmers’ asset from business capital.

2.1.2. Characteristics of agricultural human resources and family farms

Korea has undergone a remarkable period of modernization and industrialization during the past 60 years or so. The nation has joined the ranks of the world’s top 10 economies by progressing from a primary industry to a secondary and tertiary industry. While no reliable statistics remain from the early years of the republic, the percentage of the population engaged in agriculture and other primary industries at the time of independence would have amounted to at least 80 to 90% of the total working population. As of 2005, about 1.75 million people, or only 7.6% of total workforce, were engaged in agriculture, forestry, and fisheries.

The reduction in the relative importance of agriculture resulting from industrialization was a common experience of developed countries. Even so, Korea underwent industrialization at a pace two to five times faster than those of other developed nations. Such rapid industrialization has greatly
reduced the scale of Korea’s agricultural industry and weakened its labor structure. An examination of gross domestic product (GDP) trends reveals that the industry has contracted from 25.5% of total GDP in 1970 to 13.8% in 1980, 7.8% in 1990, and 2.9% in 2005, an annual reduction of 6.0% from 1970 to 2005. The percentage of the workforce engaged in farming fell from 49.5% in 1970 to 32.4% in 1980, 17.1% in 1990, and 7.6% in 2005, an average annual drop of 5.2% during the same period. As agriculture’s share of total GDP fell faster than the percentage of agricultural workers in the labor force, a surplus of farm workers appeared.

Although the figures appear to indicate a surplus of labor resources in the agricultural industry, a closer look at the composition of farm workers shows that age distribution in the agricultural sector is too weak to say that there is a surplus of farm workers. Generally, workers over the age of 40 experience difficulty in adapting to different jobs. As industrialization intensified, workers who could not find a job in other industries began to enter the agricultural sector, leading to aging of agricultural workforce and thus lowering the competitiveness in workforce structure.

Age distribution of farm households shows that people in their teens were the poorest followed by people in their 50s in 1990, and in 1995, people in their 50s were the poorest followed by people in their 60s, and after 2000 people in their 60s largely constitute the poorest population followed by the people in their 50s. This trend suggests that people in their 50s who used to be the poorest among other age brackets since 1990 continue to constitute the poorest age group as time goes by, making themselves aged farmers of today.

During the industrialization, the agricultural industry came to have a workforce structure that relies on elderly population, resulting in weaker
competitiveness compared to other industries. And those elderly farmers who engage in farming as a means of livelihood makes agricultural restructuring difficult.

The aging of the farm workforce not only decreases the agricultural productivity, but fundamentally weakens the family structure of a farm household, a major entity in agricultural management, thereby ultimately undermining the sustainability of agricultural management.

According to a survey of farm households in 2015, farm population in year 2010 is increasingly moving toward a “reverse-triangle” type in which the number of people in their 70s forms the largest group, followed by people in their 50s through 70s. In particular, people aged between 25 and 30, an age group that is considered to be suitable for marriage, is expected
to demonstrate a serious imbalance in sex ratio, in which there are four times as many men than women.

With farm households aging, family composition of farm household is weakening. The average number of farm household members was 6 in the

<table>
<thead>
<tr>
<th>Age. Sex</th>
<th>Year</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td>4,031 (100.0)</td>
<td>3,434 (100.0)</td>
<td>2,941 (100.0)</td>
<td>2,284 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1,971</td>
<td>1,677</td>
<td>1,431</td>
<td>1,105</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2,060</td>
<td>1,757</td>
<td>1,510</td>
<td>1,179</td>
</tr>
<tr>
<td>Youth (0~14)</td>
<td>Sum</td>
<td>459 (11.4)</td>
<td>335 (9.8)</td>
<td>236 (8.0)</td>
<td>143 (6.3)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>242</td>
<td>178</td>
<td>124</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>217</td>
<td>157</td>
<td>112</td>
<td>69</td>
</tr>
<tr>
<td>Young Adults (15~64)</td>
<td>Sum</td>
<td>2,696 (66.9)</td>
<td>2,099 (61.1)</td>
<td>1,704 (57.9)</td>
<td>1,272 (55.7)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1,338</td>
<td>1,041</td>
<td>855</td>
<td>637</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1,359</td>
<td>1,058</td>
<td>849</td>
<td>636</td>
</tr>
<tr>
<td>Elderly (over 65)</td>
<td>Sum</td>
<td>876 (21.7)</td>
<td>999 (29.1)</td>
<td>1,000 (34.0)</td>
<td>869 (38.0)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>392</td>
<td>457</td>
<td>454</td>
<td>393</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>484</td>
<td>542</td>
<td>547</td>
<td>476</td>
</tr>
</tbody>
</table>

**Table 2-8 Future Estimation of Farm Population** unit: 1,000
Agriculture in Korea 74

<table>
<thead>
<tr>
<th>Number of household members</th>
<th>1990</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,767,033</td>
<td>1,500,745</td>
<td>1,383,468</td>
<td>1,272,908</td>
</tr>
<tr>
<td>One</td>
<td>118,735</td>
<td>150,140</td>
<td>181,255</td>
<td>188,091</td>
</tr>
<tr>
<td>2~3 members</td>
<td>718,010</td>
<td>768,027</td>
<td>778,120</td>
<td>771,182</td>
</tr>
<tr>
<td>4~6 members</td>
<td>807,220</td>
<td>528,376</td>
<td>394,287</td>
<td>294,961</td>
</tr>
<tr>
<td>7~9 members</td>
<td>119,999</td>
<td>53,105</td>
<td>29,133</td>
<td>18,251</td>
</tr>
<tr>
<td>more than 10</td>
<td>3,069</td>
<td>1,097</td>
<td>673</td>
<td>423</td>
</tr>
</tbody>
</table>

1960s, but it decreased to 3.77 in 1990, 3.23 in 1995, 2.91 in 2000 and to 2.7 in 2005. Farm household distribution shows that farm households with less than 2 family members are rapidly increasing.

The number of farm households of more than two generations, which has traditionally remained as a stable form of farm household, is rapidly decreasing, while the number of households of one generation (households occupied by a couple) and households occupied by a single person are becoming a mainstream as nuclear households are increasing. A decreasing number of people engaged in farming along with aging is directly linked to diminishing size of agricultural management and lack of successors to maintain agricultural operation.

Korea’s traditional farm household has been two generational household consisting of married couple who maintain farming and their children, or household of three generations composed of married couple, their children.
and their grandparents, but today’s picture is different as nuclear family structure is advancing more rapidly in rural areas than in urban areas.

According to 2005 Agricultural Census Statistics, the most common form of family structure of farm household is the couple of one generation or single person at 54.2%, followed by two generational ‘couple(farm owner)+children’ at 26.0%, with ‘couple+children+parents’ standing only at 5.9%.

Farm households are also facing difficulties in luring young people into succeeding farming. According to the survey, the percentage of farm households with a successor fell from 16.4% in 1990 to 13.1% in 1995, 11.0% in 2000 and to a low of 3.6% in 2005. Among 310,000 family farms with owners above the age of 70, only 12,000 households (3.8%) had a successor for the family farm, which will inevitably lead to the natural retirement of numerous family farms during the next decade.

Survey data on the aging trend of farm owners reveal that farm owners below the age of 50 comprised 27.9% of the total in 1995, and fell to 17.0%
in 2005. On the other hand, the percentage of farm operators aged 70 or more increased from 12.7% in 1995 to 24.3% in 2005. If these trends continue, the total number of farm households will decrease to 880,000 in 2015, with the percentage of farm owners aged 70 or more increasing approximately 27%.

2.1.3. Differentiation in class of farm household and expansion in farm scale

Previous discussions regarding the restructuring of Korea’s agricultural system generally dealt with the expansion of farming scale per farm household as the total number of family farms continues to fall, revealing the lack of sufficient farmland as one of the farming industry’s major characteristics. Statistics show that the number of farming households began falling in 1970 and continued to fall until 2005 at an average annual rate of 1.9%, with the cultivated area beginning to fall in 1968 at an average annual rate of 0.6%. Thus, while the number of farm households fell rapidly, farm area per household fell at a relatively slower pace, resulting in a steady increase in the area of each family farm’s plots.
Previous study shows that differentiation of farm households took place in four steps - bipolar concentration up to the 1960s, central concentration up to the 1980s, concentration in the higher brackets until the mid-1990s, and bipolar differentiation since the mid-1990s. The differentiation point since the mid-1990s has continued to increase, even leading to a drop in the percentage of farms with 2 to 3 ha in cultivated land. The divide between small and large farms has also deepened, with mid-range farms dropping in number and farms with plots of less than 0.5 ha or more than 3 ha increasing rapidly.

Due to advancement of commercial farming, farm-scale improvement and specialization, as of 2005, the number of farm households with more than 50 million KRW in sales of agricultural products stands at 58,000, and farm owners in their 40s and 50s are considered to be leading the agricultural production as a core management entity.

With the expansion of farm scale, resources including farmland and livestock tend to be concentrated on large farms, and in particular,
production of capital-intensive agriculture such as facility horticulture and livestock farming is increasingly taken up by professional farm managers.

As a way to forecast the trend beyond 1990s, a study was conducted on distribution of farm households by farm size by predicting the classification of farm households 10 years from now. According to the study, farm households with more than 3 ha of paddy field was 4.9%,
representing 26.4% out of total fields in 2005, but the percentage of farm households with more than 3ha of paddy field is expected to be 9%, making up 36.8% of total paddy fields as of 2015. In addition, the percentage of farm households with more than 2 ha of cultivated fields was 3.9%, representing 29.9% as of 2005, but is expected to increase to 5.7%, making up 41.9% in 2015.

In the meantime, resources including farmland is increasingly concentrated on large-scale farming, farm households increasingly tend to be small-scale farmer, clearly indicating bi-polarization among farm households. According to 2005 Agricultural Industry Survey showing the characteristics of smallholder farmers. 470,000 farm households cultivated less than 0.5 ha of land, among them 48.1% was operated by farm owners aged over 65. And the number of farm households with 0.5 to 1 ha of farmland was 330,000 with 48.5% of those being operated by farm owners over the age of 65. Therefore, the issue of how to treat these elderly small-scale farmers, is emerging as an important issue in agricultural policy.

<table>
<thead>
<tr>
<th>Classification</th>
<th>less than 0.5ha</th>
<th>0.5-3ha</th>
<th>more than 3ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>percentage in household</td>
<td>percentage in farmland</td>
<td>percentage in household</td>
</tr>
<tr>
<td>2000</td>
<td>42.25</td>
<td>13.75</td>
<td>53.97</td>
</tr>
<tr>
<td>2005</td>
<td>43.08</td>
<td>11.73</td>
<td>51.99</td>
</tr>
<tr>
<td>2010</td>
<td>43.26</td>
<td>10.52</td>
<td>50.08</td>
</tr>
<tr>
<td>2015</td>
<td>42.78</td>
<td>9.06</td>
<td>48.25</td>
</tr>
</tbody>
</table>
2.1.4. Division of agricultural management of farm households

Division of agricultural management of farm households is classified into two types: division of labor and division of farming type. Division of labor takes place in 3 stages of household member engaged in farming as a

<table>
<thead>
<tr>
<th>Classification</th>
<th>less than 0.3ha</th>
<th>0.3-2ha</th>
<th>more than 2ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>percentage in household</td>
<td>percentage in farmland</td>
<td>percentage in household</td>
</tr>
<tr>
<td>2000</td>
<td>53.68</td>
<td>14.90</td>
<td>43.16</td>
</tr>
<tr>
<td>2005</td>
<td>54.86</td>
<td>13.27</td>
<td>41.26</td>
</tr>
<tr>
<td>2010</td>
<td>55.85</td>
<td>11.32</td>
<td>39.44</td>
</tr>
<tr>
<td>2015</td>
<td>56.63</td>
<td>9.09</td>
<td>37.70</td>
</tr>
</tbody>
</table>

Source: Agricultural Industry Survey.
‘farm owner engaged in farming as a side job’→‘leaving farming’, where farm households are divided into full-time farm households and part-time farm households. Division of farming type can be summed up as two types depending on whether farm households rely on paddy farming specialize in rice cropping or start to combine their paddy farming with planting of other crops.

The combined agriculture type can be divided into three types. Sectoral combination that pursues complementary use of land refers to planting of multiple crops such as double cropping of different crops at the same time and succeeding cropping of different crops at different times.

Technical complementary relation among products refers to utilizing intermediate products made in a certain sector as production factors in other sector (for example, succeeding cropping of bean crops and pot plant crops), and complementary utilization relation among fixed capital refers to complementary utilization of fixed capital assets such as full-time workforce and agricultural machinery that are fixed assets for management (for example, year-round utilization of labor and tractor).

Distribution of full-time and part-time farm households shows that the percentage of full-time farm households showed a decreasing trend until 1995 from 1960, but it started to increase again since 1996 possibly due to the impact from the financial crisis in 1997 and government’s policy to reduce unemployment. The percentage of part-time farm households that plant only one crop has been continuously decreasing from 22% in 1990 to 13% in 2000, and those part-time farm households are comprised of part-time farm household members rather than part-time farm owner.
Changing trends of farming show that farming in Korea focused on producing food crops to such an extent that the nation achieved self-sufficiency in the staple crop in the late 1970s, but in the 1980s the nation’s farming began to shift to a commercial farming system.

<table>
<thead>
<tr>
<th>Year</th>
<th>Classification</th>
<th>1990</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>1,767,033</td>
<td>1,500,745</td>
<td>1,383,468</td>
<td>1,272,908</td>
</tr>
<tr>
<td></td>
<td>Full-time farm household</td>
<td>1,052,315</td>
<td>849,053</td>
<td>902,149</td>
<td>796,220</td>
</tr>
<tr>
<td></td>
<td>Part-time farm household</td>
<td>714,718</td>
<td>651,692</td>
<td>481,319</td>
<td>476,688</td>
</tr>
<tr>
<td></td>
<td>1 crop part-time farm household</td>
<td>389,097</td>
<td>277,214</td>
<td>224,642</td>
<td>164,976</td>
</tr>
<tr>
<td></td>
<td>Part-time farm owner</td>
<td>95,632</td>
<td>69,165</td>
<td>42,227</td>
<td>37,061</td>
</tr>
<tr>
<td></td>
<td>Part-time household member</td>
<td>199,085</td>
<td>140,644</td>
<td>132,471</td>
<td>78,788</td>
</tr>
<tr>
<td></td>
<td>Part-time whole household members</td>
<td>94,380</td>
<td>67,405</td>
<td>49,944</td>
<td>49,127</td>
</tr>
<tr>
<td></td>
<td>2 crop part-time farm household</td>
<td>325,621</td>
<td>374,478</td>
<td>256,677</td>
<td>311,712</td>
</tr>
<tr>
<td></td>
<td>Part-time farm owner</td>
<td>75,057</td>
<td>86,661</td>
<td>61,935</td>
<td>86,111</td>
</tr>
<tr>
<td></td>
<td>Part-time household member</td>
<td>126,200</td>
<td>139,308</td>
<td>91,413</td>
<td>106,150</td>
</tr>
<tr>
<td></td>
<td>Part-time whole household members</td>
<td>124,364</td>
<td>148,509</td>
<td>103,329</td>
<td>119,451</td>
</tr>
</tbody>
</table>

Source: analysis from Agricultural Industry Survey.
introducing various income crops in the 1980s. With market liberalization in the 1990s, the nation rapidly made a shift toward planting different types of crops in response to importation of agricultural products from abroad. Production of livestock, specialty crops and flowers that used to lead the agricultural development in the early 1990s started to decrease since then, while sowing agriculture, including rice, fruits and vegetables that can guarantee stable stream of income began to increase.

### 2.1.5. Systermatization of farm households

Individual farm households face limitation in achieving self-sufficient farms, leading to creation of various production organizations aimed at

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Farm Household</th>
<th>Paddy Rice</th>
<th>Fruit</th>
<th>Vegetable</th>
<th>Specialty</th>
<th>Flower</th>
<th>Field Crops</th>
<th>Livestock</th>
<th>Etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1,767 (100.0)</td>
<td>1,232 (69.7)</td>
<td>107 (6.1)</td>
<td>172 (9.8)</td>
<td>39 (2.2)</td>
<td>6 (0.4)</td>
<td>114 (6.5)</td>
<td>89 (5.0)</td>
<td>8 (0.4)</td>
</tr>
<tr>
<td>1995</td>
<td>1,501 (100.0)</td>
<td>823 (54.9)</td>
<td>144 (9.6)</td>
<td>247 (16.4)</td>
<td>46 (3.0)</td>
<td>10 (0.7)</td>
<td>70 (4.7)</td>
<td>156 (10.4)</td>
<td>5 (0.4)</td>
</tr>
<tr>
<td>2000</td>
<td>1,383 (100.0)</td>
<td>787 (56.9)</td>
<td>143 (10.4)</td>
<td>238 (17.2)</td>
<td>38 (2.7)</td>
<td>8 (0.6)</td>
<td>92 (6.6)</td>
<td>72 (5.2)</td>
<td>5 (0.3)</td>
</tr>
<tr>
<td>2005</td>
<td>1,273 (100.0)</td>
<td>648 (50.9)</td>
<td>146 (11.4)</td>
<td>230 (18.1)</td>
<td>27 (2.2)</td>
<td>10 (0.8)</td>
<td>125 (9.9)</td>
<td>83 (6.5)</td>
<td>4 (0.3)</td>
</tr>
<tr>
<td>2015 (estimates)</td>
<td>883 (100.0)</td>
<td>432 (48.9)</td>
<td>119 (13.5)</td>
<td>180 (20.4)</td>
<td>19 (2.2)</td>
<td>7 (0.8)</td>
<td>66 (7.5)</td>
<td>57 (6.4)</td>
<td>3 (0.3)</td>
</tr>
</tbody>
</table>

Table 2-17 Current Trends of Farm Household by Type of Farming

Footnote: Classified by type of main farming of farm households. The figures for 2015 are estimates based upon cohort.
facilitating collaboration among farm households in farming and farm management. Agricultural production organizations refer to those entities comprised of more than two farm households that work together for part or entire production process of farming, or those entities that collectively take charge of agricultural management or agricultural work.

Production organizations take the form of jointly utilizing primary labor, and eventually develop into a production complex, jointly utilizing agricultural machinery and facility, collective cultivating or managing, and finally establishing a management entity that pursues joint interests of organization members.

The trend of farm households being incorporated into larger production organizations and corporate farm management system is gaining more momentum. And there are some elements that explain such trends. First, there is a change in agricultural productivity. Family farms possessed certain advantages under a labor-intensive production method, but mechanization and automation allowed corporate firms to enter into the agricultural sector without much difficulty. Livestock management

![Diagram](image)

**Figure 2-7** Development Stage of Agricultural Productions Organizations

- **Joint work**: Joint utilization of labor, including joint raising of seeding, joint work and ploughing
- **Joint cultivation**: Creation of production complex for standardizing variety
- **Joint utilization of machinery and facility**: Creating organizations for mechanization and standardized work
- **Production organization**: Systematization of organizations for collective cultivation, joint utilization and collective work consignment group
- **Establishment of management**: Establishment of homogenous corporations that pursue collective interests
including pork and chicken farming is increasingly taken up by corporate farms, and in sowing agriculture, a factory-type whole-year production system for fresh vegetables is highly likely to develop into a corporate management type of production.

Second, there is the demand for managerial skill. With the development of commercial agriculture, a skill that enables farmers to understand and respond to trends ranging from production to sales and consumption is a necessity, and in particular, marketing strategy and skills are critical to corporate management. That explains why most farm households focus on production of agricultural products, leaving sales of those agricultural products in the hands of professional distributors including local distribution centers.

Third, there is the issue of permanence as a corporate entity. As the collaborative function of family farm weakens, the possibility of a collaboration system among farm households or a joint farm management system being introduced is increasing. From the perspective of local farming, family farms have a disadvantage in that they can face a break-up of their farm management due to lack of successors to maintain farming, but agricultural corporations have an advantage in that they can secure a stable supply of labor into the sector. The 2005 Agricultural Industry Survey shows that the number of farm households that participate in production organizations is 246,000. (cooperative work group 202,342, agricultural corporation 49,200)

2.1.6. Development model for agricultural management units by type of crops

As agricultural management becomes bigger in scale and more
specialized in characteristics, the agricultural industry is expected to develop based on a cooperative network involving individual family farms, agricultural corporations and agricultural organizations with each playing their different roles. While there are some differences in the types of products between different entities today, a production system centering around large farmers or full-time farmers is rapidly increasing, and regional distribution networks that complement individual farm households are actively operated.

To enhance the competitiveness of the agricultural sector, creating specialized business organizations for various products and industry types is important. Organizations dedicated to processing and distribution can enable individual farm households to focus on production and increase the added value of agricultural products, thus achieving economies of scale and scope. Efforts are underway to link these organizations into “agricultural industry clusters” where related industries, universities, research institutes and local governments form a network to achieve economies of aggregation and synergy among related industries.

Thus, it is necessary to formulate mid-and long-term strategies for
each product type and clearly outline the roles of the management entities forming the industry, and assemble the capabilities of farm owners and others engaged in farming.

Future outlook of rice, horticulture and livestock industry, and the development model for agricultural management entity are described as follows.

Systematized large-scale enterprises will contribute to the overall of production of the rice industry, creating unique regional brands in tandem with local rice processing complexes (RPC). Rice processing complexes have already become centers of rice production and distribution, and will continue to occupy an important position in crop selection, distribution and sales to stabilize the supply and demand system in each region.

With electronic commerce emerging as a new method for rice distribution, differentiation of price by crop type and growing method will take place and it will create a variety of distribution channels that will impose reasonable price for crops depending on their quality.

Specialized business entities that have become larger in the midst of the market distribution trend will produce most of the rice produced in a nation, while full-time farmers will achieve scaling-up of farming within the extent of family labor through securing of leased land, land collectivization and
introduction of labor-saving technology. And medium-sized farm households will be able to produce high-priced rice through eco-friendly farming, thus jointly pursuing brand crops through a cooperative work group.

The horticultural industry will develop into a capital- and technology-intensive agricultural industry, strengthening marketing competitiveness through regional agricultural product processing centers and creating various distribution channels that impose reasonable price depending on the quality. Horticultural products, such as facility vegetables, floral products, and fruits, can secure export competitiveness through quality and product safety, and fresh vegetables will always be able to retain a certain level of self-sufficiency on the back of consumer preference for fresh food products. Farm owners will be able to use labor-saving technology, automation and precision techniques to expand the scale of their agricultural business and make it more professional. Small and medium-sized farms will adopt environmentally-friendly farming techniques and take advantage of rural cooperative work groups to pursue joint revenue through joint production and distribution.

In the distribution sector, regional distribution centers will become the
mainstream. APC-level organizations will be reorganized into larger organizations and scaled up in response to the development of logistics centers and large wholesale markets, and a system of joint selection and distribution based on a joint payment system will be established with cooperative organizations taking the lead.

The livestock industry will reorganize its production structure based on high quality and safety, and a refrigerated distribution network will be established through production of high-quality meat and livestock processing complexes (LPC). And a subsidiary network will be established to include breeding farms centering around LPC. Dairy farms will establish a stable milk supply system through production of high-quality milk, and realize a stable full-time farm management system through improvement in milk-producing capability and scaling-up. Pig farming will develop into an environmentally-friendly livestock industry and brand products will be created by producer organizations and subsidiaries. Poultry farming will adopt a vertical subsidiary company structure through which advanced packaging and distribution systems for meat will be established, and a local distribution and logistics system for layer chicken will be established centering around GPC.
2.1.7. Outlook and tasks for agricultural workforce and management unit

The characteristics of a farm household as an agricultural business entity were weakened during economic development and industrialization, and the number of people who newly entered into agricultural sector as future leaders of farming remained low with existing farmers facing difficulty finding successors to maintain farming, making sustaining of farming uncertain. In addition, as middle-class farmers started to break up in the mid-1990s, a majority of farm households were degraded to small and poor farmers, and there are aged farmers who depend on farming as a means of survival, leading to a rapid drop in the vitality of rural areas. If we define full-time farmers who can be the center of agricultural sector in the future as those farmers who fall into the category of ‘farm household led by couple + temporary employee’, about 300,000 farm households are expected to continue to remain up to 10 years from now.

Therefore, it is necessary to establish a ‘tailored agricultural policy’ that enables us to differentiate policy tools by types of farm households and thereby foster a sound family farms. Tailored-agricultural policy will allow distinguish the criteria on who will be the beneficiary of policy. Tailored agricultural policy should be established not in a top down method, but in a bottom-to-top method in which farmers choose appropriate programs based upon various policy programs presented by the government to achieve phased development.

Efforts need to be made to secure a new workforce for fostering future agricultural business entities, and at the same time a policy should be established to nurture various agricultural business entities in addition to farm households.
Revision of regulations is needed not only to help succeeding farm owners and new agricultural workforce to settle in as solid farm operators by easing the entry barrier, but also to help industrial capital and technology to flow into the agricultural sector smoothly. To ensure that 200,000 full-time farmers continue to engage in farming as a core agricultural workforce, it is expected that nearly 6,000 farm business entities should
enter into the agricultural sector under the assumption that life cycle of farm households is 30 years.

It would be desirable to expand the current agricultural corporation system as a new business entity that complements family farms and encourage the establishment of ‘one farm household, one corporation’ principle. Incorporation of farm households can strengthen the managerial status of successors and women farmers, and lay the foundation for new agricultural workforce to settle in as new start-up farmers. As an institutional device for nurturing farm households and agricultural corporations, a law to foster and support agricultural management entity needs to be enacted.

In addition, a retirement system for farm owners needs to be established, and more efforts are needed to support the social welfare system for aged farmers as part of agricultural policy. The most difficult issue to deal with in restructuring the agricultural sector is how to guarantee flexible retirement of aged farmers, and since most of the aged farmers these days are almost impossible to transfer to other jobs, a retirement program through social welfare policy rather than through artificial restructuring of agricultural sector should be strengthened.
natural retirement of aged farmers is impossible due to the lack of a basic social security system and pension system for farmers, the government should explore social security systems including direct payment for retirement to ensure smooth transfer of farm management by farm owner.

An effort needs to be made to organize local farming organizations that can complement farm management of individual farm households, and also to foster various local agricultural entities that utilize local resources and circumstances. As farm households increasingly move to mid-mountain areas, leading to deterioration of farmlands and decreasing vitality of rural areas, farm trust contracts in the form of a public service are needed at an appropriate level.

Systematization of local farmers is important in terms of expansion of traditional scope of farming. At a time when revenue can hardly increase through production of raw agricultural products only due to market liberalization, it is important to create added-value in agricultural products through systemic storage, processing and distribution. Industrialization of agricultural sector is difficult to achieve through family farms that lack capital and techniques. Therefore, an effort needs to be made to utilize these product types and local organizations to pursue economies of scale and scope. In that context, local universities and research institutes need to be restructured to contribute to regional agriculture.
Section 3. Farm Household Economy

This section will examine the current status and situation of the farm household economy by looking at its changing trend in terms of income, management expense, consumption/expenditure and debt. The farm economic situation in Korea will be also explained by discussing major issues around the farm household economy since 2000.

Average cultivation acreage per household was as small as 1.45 ha in 2009. Average family size of a farm household was 2.6 and the number of those actively participating in agriculture was 2.2, indicating that Korea has family farm based agricultural structure. Farm households earn about 30.18 million won on average while agricultural income accounts for 31.5% of total income or 9.7 million won. Rice is the most representative agricultural commodity in Korea, taking up 24.5% of total agricultural income of the country’s farm households.

The farm household economy has transformed along with changes in agricultural and rural conditions in Korea. Boosting farm household income was the first and foremost policy goal in the 1970s, and part-time farmers started to appear around that time due to the highlighted importance of non-agricultural income. During the 1980s, Korean agriculture entered an era of commercial agriculture, and policies to improve farm management were actively implemented based on performance analysis of each product item or each farm business. In the 1990s, farm management was diversified to produce new types of agricultural organizations and corporations.

The relatively low level of farm household income deteriorated into a major debt issue in the late 1980s, inevitably leading to debt relief
measures for farm households in 1989, which later received spotlight as a counter-measure against the Uruguay Round (UR). Against this backdrop, with the heightened interest in income compensation measures for farm households since the UR, there were heated discussions on how to stabilize and enhance farm household income in the era of open market.

Mounting market opening pressure from the Doha Development Agenda (DDA) and a series of free trade agreements (FTAs) have created new risks in the farm market this decade, and thus led to the introduction of direct income payment programs aimed at stabilizing farm household income. As the income gap among farm households as well as between farm and non-farm sectors has widened, the issues of low farm income and farm income distribution began to be discussed.

3.1. Drop in Major Farm Economy Index:
   Farm Household Income, Debt and Expenditure

Nominal farm household income had continuously risen since 1998 and finally restored the pre-financial crisis level in 2001. It reached a peak, 32.3 million won, in 2006 before going down to 30.81 million won in 2009. Meanwhile, farm household debts showed a bigger growth than the income prior to its recent downward trend. The same development applies to farm household expenditure, which also rose faster than income before staying at steady levels more recently.

Nominal farm household income posted an annual growth rate of 2.3% on average between 2003 and 2009. Farm debts remained about the same with -0.2% growth rate while farm household expenditure rose by 1.7%. With income growing faster than debt and spending for farm
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households, the overall farm household economic index slightly improved. However, given the recent drop in farm household income itself, improvements in the farm household economy is analyzed to be not the result of agricultural productivity growth but rather the result of public assistance and transferred income growth.

3.2. Reduction in Agricultural & Non-Agricultural Income vs. Rise in Transferred Income

Farm household income fell from 32.30 million won in 2006 to 30.81 million won in 2009. This is attributed mainly to reduced profitability in the agricultural sector, especially a drop in agricultural income due to deteriorated terms of trade for farm household.

The change in percentage share per income source demonstrates that the share of agricultural income in the total farm household income plummeted to 32% in 2009 from over 50% in the early 1990s. On the other
hand, non-agricultural income had gradually risen since 1990 before its slight fall during the financial crisis in 1997. It showed signs of recovery in 1999, but has not changed much since then. Therefore, it is fair to say the recent drop in agricultural income was complemented more by transferred income than non-agricultural income.

The proportion of transferred income was a mere 9% in 2003, but continued to grow to approximately 20% of total farm household income in 2009. It is thanks to expanded public subsidies as a direct payment program was introduced in 2005 to stabilize rice farmers’ income. Public subsidies accounted for 5.2% of total farm household income in 2003, but has steadily gone up because of the implementation of the direct payment program. Smaller farms tended to receive more from non-agricultural, social security type of public subsidies like the pension for rural population, livelihood subsidies, etc., while larger farms are likely to benefit more from farm-related public subsidies.

![Figure 2-14](image)

Source: Annual Survey of Farm Household Economy, National Statistics Office.
The non-agricultural income which consists of income from employment in other businesses or day-to-day employment takes up a bigger share than income from self-employment. Non-agricultural income was 39.4% of total farm household income in 2009.
The share of non-agricultural income in total farm household income is rising, contributing to stabilization of farm household income. The level of non-agricultural income in Korea, however, still falls behind that of other countries. And further growth of agricultural income is limited by factors such as drop in farm product prices due to growing agricultural imports, higher fuel and agro-material prices, and rising farm management costs due to heavier interest burden, etc. Thus, it is often suggested that growth in farm household income should be achieved through improvement in non-agricultural income. As part of the policy concept to stabilize and enhance farm household income, revaluation of non-agricultural income policy and development of new income source have been on the table for discussion, but there has been little visible outcome so far.

3.3. Worsening Terms of Trade for Farm Households

Accelerating farm market opening and vulnerable competitiveness of farm households have aggravated insecurity in farm households’ business. Since the mid 90s, the inflow of foreign agricultural products has caused oversupply in the market, resulting in lowering prices and sluggish growth. Consequently, the terms of trade for farm households have deteriorated, and agricultural value added has been stagnant or reduced.

Agricultural value added topped in 2004 at 24 trillion 11.6 billion won, but the figure had gradually fallen to 19 trillion 631.8 billion won in 2008, a drop by 18.2% compared to 2004. The percentage of value added to total production value has continuously been in the decrease from its peak of 65.8% in 2004 to 53.0% in 2008, a 12.8% drop compared to 2004.

Drop in agricultural value added is explained by faster growth of intermediate input than agricultural production value. The recent hike in oil
and grain prices has played its part in pushing up the prices of agricultural immediate input. Changes in terms of trade for farm households (2000=100) include the downward trend of Farm Household Sale Price Index and upward trend of Farm Household Purchase Price Index since 2003. Along the way, the terms of trade for farm households has continued to fall from
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104.6 in 2003 to 87.2 in 2006, 86.6 in 2007 and to 77.2 in 2008.

Real prices of agricultural products made a turnaround and went down in 1995 because of their oversupply in the market, resulting in stagnation in agricultural income. Even though greater agricultural market opening and subsequent drop in agricultural prices contributed to improving agricultural production value, it has not translated into income growth and only highlighted the expanding phenomenon of “disparity between growth and income.”

Despite the upward trend of real farm receipts since 2000, real farm income has not significantly improved due to rapid increase in real farm expense (farm management cost). As the recent weakness of Korean won caused hike in agricultural prices, especially prices of feed grains with higher dependency on imports, management costs for livestock farms dramatically rose by 148.9%. Together with higher oil prices, it has been the major cause of rising farm expense.
3.4. Income Gap between Urban & Farming Households

Until the mid-1990s, the level of farm household income was over 90% of that of urban households. However, the income gap between the two has widened since 1995, and the level of farm household income was 80.6% in 2000, 78.5% in 2005, and only 66.0% in 2009 of working household income in urban areas. As indicated above, this widening income gap
between urban and farming households is mainly the result of continuously falling agricultural profitability caused by worsening terms of trade for farm households. Because of such trend, farm household income has decreased whereas urban working household income has continued to rise.

3.5. Trend in Farm Household Expenditure

Farm household economy involves both the production and consumption sides of an economy. That is, the farm household is an agricultural business entity and, at the same time, a unit of household economy where its members make a living.

The sufficiency level of farm household expenses (agricultural income / household expenses) has showed a downward trend, and the decline has been even faster since 2003. The figure moved down from 145.5% in 1995 to 128.2% in 2000 and 114.5% in 2005. In 2009, it has been rather stagnant.

Figure 2-22  Trend in Income Gap between Urban and Agricultural households (1995~2006)

Source: Annual Survey of Household Economy & Farm Household Economy, National Statistics Office.
around 116.5%. During the same period, however, the average propensity to consumption (household expenses / disposable income) of farm households has been in an upward trend, marking 68.3% in 1995, 78.8% in 2000, 83.4% in 2005 and 82.5% in 2009.

The average propensity to consumption of farm households considerably varies depending on their income classes. The average propensity to consumption tends to be higher for lower-income classes. The share of food consumption in total household expenditure is usually smaller for higher-income classes, while educational expense takes up a bigger part in total expenditure of those higher income classes.

The trend in expenditure can be analyzed by the age of farm business owners. When the age is older, share of food and health care related expense in total expenditure tends to be higher. Meanwhile, it turned out farm households with relatively young owners in their 30s to 40s spend more on education. Analysis suggests that these trends depend on life-span characteristics of farm households.

3.6. Reduced Agricultural Debt vs. Expanded Non-agricultural Debt

Farm household debt had increased over the years from 20.21 million won in 2000 to 27.21 million won in 2005 and 29.95 million won in 2007, before it slightly went down to 26.27 million won in 2009. Reduction in debt is desirably in terms of financial structure of farm household. However, it should be noted that debt reduction is also the result of farms’ avoiding new investment due to decline in agricultural profitability and therefore the reduction in income.

This situation becomes even more manifest when changes in the purpose of farm household debts are looked into. Since 1995, share of debt for agricultural purpose has declined while share of debt for household spending has increased. The share of agricultural debt dropped from 69.3% in 1995 to 50.1% in 2009 while the share of debt for household consumption went up from 12.1% to 27.0% during the same period. In other words, non-agricultural and consumption-oriented debt accounts for a
bigger part of farm household debt growth than investment-oriented, more productive type of debt. The trend shows that borrowings are more for household consumption and other purposes than agricultural production, and it is because of reduced profitability and investment in agriculture.

An analysis of farm household debts by farm size in 2006 reveals that the so-called agricultural debt is smaller than the debt for household

**Figure 2-25** Change in Farm Household Debt and Agricultural Income

![Graph showing change in farm household debt and agricultural income from 1995 to 2009.](image)

Source: Annual Survey of Farm Household Economy, National Statistics Office.

**Figure 2-26** Change in Composition of Farm Household Debt

![Bar chart showing percentage change in composition of farm household debt.](image)

Source: Annual Survey of Farm Household Economy, National Statistics Office.
consumption of small-scale farms with less than 1 hectare. On the other hand, the bigger the farm size, the greater the proportion of agricultural debt than other debts. The reason for higher ratio of household consumption debt in small-scale farms is that those farms depend on debt to cover the shortage of livelihood spending caused by the reduction in farm household income. If this situation continues, the financial health of such farm households will be aggravated.

3.7. Increase in the Share of Specialized, Large-Scale Farm Households

As full-time farmers have achieved specialization and farm scale expansion, large-scale farms are rapidly becoming dominant. Between 1995 and 2005, the number and ratio of farm households, which exceed a certain level in scale in terms of field (rice and other crops), orchard, Korean native cattle, milk cattle, pigs, chickens, etc., have risen, and the concentration of...
large-scale farms is especially high in protected agriculture and livestock sectors.

In general, agricultural investment is shrinking due to declining added value and worsening terms of agricultural trade. At the same time, however, farms have become more specialized with scale, expanding the number of investment-driven, agri-business type of farms to enhance profits through investment.

The changes in agricultural production value by farming and cultivation type shows that the share of flower, special products and livestock products increasingly account for a bigger share of production value than crop or vegetable products. The main cause of such a trend is that more and more farms are turning to capital-intensive agriculture.

<table>
<thead>
<tr>
<th>Farm size</th>
<th>share in no. of households</th>
<th>share in farm size (no. of livestock heads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy field 3ha and over</td>
<td>2.8</td>
<td>14.8</td>
</tr>
<tr>
<td>Upland field 2ha and over</td>
<td>2.5</td>
<td>18.0</td>
</tr>
<tr>
<td>Orchard 1ha and over</td>
<td>13.6</td>
<td>42.9</td>
</tr>
<tr>
<td>Protected facility 2,000 pyeong and over</td>
<td>12.4</td>
<td>38.3</td>
</tr>
<tr>
<td>Cattle 30 heads and over</td>
<td>1.7</td>
<td>16.6</td>
</tr>
<tr>
<td>Milk cow 50 heads and over</td>
<td>5.6</td>
<td>17.8</td>
</tr>
<tr>
<td>Pig 1,000 heads and over</td>
<td>2.4</td>
<td>36.5</td>
</tr>
<tr>
<td>Chicken 30,000 heads and over</td>
<td>0.3</td>
<td>44.0</td>
</tr>
</tbody>
</table>

Source: Comprehensive Agricultural Survey, National Statistics Office; Annual Livestock Statistics, Ministry for Food, Agriculture, Forestry and Fisheries.
3.8. Prospect and Challenges

The farm household economy has recently deteriorated as agricultural income has declined due to lower profitability affected by worsening terms of agricultural trade. Also, the level of farm household debt and expenditure has remained stagnant. The terms of trade for farm households are likely to worsen because Korea is faced with continuous lowering of tariffs from DDA negotiations as well as a series of FTAs with massive economies including the U.S., EU and China.

Widening disparity between farm households in terms of business size and owner’s age has also produced a substantial gap in the level of agricultural technology and income. Especially, as the share of farm households with specialized expertise and scale is in the rise, their share in the total agricultural production value is also increasing. This indicates that agricultural policies need to go beyond an average or mediocre approach.
and seek more efficiency and performance oriented policies. That is to say, for smaller farms, the policies needs to be more welfare-focused by expanding medical and health service, improving living environment, etc. while a more industrial policy approach is required to help larger, more specialized farms manage business risk and have an easier access to financing.

The recent trend shows that the debt for household spending accounts for a bigger part of total farm household debt than the debt for agricultural purpose, resulting in an aggravated financial structure for farm households. Although farm household debt may be an unstabilizing factor in the farm household economy, it can also drive the growth of farm households if it is well invested for improved profitability. But it is a concern that the debt increase is more from consumption than production. Nonetheless, since there are still financing needs mostly from those large-scale farm households, efforts should be focused on seeking ways to supply the agricultural sector with not debt but capital, instead of trying to reduce the farm household debt itself. Currently investment in the agricultural sector is mostly in the form of loan with security guarantee, so investment in the sector is translated into a rise in debt for farm households. Therefore, the means of financing needs be diversified from a loan-based approach to investment-based approach to an ensure an expanded supply of capital to the agricultural sector.

In order to increase agricultural income for improvement of farm household income, the government should provide policy measures to encourage farms to pursue higher quality value-added agriculture such as eco-friendly organic farming. Meanwhile, there is limitation on agricultural income growth given the rising instability in agricultural product prices due
to oversupply in the market caused by expanding agricultural imports, as well as climbing business expense because of higher fuel prices, agricultural commodity prices, and financing costs and interest burden. Therefore, the policy support to enhance non-agricultural and transferred income needs to be implemented as well. The measures should include direct payment programs to compensate the income loss caused by greater market opening, agricultural disaster insurance to allow more systematic management of business risks, and plans to stabilize and enhance agricultural income. Furthermore, it is also important to provide policy support to develop and manage non-agricultural sources of income by more actively engaging in rural eco-tourism and food distribution and processing businesses among others.
Section 4. Agricultural Cooperatives

Agricultural cooperatives in Korea are comprised of regional agricultural cooperatives and commodity specialized agricultural cooperatives that together form the National Agricultural Cooperative Federation (NACF). The Korean agricultural cooperative system is one of the most peculiar organizations of its kind in the world, operating as a multi-purpose cooperative organization in national level conducting both banking business and other supply and marketing businesses. The banking sector of the NACF enabled Korean agricultural cooperatives to develop rapidly and solve the problem of high interest rate that had plagued family farms.

The peculiar structure of the National Agricultural Cooperative Federation was an adequate system during the period of economic developing, but faces difficulties adapting to a new era of globalization. Member farmers are increasingly demanding a stronger marketing business, but cooperatives are widely criticized for focusing on the banking business bringing high profits. In addition, the NACF is faced the criticism for competing with regional cooperatives in the banking industry, preventing regional cooperatives from further growth. In order to improve this system, strategies are being pursued to reform agricultural cooperatives by
consolidation agricultural marketing of regional cooperatives and reinforcing function of the distribution business. In particular, one of the core tasks is to separate NACF’s banking business from other business activities.

4.1. Overview

4.1.1. Organizational Structure

In Korea, not only primary cooperatives but federation cooperatives also conduct both banking as well as marketing and supply functions. Korean agricultural cooperatives are unique in that the National Agricultural Cooperative Federation (NACF) also serves such multiple functions. In several countries as like Japan, primary cooperatives serve multiple functions, but even in Japan, the central federation is divided into separate groups according to different tasks. In other words, while most federations are separated into the banking, supply and marketing, and central administrative bodies, these three bodies are combined in the Korean NACF, which is the one and only structure in the world.

The Agricultural Cooperative Act regulates the establishment of agricultural cooperative organizations. Primary cooperatives cannot be formed by individual farmers, but instead must be certified by the government. When farmers form an agricultural union, it cannot be named an agricultural cooperative. Thus, individual all farmers become members of a primary regional cooperative, which again becomes a member of the central NACF.

Primary agricultural cooperatives in Korea can be classified into regional agricultural cooperatives and specialized product cooperatives. Regional cooperatives are further divided into crop farming cooperatives and livestock agricultural cooperatives. All primary cooperatives conduct mutual credit business. The Korean agricultural cooperative system, as seen in Figure 2-28,
is mainly formed by regional agricultural cooperatives, whereas the number of specialized product cooperatives is significantly smaller.

These regional cooperatives are defined by administrative districts to avoid overlapping. In other words, a farm household cannot become a member of a cooperative outside its residential area. At the same time, every farmer has the right to become a member of the regional primary cooperative. Some cooperatives are larger than others, responsible for multiple administrative districts, while smaller organizations may deal with only a single district.

Specialized product cooperatives are organizations for farmers dealing with specific products and commodities. While regional primary agricultural cooperatives are open to all farm households, only specialized farms that exceed a certain level of scale are eligible for the membership of specialized product cooperatives. Specialized product cooperatives have greater areas than regional cooperatives over the decision on the district areas, and have larger areas under their management.
As of 2009, 2,421 thousand people were the members of Korean primary cooperatives. The number of regional crop agricultural cooperatives was 981, accounting for the most, and the number of regional livestock cooperatives was 118. Among the specialized product cooperatives, there were 46 crop-farming cooperatives, 24 specialized livestock cooperatives, and 12 ginseng cooperatives. In total, the number of primary agricultural cooperatives marked 1,181. Due to the continued trend of consolidation in primary cooperatives, their number declined from 1,277 in 2006 to 1,181 in 2009. These primary cooperatives form the single central NACF.

4.1.2. Business Structure

In Korea, primary cooperatives are modeled similarly like Reiffeisen cooperatives, formed as a general agricultural cooperative that aims to carry out a variety of tasks that affect economic and social activities of farmer members, including mutual credit business, supply and marketing, processing, retailing, farm equipment, and education and training tasks. As regional and specialized product cooperatives often engage in the same types of tasks, primary cooperatives in the same district often compete against each other.

Figure 2-29 Primary cooperatives’ revenue structure by business unit (2009)
Revenue structure of primary agricultural cooperatives varies depending on their types. Regional cooperatives are geared towards providing credit business, which account for 69.7% out of total revenue, while sales, purchasing, retailing, processing and other supply and marketing activities accounting for only 21.5%. Regional cooperatives are focused on providing credit business rather than supply and marketing business. For regional livestock cooperatives, on the other hand, credit business accounts for 52.2%, while supply and marketing businesses account for 42.8%. For specialized product cooperatives, the revenue from credit business takes up 42.5% while that from other supply and marketing business accounts for 54.0%. Regional primary cooperatives received permission to provide banking services in 1972, whereas specialized product cooperatives were granted the same right in 1989 to finance their weak supply and marketing business, thereby boosting these activities. The relatively short history of credit business explains low revenue proportion of credit business in specialized product cooperatives.

In Korea, primary cooperatives generate revenues through their credit businesses while posting losses in their supply and marketing businesses, creating a business structure where profits from credit business are spent to finance supply, marketing business and educational projects. These credit business target not only members of the cooperative but also non-member local residents as well. The rapid growth in credit business for non-members has increased the importance of credit business in primary cooperatives. These developments, however, have drawn criticism that primary cooperatives have lost sight of their main goal of providing enterprise support for the members as agricultural cooperatives, and rather focusing on credit business that improves the balance sheet of cooperatives.
The NACF also provides banking, insurance, and supply and marketing services. The banking services of the NACF is however different from that of primary cooperatives in that NACF banking services normally involve non-member entities in urban areas rather than cooperative members, like a commercial bank. The banking business of the NACF ranks fourth in Korea. When it comes to revenue per business unit, banking and insurance take up the most, accounting for 62.3% and 23.0% respectively, while supply and marketing business has been in the red with 9.5% of its share. Like primary cooperatives, the NACF uses its profits from banking and insurance operations to subsidize the supply and marketing businesses.

The NACF conducts support projects for the development of primary cooperatives using its banking business revenues, in the form of a cooperative mutual support funds system. The cooperative mutual support fund is operated by the central organization. The 1.9656 trillion won fund is used to provide interest-free funding to primary cooperatives. As the experience gained from the NACF’s banking business is spilled over to the credit business of regional primary cooperatives, they are able to develop
new financial products at relatively low cost. Unlike similar organizations overseas, the NACF operates a competitive banking business that supports the development of primary cooperatives.

4.1.3. Development of Korean Agricultural Cooperative Federation

The development process of agricultural cooperatives in Korea will provide a good illustration of the procedures for founding agricultural cooperatives in developing countries that wish to boost their agricultural sector. Along with land reform, establishing agricultural cooperatives has been one of the Korean government’s major policies since the nation was founded in 1948. The government recognized how important it was to establish family farms and agricultural cooperatives for the development of the nation’s agricultural sector. In particular, it was urgently needed to provide rural areas with necessary credits, thus solving the vicious problem of high interest rate loans.

A financial cooperative federation was already in existence in Korean rural areas, but the major task of the government was to convert this organization into agricultural cooperatives. However, a conflict arose between the Ministry of Agriculture and Forestry and the Ministry of Finance over the legislation defining the roles of financial cooperatives. That led to delays in the formation of agricultural cooperatives. The major point of the conflict was whether to separate the banking business from other supply and marketing business. In 1956, the NACF was founded first to address the business needs of agricultural communities, with the Agricultural Cooperative Bank planned to take over the banking needs. Village-level cooperatives began to form as the basic agricultural
Agricultural cooperatives continued to expand, but lack of the banking business prevented the organization from securing sufficient financing, and conflicts with the Agricultural Cooperative Bank began to impede the organization's business-related activities. Eventually, the original plan of promoting the development of agricultural cooperatives and rural economies through an agricultural credit system failed to produce meaningful results, and experts began to call for a reconsideration of the separation of the banking sector from supply and marketing businesses in the National Agricultural Cooperative Federation. In 1961, the Korean military regime formulated the new Agricultural Cooperative Act to integrate the existing laws governing agricultural cooperatives and agricultural bank, creating the NACF as the central cooperative federation to oversee both banking and enterprise businesses. As a result, the three-tier system of the National Agricultural Cooperative Federation, city and county level cooperatives and local village cooperatives, was formed.

Local village cooperatives, the basic unit of national agricultural cooperatives, were too small to provide meaningful support for the community development. Major tasks were being performed by the city and county level cooperatives. In order to scale up the size of local cooperatives, small size village cooperatives began to be consolidated into “Eup” - and “Myeon”-level organizations that represented larger administrative districts. The plan, created in 1969, called for integrating all local organizations into larger units by 1973. As a result, the number of local village cooperatives fell from 16,089 in 1968 to 1,545 in 1973.

As agricultural cooperatives began to grow in their size, the enactment of the mutual credit banking law in 1972 enabled local cooperatives to
develop rapidly through credit business. Primary regional cooperatives were also permitted to conduct credit business, leading to the formation of a multi-purpose cooperatives system. Remarkable development of mutual credit business and rapid growth of primary cooperatives also led to the eradication of private loans with vicious high interest rates in rural communities. In 1980, city and provincial cooperatives were reorganized into branch offices of the NACF, creating a true countrywide network and transforming the structure of the national cooperative system into a two-tier “primary cooperative-NACF” structure. The rising demand for democracy across the nation during this period also affected NACF by changing the method of electing Chairman from indirect election to direct voting by members.
4.1.4. Achievements and tasks

Going through the colonial times, Korean agriculture was in an underdeveloped phase and rural areas were in abject poverty. To break away from the least developed stage, a greater role of agricultural cooperatives was demanded. While agricultural cooperatives in other countries only engage in the production and retail business, Korean agricultural cooperatives are more focused on providing credit for farmers and they are legally permitted to do the lending business.

As a result, Korean agricultural cooperatives were able to solve the issue of private vicious loans with high interest rates, which can be commonly seen in rural areas of other least-developed countries. This is the greatest achievement of Korean agricultural cooperatives and often touted as a successful case in the world. The NACF seems to have mainly contributed to eliminating vicious high-interest rate loans by showing its strong leadership, particularly in the mutual savings and loans services of primary cooperatives.

In the 1990s, however, trade liberalization in agriculture called for a new role of the agricultural cooperatives. As WTO urged governments to reduce their market intervention and trade market became liberalized, agricultural cooperatives were strongly required to strengthen their marketing business which hadn’t drawn much attention.

Because of the criticism that agricultural cooperatives are extremely focused on banking business targeting non-members and not able to develop other supply and marketing businesses, measures are being pursued to reform the organization including the separation of the banking sector from other businesses in NACF. To develop supply and marketing business of agricultural cooperatives, the organization needs to undergo
structural changes. However, there has been significant resistance to changes within the organization. In order to fulfill the needs of farm operators, the entire structure of the Korean agricultural cooperative system will have to be transformed. The major issues facing the organization will be outlined in the following section.

4.2. Major Agenda and Issues

4.2.1. The Banking Business Separation in the NACF

The main issue in NACF’s reform is the separation of its banking business from its supply and marketing business. The NACF has managed to achieve a significant growth thanks to its banking arm, but changes in the agricultural product market including trade liberalization and other economic circumstances have revealed the need for a stronger marketing function of the agricultural cooperatives. However, the NACF is criticized for being focused on profit-generating banking business and less on the marketing activities that members need. The NACF has become the victim of its own successful banking business. The separation of the NACF’s banking units has been an issue since the inauguration of WTO regulations in 1994, but no solutions have surfaced to date.

On the other hand, some experts point out the advantages created by the integration of the banking with supply and marketing functions in 1961. The NACF was able to induce the development of primary cooperatives with the revenues generated by its banking business, and fund its supply and marketing arm that did not generate sufficient revenues to cover its operations. Thus, the Korean agricultural cooperatives would not have been able to provide services to their members without the revenues from non-member banking business. The organization was able to make positive
contributions to the development of the Korean agricultural sector by expanding its support for primary cooperatives with the revenues from its banking business. Experts therefore suggest to maintain positive aspects of the existing business model of NACF and to strengthen marketing business.

However, while the NACF was able to make positive contributions to the primary cooperatives, the NACF has also been criticized for overpowering regional cooperatives. Inefficient and ailing cooperatives were also propped up by the NACF support, preventing healthy growth of regional cooperatives. Powerful central cooperatives have come to dominate smaller regional cooperatives. Another criticism is that as the NACF uses its immense financial resources to carry out economic projects that often overlap with those of primary cooperatives, some cooperatives are actually experiencing difficulties in carrying out their own initiatives.

In this regard, proposals to separate the two business functions of the NACF include the creation of holding companies that each handle different business tasks of the current NACF, as well as a central union that is responsible for education and training. In addition, the business tasks currently conducted by the NACF will be transferred to primary cooperatives to reduce the role of the central cooperative and boost regional primary cooperatives. Such efforts to separate banking business from other activities in the NACF are being made.

4.2.2. Scaling Up Primary Cooperatives

Another issue that the agricultural cooperative system in Korea faces is how to effectively merge regional primary cooperatives together to scale up their size. The emergence of large discount supermarkets in the agricultural product market and their increasing market share in the retail
market have reduced the bargaining power of farm households or agricultural cooperatives. The scale of producers’ distribution and marketing must be increased to ensure a steady supply and upper bargain positions of farm owners and operators. In addition, the NACF needs to focus on developing food processing industry and fresh food products to improve the value added of agricultural products. Heightened value added will cushion the impact of the decline in agricultural goods’ prices consequent from free trade. For that to happen, large investment in logistics and distribution networks in production areas is required. To respond to all these calls, merger of regional cooperatives was suggested as a measure to scale them up.

In the early 1970s, primary cooperatives of small villages began to merge with each other at the “Eup” and “Myeon” level, units of larger towns and districts. As a result, they could lay the foundation to become independent thanks to the rapid growth of their mutual savings and loan services. During this era, as the basic administrative units were limited to “Eup” and “Myeon” districts, “Eup” and “Myeon” level cooperatives were enough to provide necessary services to local farmer members.

However, the rapid growth of primary cooperatives and rising labor and operating costs began to strain small local organizations to their limits. In addition, expansion of the farm products market across the country meant that local cooperatives often faced difficulties in addressing larger supply and marketing issues. The evolution of online banking and the integration of the financial market also created the need for a nationwide banking operation. Regional cooperatives were required to increase capital and human resources to provide the services needed by members. However, primary cooperatives had trouble even meeting the basic supply
needs of the market, and losing their bargaining power in the market. Weak ability of primary cooperatives in the market made them to rely more on the support from the NACF and that again left the NACF no option but depend on its banking business, forming a vicious cycle.

Meanwhile, the basic administrative unit of local governments was expanded from Eup and Myeon (towns) to cities and provinces. In the early 1990s, there was an increasing call for integration of regional primary cooperatives at the city and province level to secure a stable supply base, enhance bargaining power, and maintain sufficient investment capabilities. However, mergers of primary cooperatives were largely limited to combining two to four under-performing organizations rather than city- or province-wide expansion. Such mergers happened in only three places.

As a result, the total number of primary cooperatives only declined from 1,424 in 1990 to 1,088 in 2005. In contrast, Japan, which began similar type of mergers in the early 1990s, reduced the number of primary cooperatives from 3,688 in 1990 to 878 in 2005. Today, small Eup- and Myeon-level cooperatives still form the majority of regional primary
cooperatives.

One of the pressing issues faced by Korean agricultural cooperatives is how to effectively merge and consolidate primary cooperatives at the level of city and province. This should be done to help harmonize regional agricultural policies with agricultural cooperatives and thereby develop regional agriculture.

Some experts point out the need for mergers between primary and specialized product cooperatives that have a similar business structure in a same area, in order to prevent their competition. These mergers aim to enhance cooperatives’ capabilities of getting financing, increase bargaining power through horizontal integration, and enable stable management.

4.2.3. Promotion of agricultural marketing in production sites

While rice is still the single major product of the Korean agricultural sector, agricultural structure is characterized by small family farms that produce small batches of diverse products. Likewise, member farmers of agricultural cooperatives are comprised of farmers who grow different types of products, not those who cultivate similar products. Sales and distribution are limited to simple transportation and logistics rather than pooling of products. Products are sent to the wholesale market not under a single cooperative brand, but under individual farmer’s name. That shows weak capability of Korean agricultural cooperatives in distribution at production sites.

As the agricultural market was liberalized further and the proportion of large retailers increased, measures were suggested to strengthen marketing capabilities of primary cooperatives at production sites. In the mid-1990s, pooling marketing of cooperatives began to form with the participation of
small-farm operators at the primary cooperative level. A considerable number of local distribution and shipping organizations were formed mainly led by government-supported packaging centers, for joint freezing, sorting, preliminary packaging, and direct sales of products. These operations were usually carried out at “Eup” and “Myeon” level.

However, marketing organizations at production sites had to increase their size and scale in order to have business relations with increasingly large retail stores and to secure favorable bargaining positions. Additional financial support had to be provided for production site marketing facilities to increase the scale of such operations beyond that of simple pooling and manage a stable supply channel.

However, regional cooperatives were not integrated into larger city- or province-wide organizations, but remained small and fragmented in the Eup and Myeon (villages and small towns) level. In order to increase the scale of marketing operations, membership had to be expanded to larger cities and provinces. The proposed solution to this issue was the creation of a joint marketing system, where primary cooperatives would work together at the regional level to take charge of agricultural products distribution and to sell certain groups of products selected and packaged by primary cooperatives. Since 2000, city and provincial branches of the NACF led the formation of such joint marketing system. The NACF provided human
resources and distribution services at low costs, linking local producers with NACF retail stores. As a result, joint marketing grew fast and a total of 124 organizations were in place by 2005.

The joint marketing system was successful in terms of scaling up operations. However, joint marketing organizations started to show problems arising from the fact that they were not the main agent of transactions. They did not have their own equity, permanent staff members with expertise, or the ability to deal with risky transactions. Furthermore, they had difficulties in merchandising and processing goods as these jobs required long-term expenses and failure risks. Eventually, the joint marketing system was unable to strengthen marketing capabilities in the production sites, nor create more values added of agricultural products.

In order to overcome the limitations of joint marketing initiatives, cooperative corporations were formed to create a marketing cooperative with the financing from primary cooperatives. It was an initiative to transform joint sales organizations into independent corporate subsidiaries. These new organizations have the characteristic of focusing on sales and marketing activities, whereas primary cooperatives focus on their banking and rural development services. The government is expanding financial support for joint cooperative subsidiaries to enable them to become the

Table 2-23 Sales from Joint Marketing System

<table>
<thead>
<tr>
<th>year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1,089</td>
<td>2,189</td>
<td>2,483</td>
<td>3,343</td>
<td>4,332</td>
<td>4,906</td>
<td>6,301</td>
</tr>
</tbody>
</table>

Data source: NACF.
center of production site marketing. However, the NACF is opposed to the creation of such corporations on the grounds that this might lead to a breakup of the current primary cooperative system as a multi-purpose cooperative.

These joint cooperative corporations are also designed to effectively address the dissimilarities that have arisen among cooperative members throughout the development of the organization. In the past, every member of primary cooperatives was engaged in farming, with similar operation scale and products. However, many members these days changed their business items or withdrew from agriculture, which resulted in an increase in non-farming members. In addition, agricultural operations of even farming families have begun to shrink, while professional farms have continued to expand the scale of their farming enterprises.

In other words, while many members are doing their businesses away from farming, a small number of professional farmers are more relying on farming, thus worsening the sense of difference between these two groups. The decision-making structure of a primary cooperative is increasingly calling for an expansion of its non-agricultural business, while fewer specialized farmers demand a greater role of the cooperatives and NACF in the field of agricultural product marketing and sales activities.

The agricultural cooperative in Korea is faced with the need for restructuring to effectively address supply and marketing needs in the increasingly liberalized agricultural products market. One of the proposed solutions calls for creation of joint cooperative corporations. The cooperatives in Korea will also have to transform their organization structure to effectively carry out supply and marketing functions in the face of changing economic and market conditions.
4.3. Outlook

The NACF has established a business innovation plan to revitalize the agricultural product marketing business by 2015, as cooperative members demand so. Primary cooperatives are increasing the scale of their operations to strengthen supply and marketing networks at production sites, and also pursue the establishment of joint cooperative corporations. In addition, the NACF seeks to lay groundwork for self-reliance of small primary cooperatives through mergers, which are expected to reduce the number of regional primary cooperatives to around 500. To address bipolarization between large professional farms and small family farms, local primary cooperatives will be restructured into two - joint cooperative corporations, their subsidiaries, and product cooperatives that are in charge of supply and marketing business, and regional cooperatives that mainly provide credit services.

The NACF aims to strengthen its wholesale and retail businesses in the retail market, and establish a food company by expanding its food processing business. The organization also aims to create large discount stores to expand the marketing channel for farmers and reduce the strain on the banking sector of NACF. Accordingly, the organization plans to separate the banking and other business operations by 2015 to create an independent federation for each business arm. Business separation will enable the banking branches of the central and primary cooperatives to merge into a single banking service organization.
Chapter 3

Agriculture Industry Trends by Item

1. Grains
2. Livestock
3. Horticulture and Specialty Crops
4. Environment-Friendly Agriculture
5. Korea’s Forest and Forest Industry
Chapter 3. Agriculture Industry Trends by Item

Section 1. Grains

Rice production exceeds demand in Korea. Nevertheless, Korea imports mandatory quotas from China, the US, and other countries that were agreed to in the 2004 rice negotiations. Under these obligations, a certain portion of imports are sold in the market to consumers for the table use. Since 2005, Korea has implemented a direct payment system that compensates 85% of the difference between market and target prices with the government financing in its efforts to stabilize rice farm households’ income. In addition, a public stock holding program was also introduced in 2005 to mitigate any temporary instability in rice supply. However, the government procurement program that had been implemented to enhance the income of rice growers and stabilize rice supply was abolished in 2004.

While the Korean government has employed a barley procurement program to offset any rice shortages, barley production significantly exceeds its demand for food use. Since the launch of WTO, current market access (CMA) quotas have been imported mainly for the use in processed foods.

Soybean demand in Korea reaches 1.3~1.6 million tons annually, of which approximately 0.12 million tons are produced locally with the remainder being imported. Around 26% of the demand is consumed as food, while the rest is used for animal feed. As the imports command lower prices, soybeans are imported above the CMA quotas.

Korea relies heavily upon the imports of corn and wheat as their self-sufficiency rates are below 1%. In particular, corn imports for animal feed
account for about 70% of the total corn demand, due to the expansion of livestock industry. In the case of wheat, food wheat and feed wheat constitute approximately 34% and 42% of the domestic demand, respectively.

1.1. Rice

1.1.1. Supply and Demand

Rice production in Korea was reduced to 4.916 million tons in 2009 from 5.606 million tons in 1990. Such a decline, despite a production increase per unit area, can be attributed to a significant decrease in the cultivated area. As a result of the development and diffusion of newly modified products, rice production per hectare increased by 11.9% from an average of 4.53 tons during 1990~1993 to 5.07 tons in 2007~2009. However, the rice acreage fell by 25.7% from 1.244 million hectares in 1990 to 0.924 million hectares in 2009. Such a decrease is a combined result of a diversion of rice paddies to non-agricultural uses including public infrastructure and housing, an increase in cultivated area for crops other than rice, and an increase in idle farmland. The rice cultivation area in 2009 was 924,000 hectares, comprising 53.2% of 1.737 million ha farmland, and 91.5% of 1.01 million ha paddy fields. Out of 1.195 million total farm households, rice-growing households accounted for a significant part with 827,000 rice growers. However, rice acreage per household is small with 1.12 hectares of cultivated area per farm household.
Annual rice consumption per capita has decreased from 119.6kg in 1990 to 74kg in 2009 due to the westernization of diet in Korea. While rice consumption fell by an annual average of 2.3% in the 1990s, the magnitude of the decline has expanded to 2.6% in the 2000s. Accordingly, rice consumption for food use also steadily decreased from 5.127 million tons in 1990 to 3.684 million tons in 2009. Considering the declining trend in the per capita consumption of rice, rice consumption for the table purpose is expected to fall even further in the future.
Total annual rice demand remained at 4.7~5.5 million ton levels, including rice for processing, brewing, and aid to North Korea. In cases where ending stocks exceeded adequate levels, the government supplied a portion of its rice stocks for processing and brewing uses. In addition, it has also aided North Korea with rice since 2002. As a result, the share of food use in total demand has decreased from the 90% level in the early 1990s to 70~80% levels recently.

The prices of rice released by the government for the processing and brewing uses are 30~35% and 10% of market prices, respectively. Government prices are determined in comparison to the prices of flour and tapioca, which are substitutes for rice used for processing and brewing. The aid to North Korea takes the form of loans based on international prices and is also provided through imports from Thailand when domestic reserves are low.
Ending stocks of rice have fluctuated significantly in each year. During 1990~1995, annual average rice cultivation area decreased sharply by 38,000 hectares every year to 1,050 hectares in 1996. Due to the relatively
larger falls in rice prices compared to vegetables, vegetable cultivation on paddy fields has increased. Meanwhile, rice cultivation area has significantly decreased as converting paddy fields into non-agricultural land became easy on the back of excess rice supply. In addition to the decline in rice cultivation area, 1993 was a bad year for the rice crop with 4.2 tons of rice production per hectare. In 1995, rice production was also low and remained at 4.5 tons per hectare. As a result, rice inventory at the end of the 1996 rice year was at a record low of 244,000 tons (stock-to-use ratio of 4.9%).

Rice prices have risen since 1997 as a result of continued low harvests, while the prices of substitute crops have declined. Consequently, rice acreage increased by an annual average of 5,500 hectares reaching 1,072,000 hectares in 2000. In addition to the increased cultivated area of rice subsequent to 1996, good weather conditions have also allowed for good harvest seasons to continue. In 1996 and 1997, production per hectare recorded 5.1 tons and 5.2 tons, respectively, reaching an all-time high in 1997. However, consecutive good harvests and a steady decline in consumption once again raised ending stocks. Due to the rice aid to North Korea, rice demand has gone up since 2002. Consequently, the ending stock-to-use ratio fell to 20% in 2006, which is higher than the adequate level of 16% suggested by the FAO.

When the stock level jumps, stock management costs also go up and the market declines. On the contrary, when the stock level drops, other shortage problems like bad harvest occur. In this regard, introduction of the public stock reserve began to be discussed from 2002 to strike the balance between supply and demand based on invisible hands, and at the same time to ensure food security.
1.1.2. Production Policy

The Korean government operated a procurement program aimed at achieving food self-sufficiency through the promotion of rice production. Until the first half of the 1990s, a basic policy of fixing government procurement prices above market prices was maintained to protect farm households. Procurement prices were kept at high levels, averaging 124,468 won/80kg during 1990~1994, which equaled 180% of the production costs of 69,068 won/80kg during the same period and 120% of harvest season market prices. The government also purchased a substantial amount of rice, ranging from 22 to 30% of total domestic production. As a result of increased rice production, owing to price supports by the government, coupled with falling rice consumption, the ratio of stocks-to-use reached 39% at the end of the 1991 rice year. While the procurement program guaranteed sales channels for rice to farm households and increased their income from rice farming, it also led to over-supply as a side effect.

With the conclusion of the Uruguay Round of negotiations in 1993 and
the subsequent launch of the World Trade Organization (WTO) in 1995, the environment surrounding rice policies changed. In particular, the government conceded to reduce domestic subsidies (aggregate measurement of support: AMS) from 2.18 trillion won in 1995 to 1.49 trillion won by 2004. As 91% of the average AMS between its basis year of 1989 and 1991 were from government rice purchases, it significantly limited the procurement program.

In preparation for the launch of WTO, the government froze its procurement prices prior to 1995. However, as market prices have increased according to changes in supply and demand, it surpassed government procurement prices in 1996. In order to improve the income of farm households, procurement prices have been raised by 4.0~5.5% every year over 4 years since 1998, leading to higher procurement prices than market prices once again. Subsequent to 2002, the abolition of the procurement program and introduction of new alternative ways to stabilize farm income were discussed.

**Figure 3-5** Government procurement prices and market prices trend

footnote: Procurement prices subsequent to 2005 represent government purchasing prices of public reserve rice.
1.1.3. Income Policy

In 2004, there was a fundamental change in the Korean rice policy. Amid the rice negotiations in 2004, anxiety in the farm community heightened as either the rice market was expected to be liberalized through tarification, or rice prices were destined to fall even if tarification was delayed. If the domestic rice market was liberalized through tarification, the damage to farm households would be significant with rice imports surging according to the international rice prices, customs duty and exchange rate conditions. Even if tariffs were to be delayed, imported rice which would be sold in the market would increase every year, leading to a fall in rice price that would ultimately impact the income of farm households. Accordingly, the development of policy measures to stabilize farm household income emerged as a pressing issue.

In order to alleviate instabilities in farm household income, the government introduced the income compensation program for rice farmers in 2005. The program set a target price to compensate 85% of the difference in the market price from the government’s fiscal budget. This enabled farm household income to stabilize despite the fall in market prices as farm prices, which included direct payments, did not deviate significantly from target prices. The direct payment program paid out fixed and variable payments to farmers. Fixed payments were classified as a “green box” since a constant amount (700,000 won per hectare) was paid regardless of market prices. However, variable payments were considered to be “amber box” subsidies subject to reduction, as they were paid out in connection with market prices.

The target price of 170,083 won per 80kg was determined taking into account market prices and income effects of the government procurement
program. Fixed payments were only given for farmland actually producing rice in the basis year (1998~2000), provided that the currently idle farmland maintains the shape and form of paddy fields, or the farmland is cultivated with other crops. While those farmland plots subject to variable payments are the same as those subject to fixed payments, farm households must cultivate rice in order to receive the direct payment. As variable payments are coupled with production, criticism that direct payments may create oversupply has been raised.

With the introduction of the direct payment program to facilitate the income stability of farm households, the government’s procurement program was no longer needed. In addition, as both the procurement program and the variable payments are based on AMS that is subject to reduction, it has become difficult to simultaneously implement the two programs. The discussions on the significant reduction of AMS in the DDA negotiations currently underway have also greatly affected the change in Korean policy. Accordingly, the direct payment program was introduced while, at the same time, the procurement program was abolished in 2005.

### Table 3-3 Direct Payments

<table>
<thead>
<tr>
<th>Year</th>
<th>market price</th>
<th>fixed payment(^1)</th>
<th>variable payment</th>
<th>farm price</th>
<th>total direct payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>140,028</td>
<td>9,836</td>
<td>15,710</td>
<td>165,574</td>
<td>15,045</td>
</tr>
<tr>
<td>2006</td>
<td>147,715</td>
<td>11,475</td>
<td>7,537</td>
<td>166,727</td>
<td>11,539</td>
</tr>
<tr>
<td>2007</td>
<td>150,810</td>
<td>11,475</td>
<td>4,907</td>
<td>167,192</td>
<td>9,912</td>
</tr>
<tr>
<td>2008</td>
<td>162,307</td>
<td>11,475</td>
<td>0</td>
<td>173,782</td>
<td>7,118</td>
</tr>
<tr>
<td>2009</td>
<td>142,360</td>
<td>11,536</td>
<td>12,028</td>
<td>165,924</td>
<td>12,330</td>
</tr>
</tbody>
</table>

footnote: 1) the basic unit of fixed payment was increased from 600 thousand won per hectare in 2005 to 700 thousand won in 2006.
1.1.4. Public Stock Holding Programme

Public stock holding is a program in which the government stocks a certain amount of a commodity in its reserves in preparation for disasters or emergencies. In 1980, rice prices surged as rice production remained at only 58.7% of target level due to low temperature conditions. In turn, consumers expressed their dissatisfaction as desired quality rice was not supplied timely to the market. In order to raise the level of food security, the government discussed the introduction of a public stock holding system to expand its fiscal year end stocks to a 9-month consumption level. However, the system was not implemented due to the burden on government finances.

Over the years, the government procurement system was used as a means to achieve food safety, along with the enhancement of rice farmers’ income through price supports. In times when the market supply of rice decreases due to bad harvests, the government would release its stocks to facilitate market stability. Accordingly, the government released reports of the costs related to its procurement program, such as transportation, storage and handling costs, to the WTO as public stock holding costs. However, achieving food security through the existing procurement system was not consistent with international standards and did not adhere to the basic principles of public stock holding. The Korean public stock holding program was not only being implemented without detailed standards and clear objectives, but also could not effectively respond to unstable supply and demand during bad harvest seasons due to low numbers of shares available.

In order for a public stock holding program to be recognized as a green box policy under the WTO system, it must comply with the following
conditions: 1) there must not be any price supports for producers, 2) target amounts of stocks for food safety purposes must be pre-determined, and 3) government must buy at market prices and sell at prices not below market prices.

Since 2005, the Korean government has decided on an implementation principle of setting the base amount of rice for year-end public stockholding at 864,000 tons, purchasing and releasing 432,000 tons of rice every year. It also decided to review the size of its public stockholdings after three years, taking into account such factors as rice consumption.

The price at which the government purchases rice from farm households for its public stockholding is the market price during the harvest season. As harvest season prices are not determined when the government purchases its public stockholding rice, it initially pays 80% of the previous year’s nationwide average price (grade 1 product basis) and settles the remainder after the harvest season price is set. Selling prices of public stock are determined in relation to market prices.

With the introduction of the income compensation and public stockholding programs, rice prices were able to be determined according to supply and demand without the need for the government’s artificial manipulation of stocks. With the implementation of the two programs, the rice market was allowed to be operated according to market functions.

1.1.5. Import Policies

In lieu of delaying the imposition of tariffs as a result of the UR negotiations, Korea gradually imported minimum market access (MMA) quotas from 1% up to 4% of the base year (1988~1990) consumption over a period from 1995 to 2004. For imports subsequent to 2004, Korea
had agreed to open negotiations in 2004 with stakeholder countries. In 1995, 1% of table rice consumption or 51,000 tons (milled rice basis) were imported, while 4% or 205,000 tons were brought into Korea in 2004.

In the 2004 rice negotiations, Korea agreed to expand its mandatory import quotas from 4.0% of base year consumption to 7.966%, provided that rice tariffs were delayed for 10 years. In addition, it also agreed to sell a certain portion of imports as food use. In turn, quotas to be sold in the market are expected to increase from 23,000 tons in 2005 to 123,000 tons by 2014. During the grace period for tariffication, Korea may convert its policy and introduce tariffs according to changes in the progress of the DDA negotiations, or if deemed to be required by the Korean government. In this case, MMA quotas subsequent to its conversion equal the MMA quotas at the time of the conversion.

Rice is imported into Korea upon the government’s tender notice for bids to purchase imported rice bound by the import quotas of each country and according to certain criteria, such as quality, specified in the notice. The state trading enterprise conducts competitive bids to importers on a lowest

**Figure 3-6 MMA import and market sales**

![MMA import and market sales](image-url)
bid basis. A contract is signed between the successful bidder and the state trading enterprise after the bidder pays a contract deposit. As rice is imported into Korea through a lowest bid system, it may be difficult to import high quality rice from overseas.

The imported rice is sold to distributors through an open bid system. Any difference between import price and sales prices is accrued to the government as a mark-up. The distributors who win bids for imported rice at the highest price sell the rice to retail stores or meal service companies. The imported rice for sale in the market is mainly consumed at meal service companies or restaurants.

Rice imported other than for market sales is sold for processing and brewing. Sales prices are determined by the government, taking into account market demand.

Korea imports the most rice from China, followed by the US. The rice imported from China and the US is mainly Japonica type rice. While the amount is not large, Indica rice from Thailand is also being regularly imported.
1.2. Barley

1.2.1. Supply and Demand

Barley was cultivated as one of key food crops during periods when rice was in shortage. However, barley is losing its ground as a major food crop due to increases in rice production and wheat imports.

The cultivation area of barley (including common barley, naked barley and beer barley) decreased from 160,000 hectares in 1990 to 57,000 hectares in 2006. The cultivation area of barley in 1990 represents only an 22% of 730,000 hectares in 1970. From 1990 to these days, production per hectare is recorded as 2.6~3.2 tons with large differences every year according to the climate conditions. As the cultivation area of barley decreased, barley production also fell from 416,000 tons in 1990 to 148,000 tons in 2006.
Annual per capita consumption of barley was maintained at a level of 1.5~1.7kg from 1990 to 2002. However, it has fallen to 1.0~1.2kg during the period between 2003 and 2009, resulting in the decline of the total demand for barley from 427,000 tons in 1990 to 368,000 tons in 2009. Approx 15 percent of total demand is for the table use, while the rest is used for processing. In 2009, 54,000 tons out of the total demand of 368,000 tons were for food use, while 267,000 tons were consumed for processing.

Stocks of domestic barley are on the rise as the consumption for food use declines and as barley for processing use, which accounts for 80% of consumption, is mainly supplied through imported barley. The stocks as of the end of the 2009 rice year were 200,200 tons, equaling four times the annual barley consumption for food use and more than half of the total demand.

1.2.2. Import Policies

The market for barley was liberalized by tariffs during the UR negotiations. As there were no prior imports during the period between 1986 and 1988, Korea guaranteed minimum market access to the domestic market. MMA quotas increased from 14,150 tons in 1995 to 23,582 tons in 2004, which equals 5% of the base year consumption. The barley imported through MMA has been mainly consumed as animal feed or for processing and industrial use. Beer barley is imported at low tariff rates and is used for brewing purposes.

1.2.3. Procurement Program

In order to encourage barley production, the Korean government introduced a government procurement system at a time when rice was in
Agriculture in Korea

shortage. The applied increased rate of barley procurement price was the same as the increased rate of rice procurement price up until 1994. After the abolition of the rice procurement program, the procurement price of barley was frozen at 84,870 won per 76.5kg sack of barley, and decreased to 78,221 won in 2008 and 73,528 won in 2009.

The biggest source of demand for barley comes from the government as it procures 80% of total amount of barley domestically produced. This means that the domestic barley market is relatively small and that the procurement program guarantees a significant sales channel for barley to farm households. In line with the abolition of the rice procurement program in 2004, the same program for barley will also likely be discontinued as the government’s basic policy shifts from price supports to income policies.

1.3. Soybeans

1.3.1. Supply and Demand

Annual demand for soybeans is between 1.3~1.6 million tons with both domestic production and imports being supplied to the domestic market. Domestic production fell to 105,000 tons in 2004, but has recently
picked up slightly. Changes in imports, on the other hand, have been minimal, remaining at around 1.5 million tons.

Food consumption accounts for approximately 3.97% of the total soybean use with the remainder being consumed as animal feed. Of the 397,000 tons of soybeans consumed as food in 2006, 136,000 tons were used for making tofu, 48,000 tons for soybean-fermented pastes, 32,000 tons for soybean sprouts, 28,000 tons for soya milk, and 153,000 tons for other uses. Food soybean is consumed through domestic production and imports. While per capita soybean consumption up to 2003 decreased to 8.0kg, it has expanded to 9kg since 2005 in line with increased consumer interest in health foods. Animal feed soybean consumption is maintained at around the 1 million-ton level, which is entirely consumed from imports.
1.3.2. Production Support Policies

During 1983~1988, the soybean production increase program was implemented, raising government procurement prices every year and expanding the portion of government procurement in domestic production. Government procurement increased from 1.8% of domestic production in 1983 to 36.1% in 1989. As procurement price was raised every year, it has exceeded soybean prices received by farmers subsequent to 1985. In addition, an active production expansion policy was implemented in which import and procurement of soybeans were conducted by the National Agricultural Cooperative Federation, which, in turn, supplied quality seed stock and compound fertilizers exclusively for soybean farmers purchased with proceeds from the sales of imported soybeans.

Despite the increase in government procurement, the three major companies avoided buying domestic soybeans purchased by the government as they were more expensive than imports. As a result, the soybean production expansion plan was put on halt in 1989, while soybean import and procurement operations were transferred to the Korea Agro-Fisheries Trade Corporation. For soybeans produced between 1989 and 1991, a price difference compensation program was implemented for soybean processing companies to reimburse the difference in procurement and import prices. In the case of the 1989 produce, a total price difference of 45.3 billion won was paid out for 32,000 tons of soybeans.

The procurement amount was significantly decreased in line with the government’s import liberalization policies. Accordingly, the share of government procurement among domestic production declined to 4.7% in 2001. During 1990~1998, procurement prices were either frozen or raised minimally, leading to a substantial fall in the proportion of government
### Table 3-5  Production, procurement, and prices of soybeans

<table>
<thead>
<tr>
<th>year</th>
<th>production</th>
<th>procurement (ratio)</th>
<th>prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>procurement price</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1)</td>
<td>2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>year</th>
<th>production</th>
<th>procurement</th>
<th>prices</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1983</td>
<td>226,368</td>
<td>4,054(1.8)</td>
</tr>
<tr>
<td></td>
<td>1984</td>
<td>253,527</td>
<td>11,946(4.7)</td>
</tr>
<tr>
<td></td>
<td>1985</td>
<td>233,863</td>
<td>20,270(8.7)</td>
</tr>
<tr>
<td></td>
<td>1986</td>
<td>198,537</td>
<td>18,504(9.3)</td>
</tr>
<tr>
<td></td>
<td>1987</td>
<td>203,478</td>
<td>19,460(9.5)</td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>239,431</td>
<td>52,773(20.4)</td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>251,552</td>
<td>90,684(36.0)</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>232,786</td>
<td>68,817(29.6)</td>
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<tr>
<td></td>
<td>1991</td>
<td>183,171</td>
<td>35,973(19.6)</td>
</tr>
<tr>
<td></td>
<td>1992</td>
<td>175,925</td>
<td>25,730(14.6)</td>
</tr>
<tr>
<td></td>
<td>1993</td>
<td>170,151</td>
<td>8,147(4.8)</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>154,380</td>
<td>5,314(3.4)</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>159,640</td>
<td>3,248(2.0)</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>160,081</td>
<td>1,269(0.8)</td>
</tr>
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<td></td>
<td>1997</td>
<td>156,489</td>
<td>5,488(3.5)</td>
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<td>1998</td>
<td>140,441</td>
<td>6,150(4.4)</td>
</tr>
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<td></td>
<td>1999</td>
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</tr>
<tr>
<td></td>
<td>2000</td>
<td>113,196</td>
<td>4,113(3.6)</td>
</tr>
<tr>
<td></td>
<td>2001</td>
<td>117,723</td>
<td>5,498(4.7)</td>
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<tr>
<td></td>
<td>2002</td>
<td>115,024</td>
<td>4,832(4.2)</td>
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<tr>
<td></td>
<td>2003</td>
<td>105,089</td>
<td>5,441(5.2)</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>138,570</td>
<td>10,463(7.6)</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>183,338</td>
<td>12,552(6.8)</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>156,404</td>
<td>14,111(9.0)</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>114,245</td>
<td>4,352(3.8)</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>132,674</td>
<td>2916(2.2)</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>139,251</td>
<td>1272(0.9)</td>
</tr>
</tbody>
</table>

Footnote:  
1) ratio of procurement to production,  
2) figures in parentheses show the procurement prices of paddy field soybeans,  
3) average prices received by farmers from November to December, released by Nonghyup Monthly Statistical Survey. The figures of 2008 and 2009 are calculated on the 4Q farm price index.  
Source: MiAFF, Food Grain Policy Division.
procurement as purchase prices were below market prices after 1994. As a result, the volume of government procurement during 1993 to 2001 fell to 1~5% of domestic production.

As a means to alleviate problems related to oversupply of rice and enhance food self-sufficiency, the government sought various measures to support soybean cultivation on paddy fields. In order to induce paddy field soybean cultivation, the government set procurement prices of paddy field soybeans at rice income levels, favoring it over soybeans grown in upland fields. Taking into account rice income of 724,000 won per 10 acre, the procurement price of paddy field soybeans was fixed at 4,770 won per kg. Accordingly, the government procurement was centered on paddy field soybeans after 2003 as paddy field soybean procurement prices were above farmer prices, while farmer prices of upland field soybeans were below government procurement prices.

As the procurement prices of paddy field soybeans were raised, the cultivation area also increased significantly. However, the procurement also brought about such side effects as a fall in soybean prices. In 2006, the
cultivation area of paddy field soybeans expanded to 11,944 hectare from 4,481 hectare in 2002. Nevertheless, the soybean price per kg increased from 2,397 won in 2002 to 3,040 won in 2004, but then fell to 2,037 won in 2006. Since 2006 when the differentiated procurement of soybeans from paddy fields was abolished, the production decreased, and as of 2007, farm prices are again on the rise.

1.3.3. Import Policies

Since 1995, Korea has been importing current market access (CMA) quotas of soybeans as soybean imports were liberalized in terms of tariff equivalents equaling the difference in domestic and international prices as set by the UR negotiations. The total CMA quotas are 1.032 million tons, comprised of 186,000 tons for food and 846,000 tons for animal feed.

The CMA quotas are determined on the basis of average amount of imports during 1988~1990. The market access quotas are also increased according to the supply and demand of soybeans in the domestic market.

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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<tr>
<td>Tariffs (%)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Government</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Private</td>
<td>535.6</td>
<td>508.6</td>
<td>503.2</td>
<td>497.8</td>
<td>492.4</td>
<td>487.0</td>
<td>487.0</td>
<td>487.0</td>
<td>487.0</td>
<td>487.0</td>
<td>487.0</td>
</tr>
<tr>
<td>CMA Quotas</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
<td>186</td>
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<tr>
<td>Quota Increase</td>
<td>108</td>
<td>129</td>
<td>129</td>
<td>108</td>
<td>88</td>
<td>109</td>
<td>121</td>
<td>98</td>
<td>62</td>
<td>109</td>
<td>96</td>
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<tr>
<td>Total</td>
<td>294</td>
<td>315</td>
<td>315</td>
<td>294</td>
<td>274</td>
<td>295</td>
<td>307</td>
<td>284</td>
<td>248</td>
<td>295</td>
<td>282</td>
</tr>
</tbody>
</table>

Source: MIFAFF Food Grain Policy Division,
The quota increases in excess of CMA reaches a total of 600,000–800,000 tons with 100,000–130,000 tons of food soybeans being imported annually. The quotas for food soybeans have been increased at the request of the soybean processing industry including soy curd cooperatives. Quota increases are determined without consideration of domestic soybean production. Accordingly, such decisions have been criticized for weakening the foundation of domestic soybean production.

Import and regulation bodies, as well as applied tariff rates, differ depending on the use of imported soybeans. Of the market access quota, food soybeans are subject to state trade with its management delegated to the Korea Agro-Fisheries Trade Corporation, while soybeans used for animal feeds are directly imported by actual companies seeking the import. With 2004 as the base year, tariff equivalent was 487% (or 956 won/kg). Of the tariff rate quotas, 1% duty is imposed on soybeans used for oil and oil cakes while 5% duty is imposed on soybeans used for food soybeans.

<table>
<thead>
<tr>
<th>Table 3-7</th>
<th>Wholesale prices of domestic and imported soybeans, and government supply price</th>
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<tbody>
<tr>
<td>domestic(A)</td>
<td>2,631</td>
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<tr>
<td>imports(B)</td>
<td>1,366</td>
</tr>
<tr>
<td>imports(C)</td>
<td>410</td>
</tr>
<tr>
<td>B/A</td>
<td>51.9</td>
</tr>
<tr>
<td>C/B</td>
<td>30.0</td>
</tr>
</tbody>
</table>

footnote: 1) wholesale prices, 2) government supply prices, Source: Korea Agro–Fisheries Trading Corporation, MIFAFF Food Grain Policy Division.
A portion of food soybeans imported through state trading is sold at prices arbitrarily set by the government, while the rest is sold publicly in the wholesale market. There is a large price discrepancy between the prices of imported soybeans sold publicly, soybean imports sold at regular prices, and soybeans produced domestically. The government determines the price at which it is supplied by taking into account international prices of soybeans, exchange rates and shipping charges. The supply price of imported soybeans in 2009 was 1,035 won/kg, taking up only 32.7% of the domestic wholesale price of 3,671 won. The low supply price of imported soybeans has raised concerns that it curtails the motivation of farmers to produce soybeans. The price of imported soybeans sold in the wholesale market in 2006 was 3,169 won, or 86% of the domestic soybean wholesale price, while remaining mostly at around 60% level in other years.

1.4. Corn

As corn is one of the government procurement and reserve items, the government purchases a certain amount of corn and put them up for the public sale to stabilize prices. Most of the domestic production is green corn, and Korea is relying mostly on imports to meet the processing demand. After purchasing corn at the procurement price which includes difference compensation, the government first sells the quota that can be sold at the purchased price, and then sells the rest to consumers at the price reflecting international prices. As of 2009, self-sufficiency of corn is 1%, showing how small corn
production is in Korea. Under the circumstances, Korea heavily depends on corn import, and this trend is expected to continue in the future.

Corn production is relatively small, having decreased from 121,000 tons in 1990 to 93,000 tons in 2009, while the demand during the same period increased from 6.425 million tons to 9.511 million tons. Edible corn accounted for only 0.9% of total demand in 2009 at only 90,000 tons, while corn for processing use and animal feed comprised 23.3% and 75.4%, respectively. In this respect, domestic corn production reaches only the levels required to meet food corn demand.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>supply</td>
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<td>9,402</td>
<td>9,482</td>
<td>9,662</td>
<td>9,515</td>
<td>9,296</td>
<td>9,887</td>
<td>10,313</td>
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<tr>
<td>carry-over</td>
<td>572</td>
<td>434</td>
<td>515</td>
<td>975</td>
<td>766</td>
<td>614</td>
<td>487</td>
<td>1,231</td>
</tr>
<tr>
<td>production</td>
<td>121</td>
<td>89</td>
<td>79</td>
<td>78</td>
<td>73</td>
<td>65</td>
<td>84</td>
<td>93</td>
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<td>import</td>
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<td>8,879</td>
<td>8,888</td>
<td>8,609</td>
<td>8,676</td>
<td>8,617</td>
<td>9,317</td>
<td>8,989</td>
</tr>
<tr>
<td>demand</td>
<td>6,425</td>
<td>8,066</td>
<td>8,613</td>
<td>8,896</td>
<td>8,901</td>
<td>8,809</td>
<td>8,656</td>
<td>9,511</td>
</tr>
<tr>
<td>food</td>
<td>3</td>
<td>-</td>
<td>35</td>
<td>73</td>
<td>70</td>
<td>61</td>
<td>79</td>
<td>88</td>
</tr>
<tr>
<td>processing</td>
<td>1,466</td>
<td>1,709</td>
<td>2,046</td>
<td>2,205</td>
<td>1,989</td>
<td>1,957</td>
<td>1,596</td>
<td>2,213</td>
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<tr>
<td>feed</td>
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<td>6,300</td>
<td>6,475</td>
<td>6,583</td>
<td>6,809</td>
<td>6,757</td>
<td>6,942</td>
<td>7,175</td>
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<td>57</td>
<td>57</td>
<td>35</td>
<td>33</td>
<td>34</td>
<td>39</td>
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<td>766</td>
<td>614</td>
<td>487</td>
<td>1,231</td>
<td>801</td>
</tr>
<tr>
<td>self-sufficiency (%)</td>
<td>1.9</td>
<td>1.1</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
<td>0.7</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Table 3-8 Supply and demand of corn  
unit: thousand tons
1.5. Wheat

Since 1990, self-sufficiency of wheat has been below 1%. As local production of this crop is small, Korea is highly dependent on the import of wheat. It was the first crop to be affected by market liberalization. Domestic production has decreased to minimal levels as the procurement program was abolished in 1984. In 1980, before the procurement program disappeared, wheat production was 92,000 tons but in the years after 1990, the figure maintained less than 10,000 tons. However, due to the recent hike in the wheat demand, its production in 2009 increased to 19,000 tons.

Annual wheat imports were below 3 million tons in the 1990s, but have increased to over three million tons since 2000. The increase in imports can be attributed to a sharp rise in wheat demand for animal feed. The key

<table>
<thead>
<tr>
<th>Table 3-9</th>
<th>Supply and demand of wheat</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>unit: thousand tons</td>
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<tr>
<td>supply</td>
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<tr>
<td>carry-over</td>
<td></td>
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<tr>
<td>production</td>
<td>1</td>
</tr>
<tr>
<td>import</td>
<td>2,239</td>
</tr>
<tr>
<td>demand</td>
<td>2,005</td>
</tr>
<tr>
<td>food</td>
<td>903</td>
</tr>
<tr>
<td>processing</td>
<td>992</td>
</tr>
<tr>
<td>feed</td>
<td>98</td>
</tr>
<tr>
<td>depletion</td>
<td>12</td>
</tr>
<tr>
<td>stock</td>
<td>472</td>
</tr>
<tr>
<td>self-</td>
<td>0.1</td>
</tr>
<tr>
<td>sufficiency (%)</td>
<td></td>
</tr>
</tbody>
</table>
countries from which Korea imports wheat include the US, Australia and Canada. The US and Australia account for a high portion of wheat imported for flour use, while China has a large share of animal feed wheat.

Wheat demand expanded from 2,005,000 tons in 1990 to 3.63 million tons in 2009. Wheat consumed for food in 2009 was 1.61 million tons with domestic wheat production accounting for 1.2% of total wheat demand for food. Meanwhile, the total volume of wheat for animal feed is imported. As of 2009, wheat for processing and animal feed account for 13.9% and 40.9% out of total demand. As domestic wheat production is very low, self-sufficiency rate of wheat as of 2009 recorded around a mere 0.5%.

1.6. Outlook and Tasks

Korean rice policy shifted from a market-distorting price support policy to an income policy with the launch of rice negotiations in 2004. Since 2005, rice prices have been determined according to supply and demand without government intervention, leading to efficient allocation of resources. However, as income policy is partially coupled with production, its implementation needs to be improved to a more efficient method. In addition, the rationality of the import policy that purports to increase MMA quotas every year in exchange for delaying tariffication up until 2014 needs to be reviewed. This is because rice imports may not increase despite conversion to tariff if the difference between domestic and international prices can be expanded somewhat. Furthermore, Korea must enhance the competitiveness of its rice in terms of both export price and quality as its rice market is scheduled to shift to a tariff system after 2014.

In the case of barley, policies need to be improved as production has exceeded the demand for food barley due to the procurement program.
Imports of barley used for processing purposes are inevitably going forward as a significant gap in domestic and international prices exists. In addition, it may become difficult to maintain the foundation of domestic production if the procurement program that has supported prices is abolished. Accordingly, a direct payment system needs to be reviewed to replace the existing price support policy to allow for food barley to be produced domestically.

The Korean government currently implements a procurement program to increase domestic production. However, while production may increase if procurement prices are raised, such a price support policy can not be sustained in the future as it is subject to reduction. As a result, the introduction of contract farming or a direct payment system for stabilizing the perceived price by farmers needs to be examined to maintain production domestically.

As for the corn and wheat markets, which are highly dependent on imports, there needs to be institutional management of the markets so that stable amounts of corn and wheat can be imported at adequate prices. In this respect, a diverse range of policies including overseas contract production and utilization of futures markets should be reviewed.
Section 2. Livestock

Among the various livestocks comprising domestic livestock industry, key livestocks to domestic supply and demand include cow, pig and chicken and major livestock products include beef, pork, chicken, milk and egg, etc.

This chapter briefly covers production and consumption in the industry and focuses on production, consumption and trade of beef, pork, milk, chicken and egg. Then major policies employed for the development of livestock industry in the past or at the moment will be introduced followed by prospects and challenges of the livestock.

Outline

In the face of various challenges surrounding the domestic livestock industry, livestock production and its share in agriculture have increased with rising demand from expanding national income and population. Per capita meat consumption increased at an annual rate of 3.2% from 19.9kg in 1990 to 36.8kg in 2009, while meat production increased 2.5% annually from 775,000 tons to 1.26 million tons. During the same period, imports also increased as the growth rate of consumption surpassed that of meat production. Accordingly, the self-sufficiency rate of meat declined from 90% to 71.7%.

The domestic livestock industry had shown continued growth driven by increases in demand for livestock products. However, it has undergone numerous adversities beginning in the 1990s. With the conclusion of the Uruguay Round negotiations in 1994, imports of livestock products were liberalized. In 1998, the industry underwent restructuring as a result of the...
financial crisis. In addition, pork exports to Japan were halted in 1999 due to the outbreak of foot-and-mouth disease (FMD).

Coming into the 2000s, FMD and avian influenza (AI), along with the outbreak of bovine spongiform encephalopathy (BSE), had a significant impact on the domestic meat consumption, causing a decrease in 2004 in the meat consumption which had continuously been increasing to that point. Nevertheless, demand began to recover in 2005 and started to be on an increasing trend once again. While meat consumption continued to expand, domestic production has declined since the financial crisis in 1998, and meat imports continued to increase.

Livestock production in 2009 increased to 16,484.0 billion won from 3,951.6 billion won in 1990, expanding its share in agriculture from 25.3% to 39.9% in 2009. Since 2005, livestock production has exceeded rice production in value. In 2009, the shares of livestock products in total livestock production in terms of value were 33.2% for pork, 24.8% for Korean beef cattle, 10.5% for milk, 12.3% for chicken and 8.2% for eggs.
After the financial crisis, however, share of production by livestock has dramatically shifted. The production of pork meat exceeded that of Korean beef since 1998 which manifests that the financial meltdown had the greatest impact on Korean beef industry.

2.1. Beef

2.1.1. Production and Consumption

As the number and price of beef cattle increased, beef production grew considerably from 922.3 billion won in 1990 to 494.8 billion won in 2009. On the basis of the amount produced, the share of beef cattle in the livestock industry also increased from 23.5% in 1990 to 24.8% in 2009.
The number of beef cattle increased from 1.62 million head in 1990 to 2.63 million head in 2009. Its number peaked at a record high of 2.843 million head in 1996, but has gradually declined with the financial crisis. In line with the tariffication of beef imports in 2001, the number decreased to 1.406 million head. Subsequently, however, the number of beef cattle began to steadily increase to again exceed 2.60 million head in 2009 as a result of the rise in the demand for beef and native cattle price.

The number of cattle farms declined from 620 thousand households in 1990 to 170 thousand households in 2009. In the wake of the financial crisis in 1998 and import liberalization in 2001, the number of cattle farms with herd size of less than 10 head decreased significantly. The number of beef cattle per cattle farm increased from 2.6 head in 1990 to 15.1 head in 2009 as the total number of beef cattle increased while the number of cattle farms decreased.

In order to increase the competitiveness of the native cattle industry in response to the launch of the WTO, the government sought to increase the
size and number of specialized cattle farms. As a result, the number of specialized cattle farms with a herd of 50 or more head increased from 956 households in 1990 to 11,148 households in 2009, while the number of beef cattle rose from 88,502 head to 696,139 head. The proportion of specialized native cattle farms increased from 0.2% in 1990 to 6.4% in 2009, and the proportion of beef cattle raised at full-time cattle farms, too, increased from 5.5% to 45.6%.

As a result of the increase in the number of beef cattle, the number of beef cattle slaughtered also rose from 313,787 head in 1990 to 756,550 head in 2009. Of the beef cattle slaughtered in 2009, native cattle accounted for 85.1% while non-beef cattle comprised 14.9%. The slaughter weight of native male cattle also increased from 444kg in 1990 to 668kg in 2009. With the increase in both the number of beef cattle and slaughter weight, beef production climbed from 94,924 tons in 1990 to 197,676 tons in 2009.

In line with the increase in national income, per capita annual consumption of beef increased from 4.1kg in 1990 to 8.1kg in 2003. However, due to the outbreak of BSE in the US, it fell to 6.6kg in 2005, recovering slightly in 2009 to 8.1kg. While the self-sufficiency rate of beef was over 50% prior to 2000, the figure dropped to 42.8% in 2001 with the tariffication of beef imports and further slipped to 36.2% in 2003. The rate recovered to 50% in 2009 as beef production increased, while imports dropped significantly due to quarantine problems related to US beef subsequent to 2004.

The financial crisis in 1998 greatly affected beef supply and demand. While beef consumption declined in its aftermath, the costs of purchasing feed increased as import prices of feed were raised. Due to the deteriorating profitability of native cattle farms, the volume of early cattle shipments
flooding the market significantly increased the volume of beef produced. Subsequent to 1999, the production declined with the fall in the number of beef cattle. However, it has picked up since 2004 as a result of the increase in beef consumption and native cattle prices.

The outbreak of BSE in December 2003 in the US also had a substantial impact on the domestic consumption of beef. Due to the consumers’ mistrust of American beef that had previously accounted for over 60% of domestic beef imports, consumption declined significantly in the first half of 2004. Consumer sentiment started to recover in the second half of 2004 and the demand for beef increased. However, beef consumption fell in 2005 as beef supply was reduced due to a halt in the imports of US beef. Nevertheless, it has reversed back to a growth trend beginning in 2006 as
supply was expanded through increased domestic production and imports from Australia.

2.1.2. Trade

According to the UR negotiations concluded in December 1993, beef imports were fully liberalized in 2001. The rate of duty imposed on imported beef reached 41.6% in 2001. However, the duty rate since then was reduced every year by an equal amount, and a 40% rate has been applied since 2004.

Beef imports increased significantly from 81,855 tons in 1990 to 293,653 tons in 2003. However, it fell to 132,874 tons in 2004 as beef imports from North America were suspended due to the outbreak of BSE in the US and Canada in 2003. Subsequently, beef imports from Australia

<table>
<thead>
<tr>
<th>Year</th>
<th>US</th>
<th>Australia</th>
<th>Canada</th>
<th>New Zealand</th>
<th>Mexico</th>
<th>Others</th>
<th>Total</th>
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<tbody>
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<td>1999</td>
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<td>79,625</td>
<td>11,616</td>
<td>8,535</td>
<td>10</td>
<td>197,489</td>
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<td>11,595</td>
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<tr>
<td>2003</td>
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<td>64,127</td>
<td>4,756</td>
<td>25,314</td>
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<td></td>
</tr>
<tr>
<td>2004</td>
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<td>0</td>
<td>46,197</td>
<td>660</td>
<td>132,869</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>0</td>
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<td>39,001</td>
<td>2,227</td>
<td>142,591</td>
<td></td>
</tr>
<tr>
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<td>0</td>
<td>39,570</td>
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<td>179,405</td>
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<tr>
<td>2007</td>
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<td>147,376</td>
<td>0</td>
<td>38,244</td>
<td>2,549</td>
<td>202,785</td>
<td></td>
</tr>
<tr>
<td>2008</td>
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<td>0</td>
<td>37,385</td>
<td>3,040</td>
<td>224,092</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>49,973</td>
<td>116,714</td>
<td>0</td>
<td>30,162</td>
<td>1,007</td>
<td>197,860</td>
<td></td>
</tr>
</tbody>
</table>

Source: Korea Meat Trade Association.
increased and, as a result, total beef imports rose to 197,860 tons in 2009.

Australian beef imports in 2009 reached 116,714 tons, accounting for 59.0% of total imports, while U.S. beef comprised 25.3% at 49,973 tons. In terms of imports by parts, ribs constituted the highest amount at 75,676 tons, followed by shoulder clod at 22,652 tons, loin at 29,315 tons, and collar at 12,521 tons. Prior to the outbreak of BSE in the US, American beef accounted for 67.9% of total beef imports at 199,409 tons on the basis of 2003 beef imports. In addition, Australian beef comprised 21.8% of imports at 64,127 tons, while beef from New Zealand captured 8.6% at 25,314 tons. Major imports by parts include ribs and collar amounting to 160,699 tons and 58,338 tons, respectively. In the case of US beef imports, 66.5% were ribs.

2.2. Milk

2.2.1. Production and Consumption

Despite the fall in the number of dairy cattle, milk production increased significantly from 637.7 billion won in 1990 to 1,738.4 billion won in 2009 due to the rise in milk yields. However, the share of milk within the livestock industry in terms of production value fell from 16.3% in 1990 to 10.5% in 2009.

The number of dairy cattle increased from 503,947 head in 1990 to 553,343 head in 1993, but has fallen to 444,648 head in 2009. The number of dairy farms also dropped to 6,767 households in 2009 from 33,277
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On the other hand, the number of dairy cattle per household increased from 15.1 head in 1990 to 65.7 head in 2009. The number of dairy farms has been on a continued decline in line with the shut-down of small-sized farms, which, in turn, has increased the number of dairy cattle per household.

The number of specialized dairy farms with a herd of 50 or more head increased from 659 households in 1990 to 4,406 households in 2009, and the number of dairy cattle also increased from 57,455 head to 366,114 head. The proportion of specialized dairy farms climbed from 2.0% in 1990 to 65.1% in 2009, while the share of dairy cattle of specialized dairy farms also increased from 11.4% to 82.3%.

Despite the fall in the number of dairy cattle, raw milk production increased significantly from 1,751,758 tons in 1990 to 2,536,648 tons in 2002 due to the rise in milk yields per head. Subsequently, it decreased to 2,109,732 tons in 2009. While raw milk production continued to rise, consumption has stagnated. As the problem of excess inventory of powered
milk was raised in 2002, the government introduced policies to decrease raw milk production, while dairy companies also implemented a production quota system for dairy farms since the end of 2002. As a result, production of raw milk has decreased since 2003. However, the fall in raw milk production has been relatively small compared to the fall in the number of dairy cows resulting from an increase in milk yield per dairy cow.

Per capita annual milk consumption increased from 42.8kg in 1990 to 64.2kg in 2002, but it has subsequently stagnated to remain at 62.3kg levels in 2009. Among dairy products, milk consumption increased from 1,336,452 tons in 1990 to 1,828,541 tons in 2003 and has fallen slightly to 1,701,855 tons in 2009. In the case of butter, consumption increased from 7,254 tons in 1990 to 8,812 tons in 2005, but it has declined to 8,396 tons in 2009. However, cheese consumption has increased significantly from 4,744 tons in 1990 to 64,526 tons in 2009. Due to the fall in milk production, the self-sufficiency rate of milk has fallen to 69.5% in 2009 from 90.1% in 1995.

**Figure 3-16  Production & Consumption of Milk**

Source: National Agricultural Cooperative Federation, Livestock Price and Supply–Demand Data,
2.2.2. Trade

Up until 1994, import restrictions were imposed on the market for dairy products. However, subsequent to the UR agreements, the market was opened to imports in the form of MMA quotas for products sensitive to the domestic dairy industry, imposing low duties for such quotas while applying high tariff rates for any amount exceeding the quotas. As for “non-sensitive” dairy products, the market was liberalized to imports at concession tariff rates.

The amount of dairy imports expressed in terms of raw milk increased from 195,876 tons in 1995 to 959,125 tons in 2009. Dairy imports have been increasing since 2003 due to an increase in the consumption of dairy products except market milk. The dairy imports of cheese, mixed milk powder, condensed milk and butter, in particular, have shown clear increasing trends.

Table 3-11  Change in TRQ and Tariff Rates of Dairy Products Following UR Agricultural Negotiations

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2004 – 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skim Milk Powder</td>
<td></td>
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</tr>
<tr>
<td>Tariff Rate</td>
<td>215.6</td>
<td>176.0</td>
</tr>
<tr>
<td>Quota</td>
<td>621.0</td>
<td>1,034.0</td>
</tr>
<tr>
<td>(Quota Tariff Rate)</td>
<td>(20)</td>
<td>(20)</td>
</tr>
<tr>
<td>Whole Milk Powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tariff Rate</td>
<td>215.6</td>
<td>176.0</td>
</tr>
<tr>
<td>Quota</td>
<td>344.0</td>
<td>573.0</td>
</tr>
<tr>
<td>(Quota Tariff Rate)</td>
<td>(40)</td>
<td>(40)</td>
</tr>
<tr>
<td>Mixed Milk Powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tariff Rate</td>
<td>39.6</td>
<td>36.0</td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tariff Rate</td>
<td>39.6</td>
<td>36.0</td>
</tr>
</tbody>
</table>

Source: Korea Dairy Committee, Dairy Handbook.
Dairy imports in 2009 reached US$498.99 million, rising significantly from US$166.76 million in 1995. Cheese accounted for the largest portion of dairy imports in 2009 at 38.1%. The proportion of skim and whole milk powder is relatively small as high tariff rates are imposed on imports in excess of TRQs. However, the proportion of mixed milk powder in terms of market value is the second highest next to cheese as its tariff rate is low.

Korea imports dairy products mainly from the US, New Zealand, Australia, the Netherlands and France. The imports from the five countries
accounted for 74.7% of total dairy imports in 2009, with the New Zealand at 21.7%, followed by Australia at 19.6%, US at 15.5% and the Netherlands at 10.1%. New Zealand exports mostly high-end dairy products such as cheese and compound milk to Korea, while US exports to Korea are centered around low-end dairy products such as whey.

### 2.3. Pork

#### 2.3.1. Production and Consumption

Swine production increased significantly from 1,173.7 billion won in 1990 to 5,473.4 billion won in 2009. In terms of production value, the proportion of swine in the livestock industry remained fairly unchanged from 29.9% in 1990 to 33.2% in 2009.

The number of pigs increased from 4.53 million head in 1990 to 9.58 million head in 2009, peaking in 2002 at 9.87 million head. However, the number has subsequently fallen due to livestock diseases and difficulties in the treatment of livestock wastes. The number of sows began to increase in March 2005 and the total number of pigs started to rise in September of the same year. Pig prices remained high due to the decrease in the number of pigs sold in the market, stemming from the BSE crisis at the end of 2003, and damages from the outbreak of pig diseases (PMWS, PED, etc.).

The number of swine farm households decreased from 133,428 in 1990 to 7,962 in 2009 due to the suspension of pork exports to Japan as a
result of the outbreak of FMD in 1999 and the discontinuation of pig farming by small-sized farms as a result of chronic diseases in the 2000s. Accordingly, the number of pigs per household increased from 33.9 head in December 1990 to 1203.8 head in December 2006.

The number of specialized swine farms with a herd of 1,000 or more head increased from 406 households in 1990 to 3,145 households in 2009, and the number of pigs also rose from 1,053,153 head to 8,289,465 head. Recently, however, pig farms are continuing to fall in number as a growing number of pig farms, each with less than 1,000 pigs, are shutting down their farms due to damages incurred from pig-related diseases. Nevertheless, the number of pigs per farm has increased due to the fall in the number of pig farms. The proportion of specialized swine farms increased from 0.3% in 1990 to 39.5% in 2009, while the proportion of pigs at specialized swine farms has also increased from 23.3% to 86.5%.

With the increase in the number of pigs, the number of pigs

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**Figure 3-17** Number of Pig Farms and Pigs

Source: Statistics Korea, Livestock Statistics,
slaughtered rose from 8,600,930 head in 1990 to 13,918,628 head in 2009. The slaughter weight of pigs also increased from 90kg in 1990 to 111.9kg in 2009. As a result of the increase in both the number of pigs and slaughter weight, pork production climbed from 506,507 tons in 1990 to 722,200 tons in 2009.

Per capita annual pork consumption increased from 11.8kg in 1990 to 19.1kg in 2009 in line with the increase in national income. Imports have also increased due to the shortage in pork production compared to demand, lowering the pork self-sufficiency rate from 99.5% in 1990 to 78.9% in 2009.

2.3.2. Trade

As a result of the UR negotiations, pork imports were fully liberalized in July 1997. The tariff rate imposed on imported pork in 1997 was 33.4%. Since 2004, a tariff rate of 25% is applied as duties were reduced on an
equal scale every year over the period from 1997 to 2004. In line with the Korea-Chile Free Trade Agreement (FTA), which went into effect on April 1, 2004, Korea plans to fully eliminate tariffs on meat over 10 years at an equal rate every year.

Pork imports increased from 2,583 tons in 1990 to 209,840 tons in 2009. Most of the imports came from Europe. However, pork imports from North America increased significantly as beef imports were suspended due to the outbreak of BSE in the North America region in 2003. In 2009, the pork imported from the US and Canada accounted for 48.4% of total pork imports.
Most of the cut meat imports are belly meat from Europe. However, the proportion of US collar meat has expanded with the increase in pork imports from the US after 2003. On a quarantine basis, belly, collar and shoulder clod accounted for 50.7%, 13.2% and 31.5% of total pork imports, respectively in 2009. Of the belly imports, 23.9%, 13.2% and 7.0% were from Chile, France and the US, respectively, while 47.1%, 30.7% and 16.7% of collar meat imports were from the US, Canada and Chile, respectively. In addition, Hungary, US and Chile accounted for 7.8%, 55.1% and 13.8% of rib imports, respectively.

Pork exports have greatly contributed to the growth of the domestic swine industry. This is because the supply and demand for cut pork meat has been well balanced as non-preferred meat parts in Korea are regarded

### Table 3-14 Proportion of Pork Imports by Parts (Quarantine basis)

<table>
<thead>
<tr>
<th>Year</th>
<th>Belly</th>
<th>Collar</th>
<th>Ribs</th>
<th>Picnic</th>
<th>Ham</th>
<th>Loin</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>52.3</td>
<td>10.9</td>
<td>7.7</td>
<td>11.2</td>
<td>1.0</td>
<td>0.9</td>
<td>16.0</td>
<td>100.0</td>
</tr>
<tr>
<td>2001</td>
<td>80.8</td>
<td>9.5</td>
<td>6.8</td>
<td>1.6</td>
<td>0.7</td>
<td>0.4</td>
<td>0.2</td>
<td>100.0</td>
</tr>
<tr>
<td>2002</td>
<td>71.5</td>
<td>11.3</td>
<td>6.0</td>
<td>6.0</td>
<td>2.2</td>
<td>0.1</td>
<td>2.9</td>
<td>100.0</td>
</tr>
<tr>
<td>2003</td>
<td>72.8</td>
<td>7.6</td>
<td>10.1</td>
<td>7.0</td>
<td>0.5</td>
<td>0.4</td>
<td>1.6</td>
<td>100.0</td>
</tr>
<tr>
<td>2004</td>
<td>59.3</td>
<td>12.6</td>
<td>11.3</td>
<td>12.3</td>
<td>0.6</td>
<td>0.3</td>
<td>3.6</td>
<td>100.0</td>
</tr>
<tr>
<td>2005</td>
<td>47.9</td>
<td>14.3</td>
<td>13.9</td>
<td>8.3</td>
<td>0.7</td>
<td>0.4</td>
<td>14.5</td>
<td>100.0</td>
</tr>
<tr>
<td>2006</td>
<td>44.0</td>
<td>20.1</td>
<td>12.1</td>
<td>10.2</td>
<td>0.9</td>
<td>0.3</td>
<td>12.4</td>
<td>100.0</td>
</tr>
<tr>
<td>2007</td>
<td>47.5</td>
<td>27.3</td>
<td>11.0</td>
<td>10.9</td>
<td>0.5</td>
<td>0.5</td>
<td>2.3</td>
<td>100.0</td>
</tr>
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<td>2008</td>
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<td>0.2</td>
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<tr>
<td>2009</td>
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<td>0.5</td>
<td>0.5</td>
<td>1.2</td>
<td>100.0</td>
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</tbody>
</table>

Source: Korea Meat Trade Association.
as preferred parts in Japan, Korea’s major export market. However, exports have significantly been reduced due to the outbreak of FMD in 2000.

Pork exports increased from 5,802 tons in 1990 to 88,306 tons in 1998. However, that figure declined to 10,360 tons in 2008 as exports to Japan were suspended due to the outbreak of FMD in 2000. Currently, pork is exported to the Philippines, Russia and Mongolia, while byproducts including such non-preferred parts as ham in Korea account for most of the cut meat exports.

2.4. Chicken Meat

2.4.1. Production and Consumption

Broiler production increased substantially from 396.7 billion won in 1990 to 2,022.9 billion won in 2009. On the basis of production value, the share of broiler within the livestock industry expanded from 10.0% in 1990 to 12.3% in 2009.

The number of broilers increased from 26.94 million head in December 1990 to 67.19 million head in December 2009. While there was a temporary fall in the number due to the outbreak of AI in 2003, it has rebounded once again beginning in 2004.

The number of broiler farms declined from 3,547 households in 1990 to 1,562 households in 2009. As the number of broilers increased despite a fall in the number of broiler farms, the number of broilers per household has increased from 7,594 head to 43,017 head.

The number of specialized broiler farms with a herd of 10,000 head or
more increased from 1,061 households in 1990 to 1,470 households in 2009, and the number of broilers increased from 16.41 million head to 66.72 million head. The proportion of specialized broiler farms increased from 29.9% in 1990 to 94.1% in 2009, and the proportion of broilers raised at specialized broiler farms also increased from 60.9% to 99.3%.

As the number of broilers increased, the number of broilers slaughtered also rose from 147.54 million head in 1990 to 680.01 million head in 2009. The slaughter weight of broilers decreased from 1.83kg in 1990 to 1.43kg in 2009. Despite the fall in slaughter weight, chicken production increased from 171,698 tons in 1990 to 408,503 tons in 2009 as the number of broilers slaughtered increased significantly.

The broiler industry has most aggressively pursued integration within the livestock industry with the proportion of integrated volume to total chicken production increasing from 15% in 1989 to 80% in 2006.

The per capita annual chicken consumption increased considerably from 4.0kg in 1990 to 9.6kg in 2009. The self-sufficiency rate of chicken
fell from 100% in 1990 to 87.0% in 2009.

2.4.2. Trade

As a result of the UR negotiations, the frozen chicken meat market was opened to imports at a tariff rate of 30.5% beginning on July 1, 1997, upon permitting MMA quotas up until June 30, 1997. In 2004, the tariff rate was lowered to 20%.

Chick import volume increased significantly from 9,800 tons in 1996 to 93,842 tons in 2002. However, imports fell in 2003 as demand contracted with the outbreak of AI in Korea. In 2004, imports further declined substantially with the outbreak of AI in the US and Thailand. With the spread of AI in the US in 2004, chicken imports from the EU expanded considerably during 2004-2005. With the normalization of imports from the US subsequent to the second half of 2005, chicken imports from Denmark in 2006 reduced significantly, while imports from the US rapidly expanded. Chicken imports in 2009 reached 70,625 tons.
with the US, Denmark and Brazil accounting for 41.7%, 2.9% and 42.7%, respectively.

### Table 3-15 Chicken Imports by Country

<table>
<thead>
<tr>
<th>Year</th>
<th>US</th>
<th>Denmark</th>
<th>Brazil</th>
<th>China</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>4,000</td>
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<td>30,161</td>
<td>3,516</td>
<td>5,460</td>
<td>70,625</td>
</tr>
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</table>

Source: Ministry for Food, Agriculture, Forestry and Fisheries, Research on Meat Trade.

### Table 3-16 Chicken Imports by Parts (Custom Clearance Basis)

<table>
<thead>
<tr>
<th>Year</th>
<th>Belly</th>
<th>Collar</th>
<th>Ribs</th>
<th>Picnic</th>
<th>Ham</th>
<th>Loin</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>52.3</td>
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<td>7.7</td>
<td>11.2</td>
<td>1.0</td>
<td>0.9</td>
<td>16.0</td>
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</tr>
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<td>2001</td>
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<td>6.8</td>
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<td>0.7</td>
<td>0.4</td>
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<tr>
<td>2002</td>
<td>71.5</td>
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<td>10.1</td>
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<tr>
<td>2006</td>
<td>44.0</td>
<td>20.1</td>
<td>12.1</td>
<td>10.2</td>
<td>0.9</td>
<td>0.3</td>
<td>12.4</td>
<td>100.0</td>
</tr>
<tr>
<td>2007</td>
<td>47.5</td>
<td>27.3</td>
<td>11.0</td>
<td>10.9</td>
<td>0.5</td>
<td>0.5</td>
<td>2.3</td>
<td>100.0</td>
</tr>
<tr>
<td>2008</td>
<td>52.8</td>
<td>26.1</td>
<td>4.8</td>
<td>14.6</td>
<td>0.2</td>
<td>0.4</td>
<td>1.1</td>
<td>100.0</td>
</tr>
<tr>
<td>2009</td>
<td>50.7</td>
<td>13.2</td>
<td>2.4</td>
<td>31.5</td>
<td>0.5</td>
<td>0.5</td>
<td>1.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Korea Agro-Fisheries Trading Corporation (KATI),
Of the chickens imported into Korea in 2009, chicken legs accounted for 66% at 49,444 tons, and chicken wings comprised 10.1% at 7,124 tons. Excluding the second half of 2004 and the first half of 2005 when chicken imports were suspended due to the outbreak of AI in the US, chicken legs have been mostly imported from the US. In 2006, the proportion of chicken legs from Brazil increased, while none were imported from the EU. Most of the chicken legs from the US are imported without boning, while Brazilian imports are imported after boning. A large portion of chicken leg imports are used for chicken galbi upon boning.

Export of chicken meat increased from 133 tons in 1994 to 11,472 tons in 2009. Even though efforts were made to export chicken meat to overseas countries in earnest since 2002, the task faced difficulties as AI broke out in 2002 and 2004. Twenty-five point four percent of chicken meat exports in 2009 were chicken wings (frozen), while 11.9% were processed chicken contained in airtight bags for cooking the Korean chicken broth Samgyetang. Most of chicken wings are exported to Hong Kong, while the Samgyetang chickens are exported to Japan and Taiwan.

### 2.5. Eggs

#### 2.5.1. Production and Consumption

Egg production greatly increased in 2006 to 867.4 billion won from 380.5 billion won in 1990. In terms of production value, the share of eggs in the livestock industry fell slightly from 7.8% in 1990 to 8.2% in 2009.

The number of layer chickens increased from 42.43 million head in December 1990 to 62.97 million head in December 2006. The number decreased temporarily in 2003 with the outbreak of AI, but it has increased once again since 2004.
The number of layer chicken farms has decreased from 3,932 households in 1990 to 1,687 households in 2009. Accordingly, the number of layer chickens per farm household increased from 10,791 head to 37,325 head in line with the increased number of layer chickens and decreased number of layer chicken farms.

The number of specialized layer chicken farms with a herd of 10,000 or more head increased from 1,049 households in 1990 to 1,349 households in 2009. In addition, the number of layer chickens also rose from 31.25 million head to 60.83 million head. The ratios of specialized layer chicken farms and the number of layer chickens increased from 26.7% to 80.0% and 73.7% to 96.6%, respectively.

As the number of layer chickens expanded, egg production also increased significantly. Egg production in 2009 increased to 579,276 tons.
from 393,305 tons in 1990. Per capita annual egg consumption increased from 9.2kg in 1990 to 11.9kg in 2009. There was little change in the egg self-sufficiency rate from 100% in 1990 to 99.7% in 2009.

2.5.2. Trade

The proportion of egg imports in domestic consumption is very low, accounting for less than 1% in 2009. Imported eggs are comprised of bird eggs, whites and yolks. Bird eggs are mainly imported from China, while whites and yolks are mostly imported from the EU and the US, respectively. Processed egg products are mainly used for bread and confectionery.

2.6. Key Policies

Since 1990, the government has been actively responding to changing circumstances of the livestock market, including market liberalization. In its efforts to improve the productivity and competitiveness of the domestic
livestock industry, the government implemented a diverse range of policies that included establishing the foundations for livestock farming, stabilizing supply, demand and prices, improving livestock and farm management, and enhancing livestock distribution.

### 2.6.1. Establishment of Livestock Farming Foundations

In order to secure the foundations for livestock farming, the government has fostered specialized livestock farms through facilities automation and size expansion. Accordingly, it provided support for machinery and fixtures required for stables, land readjustment and breed management. The government has also implemented programs for securing the infrastructure for the production of animal feed, providing support for infrastructure such as roads, irrigation development and grassland development, along with feed crop seeds, fertilizers, machinery and
equipment.

In the 1990s, livestock wastes were singled out as the primary pollutant of water. Consequently, livestock waste treatment has emerged as the inhibiting factor in establishing the foundations for livestock farming. In order to preserve the living environment and prevent water pollution through the treatment of livestock wastes, the government has set its policy towards recycling livestock wastes as manure to the maximum extent. In case recycling is difficult, the government plans to discharge the waste after it has been treated for purification. Accordingly, it has initially provided support for livestock waste treatment facilities to farms located in water protection zones and special areas for water quality preservation. In addition, it has further provided assistance for renovating old machinery and equipment or installing new facilities for the treatment of livestock wastes in accordance with the Act on the Treatment of Sewage, Excrement and Livestock Waste Water. Furthermore, the government has established livestock manure distribution centers and provided support for liquid fertilizer transportation vehicles and spraying equipment.

2.6.2. Stabilization of Supply, Demand and Price

For the stabilization of the supply, demand, and prices of livestock, the government has conducted such programs as “calf production stabilization program” and “cattle industry information program.” In order to stimulate the consumption, the “livestock check-off program” has been implemented. The “calf production stabilization program” aims at facilitating calf production and farm management stability by compensating cattle breeders for the difference in prices in cases where calf transaction prices fall below
standard stable prices in the livestock market. The program was initially implemented in 1998 on a trial basis in 32 cities and provinces and has subsequently been expanded nationwide since 2000.

Based on the Act on the Promotion of Livestock Product Consumption (May 2002) and the Act on the Establishment and Operation of Livestock Check-Offs (January 2007), farm households and producer associations can voluntarily establish check-offs to conduct such programs for livestock consumption promotion, supply-demand control, consumer and producer education, and related research. The government on its part pays out a matching fund for such check-offs. In the case of native cattle farms, a check-off of 20,000 won per cattle head is mandatorily collected from cattle farms since May 2005, while 400 won per head and 2 won per liter are collected from swine farms since April 2004 and dairy farms since May 2006, respectively.

2.6.3. Improvement of Livestock and Farm Management

In order to improve livestock and farm management, the government implemented various programs that include the livestock improvement program and others dealing with livestock quarantine, livestock mutual aid and livestock farm registration support. The livestock improvement program aims at enhancing the productivity of the livestock industry by identifying livestock with superior economic characteristics through breed registration, capability inspection, breeding stock selection and planned crossbreeding. In order to enhance the productivity of the native cattle industry, the native cattle improvement zone establishment program was started beginning 1979, and the participation of farm households has expanded since 1995. The farms participating in the native cattle
improvement program receive such supports as registered and inspected cow management costs and farm household survey reward fees, while livestock improvement centers receive support for fixed investment costs, including the purchase of improvement facilities and livestock.

In order to improve the management of the livestock industry, the government has pursued policies for eradicating and preventing livestock diseases, along with livestock mutual aid programs for facilitating farm management stability against natural disasters and fires. Member farms of the livestock mutual aid program are subsidized 50% of the net insurance premiums among their premium payments. The government also implements a livestock registration assistance program to expand and efficiently operate its livestock registration system.

2.6.4. Improvement of Distribution Channels

The government implements a wide variety of policies for improving the distribution channels of livestock. In particular, the beef traceability system, together with the country-of-origin labeling system of beef at restaurants, contributes to the expansion of consumption of domestically produced beef. These two programs prevent the distribution of illegal beef by promptly identifying its country of origin through the documentation and management of information on the production, slaughtering, processing and consumption of beef at each stage of distribution. The beef traceability program initially covered 40 thousand head at 9 locations in 2004, but has been expanded in full-scale on a nationwide-basis beginning June 2009. In order to prevent ill distribution, the country-of-origin labeling system has been mandatorily implemented in all restaurants of 300 square meters or larger since January 2007 and expanded to all restaurants starting
In December 2008.

In its attempts to improve the distribution of beef at the retail level, the government established a refrigerated distribution system for meat and also promoted the sale of meat by parts, grade and types. Accordingly, support programs for meat retail distribution facilities including native cattle meat specialty stores and model meat stores were carried out up until 2003. In order to modernize and expand the size of import beef specialty stores, the government provided support for its establishment.

In order to secure the infrastructure for sanitary slaughtering and processing, the government provided slaughterhouse and livestock processing facility modernization funds, while Hazard Analysis Critical Control Point (HACCP) was mandatorily applied to all slaughterhouses by July 2003. For processing factories, HACCP has been applied on a voluntary basis. HACCP consulting support was also provided for slaughter houses to facilitate the application of the HACCP system and enhance the sanitation and safety of livestock. In order to establish a distribution system for expanding the consumption of cut meat, as well as chilled and brand meat, livestock processing centers (LPC) were constructed. Also, livestock marketing centers of producer associations were built to facilitate the fair pricing of meat products. Moreover, livestock main marketing centers and direct distribution stores were established to improve the distribution channels of producer associations.

The government streamlined the livestock industry in the 1990s to reduce livestock farms’ burden of distribution and sales and allow them to
solely focus on producing meat by promoting the industry’s specialization of the production, processing and distribution of livestock products. In addition, support was provided for breeding facilities of broiler and swine integrators and breeding, processing, and distribution and sales facilities of affiliated farms.

In its efforts to prepare for the liberalization of the livestock market and to increase farm income through quality enhancement of livestock products, the government implemented the livestock product grading project. In addition, the premium livestock product brand certification program was also carried out for the production of safe and high-quality livestock products in line with consumer needs. In order to improve the quality of brand meat and stimulate the distribution of chilled cut meat, the government fostered meat processing plants of brand meat companies. In this respect, support was provided to brand meat processing facilities, while support was also provided for the promotion of brand franchises to expand brand meat sales through the establishment of sales channels. Specialized consulting assistance was also provided in the management, financing, and marketing of companies selling livestock products with brand names so as to strengthen their market competitiveness and guarantee stable income.

2.7. Outlook and Challenges

While the domestic livestock industry has continued to grow as a result of the efforts by farm households and various investment and loan programs by the government, it has experienced a number of adversities as the conditions for the production and consumption of livestock products have changed. Environmental regulations on the livestock industry are
being strengthened even further, while the outbreak of various livestock
diseases is greatly undermining its productivity. In addition, competition
between domestic and imported livestock products is heightening even
further with the liberalization of the livestock market, while the rise in
international feed grain prices is also deepening the instability in livestock
farm management. Furthermore, consumer demands for safe high-quality
livestock products are increasing by the day. Such trends are expected to
continue into the future.

Accordingly, domestic livestock products must be differentiated from
imports in the consumer markets through the production and distribution of
safe high-quality products. By doing so, domestic livestock farms can be
developed into a sustainable industry. Productivity must also be increased
along with the reduction of production costs through continued investment
in the livestock industry. Establishing environment-friendly infrastructure is
another important issue faced by the domestic livestock industry.
Section 3. Horticulture and Specialty Crops

The horticulture industry in Korea as a percentage of the total value of agriculture production has remained fairly unchanged from 31.2% in 2000 to 32.5% in 2009. In recent years, in particular, it has become a major part of Korean agriculture with its share exceeding that of food crops (23.8% in 2009). However, the horticulture industry has contracted with the overall decline of agriculture from the impact of market liberalization. In the case of vegetables, which are key horticultural crops in Korea, the overall cultivated area has been decreasing every year with the surge in low-priced imports from China. The cultivated area of fruit crops has also been on the decline with the increase in imports.

Amidst such a decline in horticultural crops, the cultivation acreage of flowers on the contrary has been increasing in line with the growing national income. The production of specialty crops such as mushrooms, ginseng and tea, which have been gaining attention as cash crops and well-being foods, is on the rise. This sector will look at production, consumption, export and import trends of horticulture and specialty crops by item and suggest future outlook and tasks.

3.1. Vegetables

3.1.1. Production Trends

The cultivation acreage of vegetables increased from 320 thousand ha in 1990 to 400 thousand ha in 1995. However, it has subsequently been on the decline, falling to 280 thousand ha in 2009, as the market for agricultural products has been liberalized with the launch of the WTO. While the cultivated area of vegetables has been falling at an annual
average rate of 0.6%, production has increased annually at an average of 0.9% to approximately 1.3 million tons in 2009, growing by 19.1% compared to 1990, as a result of the yield increase from facility modernization and technological development. The proportion of greenhouse cultivation acreage of vegetables, in particular, has steadily
increased from 12.6% in 1990 to 23.5% in 2000 and to 27.1% in 2009 thanks to increased support by the government to modernize facilities.

Despite the increase in vegetable production, the value share of vegetable production in the total value of agriculture production fell drastically from 46.7% in 1995 to 21.1% in 2000 and to 18.3% in 2009 as a result of the overall decline in agriculture amidst the liberalization of the agricultural market.

Among vegetable products, the cultivation acreage of spice vegetables such as red pepper, garlic and onion has declined at an annual average rate of 0.5% with root vegetables decreasing at a rate of 2.1%. In effect, cultivation area of spice vegetable fell from 136 thousand ha in 1990 to 125 thousand ha in 2009, while that of root vegetables decreased from 42 thousand ha to 28 thousand ha during the same period. On the other hand, however, the cultivation area of leafy and stem vegetables decreased at an annual average of 0.6% from 63 thousand ha in 1990 to 56 thousand ha in 2009 due to the decrease in the area of Chinese cabbages, the most representative leafy and stem vegetable, despite an increase in the cultivation area of lettuce and spinach. The area of fruit vegetables, which have a high per unit area income, is also increasing at an average of 0.5% annually, climbing from 58 thousand ha to 63 thousand ha during the same period.

Red peppers and garlic are the major crops of spice vegetables. Their cultivation area has continued to fall over the years due to the aging
demographic of farmers, shortages in labor forces and the inflow of low-priced imports from China. However, the area for onions has increased at an annual average rate of 4.8%, fueled by relatively stable prices. Accordingly, the proportions of red peppers and garlic in the total cultivation area of spice vegetables fell from 46.0% and 32.0% in 1990 to 35.9% and 21.1% in 2009, respectively, while onions rose by 9.2% from 5.6% to 14.8% during the same period.

Amidst the overall fall in the cultivation acreage of root vegetables, radishes and carrots have decreased at an approximate average of 2.2% annually due to the decline in consumption and increase in import. The

<table>
<thead>
<tr>
<th>Table 3-18 Cultivation Area and Production of Major Vegetables by Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spice Vegetables</strong></td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>62.8</td>
</tr>
<tr>
<td>Garlic</td>
</tr>
<tr>
<td>Onion</td>
</tr>
<tr>
<td><strong>Root Vegetables</strong></td>
</tr>
<tr>
<td>Radish</td>
</tr>
<tr>
<td>Carrot</td>
</tr>
<tr>
<td><strong>Leafy and Stem Vegetables</strong></td>
</tr>
<tr>
<td>Chinese cabbage</td>
</tr>
<tr>
<td>Cabbage</td>
</tr>
<tr>
<td><strong>Fruit Vegetables</strong></td>
</tr>
<tr>
<td>Cucumber</td>
</tr>
<tr>
<td>Pumpkin</td>
</tr>
<tr>
<td>Tomato</td>
</tr>
<tr>
<td>Strawberry</td>
</tr>
<tr>
<td>Watermelon</td>
</tr>
</tbody>
</table>

Source: Ministry for Food, Agriculture, Forestry and Fisheries, ‘production record of vegetables’, each year.
cultivation acreage of Chinese cabbages, a major leaf vegetable, has continued to fall from the impact of decline in kimchi consumption. However, the steady increase in dining out has raised cabbage consumption and its cultivation acreage at an annual average rate of 2.1%.

Among fruit vegetables, the cultivation area of cucumber has declined every year due to the burdens of labor shortage and increased oil prices. In the cases of strawberries and watermelons, cultivation areas are also on a decline due to the aging of farmers and increased fruit imports. However, pumpkin and tomato cultivation areas have been increasing owing to the recent health-oriented consumption trends and well-being boom. The cultivation area of tomatoes, in particular, declined since the mid-1990s, but it has increased by 49.6% in 2007 compared to 2000. However, cultivation area decreased due to declining price stemming from surge in production, leading to 15.8% decrease in 2009 compared to 2007.

3.1.2. Consumption Trends
The per capita annual consumption of overall vegetables increased
from 132.6kg in 1990 to 165.9kg in 2000. However, due to the changing consumption patterns including the recent expansion in dining out, the figure has fallen slightly to 153.6kg in 2008.

In terms of products, the consumption amounts of red peppers and garlic, both spice vegetables were 1.7kg and 6.5kg, respectively, in 2008, but they have been declining due to the decrease in kimchi consumption. Onion consumption has increased over twofold from 7.4kg in 1990 to 17.0kg in 2008 due to the changes in consumption patterns and well-being boom.

Per capita annual consumption of Chinese cabbages (leafy and stem vegetable) has decreased from 46.9kg in 1990 to 36.4kg in 2008. In the meantime, per capita annual consumption of cabbage has increased from 2.5kg to 4.7kg in the same year due to increase in dining-out. And the per capita annual consumption of radishes, too, has declined from 26.7kg to 18.8kg, a decline of annual rate of 1.9% during the same period due to decrease in kimchi consumption, while per capital annual consumption of carrot has increased from 1.6kg to 2.8kg due to surge in import.

Overall, the consumption of flavor vegetables, leaf and stem vegetables, and root vegetables has been on a downward trend, while that of fruit vegetables has increased. Cucumber consumption has increased from 4.1kg in 1990 to 6.4kg in 2008, while pumpkin has shown a high annual average growth rate of 6.9%, rising from 1.7kg to 5.6kg over the same period. This can be attributed to the significant increase in the consumption of old and sweet pumpkins due to the current trend of consumers preferring healthy foods.

The per capita annual consumption of tomatoes has continued to increase from 2.9kg in 1990 to 7.4kg in 2008. While strawberry consumption has increased from 1.7kg to 3.1kg during the same period,
3.1.3. Import and Export Trends

Vegetable exports grew by approximately 2.3 times from US$100...
million in 1995 to US$250 million 2009. The major products which saw a conspicuous rise in exports centered on fruit and vegetables including tomatoes, strawberries, cucumber and kimchi, and recently bell pepper. The major importer of vegetables from Korea was Japan, which accounted for 64.5% of total vegetable exports in 2009, due to its geographic proximity which allowed lower logistic costs and advantages in maintaining product

### Table 3-19 Import and Export Trend of Vegetables

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity</strong></td>
<td>Quantity</td>
<td>Amount</td>
<td>Quantity</td>
<td>Amount</td>
</tr>
<tr>
<td>Vegetable export (A)</td>
<td>55.6</td>
<td>1,104.3</td>
<td>64.2</td>
<td>1,859.2</td>
</tr>
<tr>
<td>Tomato</td>
<td>2.1</td>
<td>35.2</td>
<td>12.7</td>
<td>229.5</td>
</tr>
<tr>
<td>Strawberry</td>
<td>2.4</td>
<td>48.6</td>
<td>3.5</td>
<td>95.3</td>
</tr>
<tr>
<td>Cucumber</td>
<td>2.6</td>
<td>55.3</td>
<td>5.8</td>
<td>98.9</td>
</tr>
<tr>
<td>Kimchi</td>
<td>12.5</td>
<td>509.1</td>
<td>23.4</td>
<td>788.5</td>
</tr>
<tr>
<td>Bell pepper</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vegetable import (B)</td>
<td>93.2</td>
<td>1,322.4</td>
<td>220.1</td>
<td>1,872.6</td>
</tr>
<tr>
<td>Red pepper</td>
<td>4.8</td>
<td>128.5</td>
<td>6.3</td>
<td>108.2</td>
</tr>
<tr>
<td>Garlic</td>
<td>11.3</td>
<td>105.7</td>
<td>10.5</td>
<td>91.2</td>
</tr>
<tr>
<td>Onion</td>
<td>8.0</td>
<td>59.8</td>
<td>6.1</td>
<td>23.0</td>
</tr>
<tr>
<td>Carrot</td>
<td>1.1</td>
<td>15.8</td>
<td>11.4</td>
<td>50.6</td>
</tr>
<tr>
<td>Kimchi</td>
<td>-</td>
<td>-</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Trade balance (A-B)</td>
<td>-</td>
<td>⬠218.1</td>
<td>-</td>
<td>⬠13.4</td>
</tr>
</tbody>
</table>

**Note:** The figures for tomato, strawberry, cucumber, red pepper, onion, garlic and carrot include tomato juice, frozen strawberry, pickled cucumber, dried and temporarily stored red pepper and onion, frozen garlic and dried carrot, and they do not apply yield.

**Source:** Korea Agro–Fisheries Trade Corporation,
freshness. However, the exports of Korean vegetables other than bell peppers and kimchi, which both have a high market share in Japan, have continued to decline entering the 2000s as a result of strengthened country of origin marking system, food safety issue and strong domestic price.

Vegetable imports, on the other hand, have increased by 3.8-fold from US$130 million in 1995 to US$500 million in 2009 due to the effects of liberalizing the agricultural product market. Consequently, the trade balance deficit has expanded substantially every year from US$20 million in 1995 to US$240 million in 2009. The major vegetables imported were red peppers, garlic, onions and carrots, and their import volumes have increased sharply in the 2000s. Such imports are mainly comprised of low-priced products from China. Imports from China account for an overwhelming 66.0% of total vegetable imports. The conditions for domestic production of vegetables are also further deteriorating with domestic Chinese cabbages, red peppers and garlic being substituted by Chinese products due to the recent surge in kimchi imports from China.

3.2. Fruits

3.2.1. Production Trends

The cultivation acreage of fruit trees increased from 130 thousand ha in 1990 to 180 thousand ha in 1998, but it has decreased every year to 157 thousand ha in 2009 with the full-scale liberalization of the agricultural market since the launch of the WTO. While its
cultivation acreage has been falling since the late 1990s, production has increased at an average annual rate of 2.6% due to a rise in yield from improved technology. In fact, production has climbed 63.1% compared to 1990 to around 2.88 million tons in 2009.

Despite the rise in fruit production, its proportion to total agriculture production in terms of value has fallen from 11.7% in 1995 to 8.5% in 2009, which is in line with the overall decline in the domestic agriculture industry amid market liberalization.

Apple cultivation area reached its peak in 1992 at 53 thousand ha in 1992, but fell to 26 thousand ha in the early 2000s. However, it has shifted back to an upward trend since 2003. Its recent increase can be attributed to the stable prices compared to other items. The acreage of adult apple trees continued to fall from 32 thousand ha in 1995 to 16 thousand ha subsequently, but has increased in 2006. By apple varieties, Fuji accounted for the highest portion of the total area at 68.7%, followed by Hongro at
Pear cultivation area showed an increasing trend until 2000 due to the expansion in the consumption of pears stemming from increased national income, but has subsequently declined from 2001 as farms either closed down or avoided planting pear trees as a result of price fall. Accordingly, the cultivation area of adult pear trees reached its peak in 2003 and has subsequently fallen. In terms of pear varieties, Niitaka pears accounted for an overwhelming 77.1% of the total, followed by Wonhwang and Chojuro pears.

Grapes showed an annual average growth of 7.4% in the acreage of cultivation up until 1999, but the cultivation acreage has continued to decrease since 2000s due to aging farm households, increased imports, closure of low-productive orchards, and the government support program for closure of orchards. The cultivation area of adult trees also declined since the 2000s, falling by 34.7% to 15 thousand ha in 2009. Despite the imports of grapes from Chile since 1996 as a result of the Korea-Chile FTA, the proportion of greenhouse grapes has increased from 1.5% in 1995 to 12.2% in 2009. The increase can be attributed to the rising demand for domestic greenhouse grapes due to their high quality despite the lower price competitiveness compared to imports. By variety, Campbell Early accounts for 70.1% of total cultivation area, followed by Kyoho at 15.1% and MBA at 7.3%.

In the case of peaches, the cultivation area declined until the late 1990s, but increased to 16 thousand ha by 2003 due to relatively stable prices. However, it has shifted back once again to a downward trend since 2004 as a result of the government’s support program for closure of peach farms. The cultivation area of adult peach trees is also falling.
The cultivation acreage of tangerine and adult trees continued to increase at an annual average rate of over 3% until 2000 despite increasing orange imports. However, due to the government program supporting the closure of farms in 2003~2004, it has declined significantly ever since. The proportion of cultivated area for greenhouse tangerines though has been

<table>
<thead>
<tr>
<th>Table 3-20 Cultivation Area and Production of Major Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: ha, 1,000 tons</td>
</tr>
<tr>
<td>Apple</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Pear</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Grape</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Peach</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Tangerine</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Sweet persimmon</td>
</tr>
<tr>
<td>Cultivation area</td>
</tr>
<tr>
<td>Cultivation area of adult tree</td>
</tr>
<tr>
<td>Production</td>
</tr>
</tbody>
</table>

Source: National Statistics Office,
increasing from 6.1% in 2000 to 14.2% in 2009 annually.

Sweet persimmons saw a continued increase in cultivation area and adult tree area up until the late 1990s. However, due to aging farm households and conversion to other crops for cultivation, the cultivation area is decreasing at an annual average rate of 4.5% in the 2000s. In terms of varieties, Fuyu accounted for 82.0%, followed by Hachiya 10.4% and Nishimurawase 4.4%.

### 3.2.2. Consumption Trends

The annual per capita consumption of overall fruits increased at an annual average rate of 4.3% from 29.0kg in 1990 to 40.7kg in 1997 owing to the rise in national income, but fell to 34.6kg in 1998 due to the financial crisis. As the economy recovered, fruit consumption began to increase once again reaching 43.9kg in 2008.

By product, the annual per capita consumption of apples has fallen at an annual average rate of 3.0% from 11.5kg in 1990 to 6.6kg in 2008 due to price increases caused by recent declines in cultivation area and increases in the consumption of substitute fruits, such as pears. On the other

**Figure 3-28** Annual Per Capita Consumption of Fruits

Source: Korea Rural Economic Institute, Food Supply–Demand Table, each year.
hand, however, pear and peach consumption has increased owing to the increase in national income, growing from 2.5kg and 20.0kg, respectively, to 6.7kg to 2.9kg over the same period.

The consumption of sweet persimmons increased up to the late 1990s, but it has either stagnated or declined in the 2000s. In the case of grapes, the increase in consumption from 2.0kg in 1990 to 6.7kg in 2000 fell to 4.9kg in 2008 as prices climbed with production reducing due to farm closures. The per capita consumption of tangerines has fallen to 8.1kg in 2008 in line with consumers’ diversified preference of fruits and increased imports of oranges.

### 3.2.3. Import & Export Trends

Fruit exports increased by 2.9 times from US$ 60 million in 1995 to around US$170 million in 2009. Among fresh fruits, apple and tangerine exports have declined, while pear exports have been on the rise. However, the trade deficit of fruit products has increased every year as imports have
been rising significantly compared to exports.

Fruit imports have increased over twofold to around US$700 million in 2009 from US$320 million in 1995 due to the impact of agricultural market liberalization. In terms of items, banana imports were the highest at US$160 million in 2009 from US 50 million in 1995 followed by orange imports. In the case of kiwis, imports have been rising every year owing to changes in consumption patterns, and grape imports have also climbed sharply due to the conclusion of the Korea-Chile FTA.

### 3.3. Floriculture

#### 3.3.1. Production Trends

The cultivation acreage of floriculture has continued to increase every year from 3,503 ha in 1990 to 7,688 ha in 2006 increasing by 2.2 times. But
it decreased to 6,639 ha in 2009 due to economic recession and conversion to other crops including bell peppers. In addition, production value has grown by 3.6 times from 239.3 billion won in 1990 to 844.0 billion won in 2009. In particular, since floriculture has a high profitability per unit area, its share in the production value of agriculture (2.1%) exceeds its proportion in the total cultivation area (0.4%).

Until the 1980s, floricultural crops were mainly comprised of ornamental plants such as Chinese junipers and maples used primarily in creating parks. Coming into the 1990s, however, production of cut flowers such as chrysanthemums and roses, along with pot flowers centering on orchids, was expanded to account for over half of the total area of floriculture. Cut flowers play a leading role in the floriculture industry with
rapid increases in production owing to increased national income, changes in consumer preferences and high cultivation ratio at production facilities established through government support. However, the cultivated area of cut flowers has started to stagnate recently, while the area of pot flowers which has been on a downward trend, started to increase due to the rise in the consumption of orchids or herbaceous ornamentals.

Chrysanthemums were the major cut flowers grown until the early 1990s. Since 1992, however, the cultivation acreage of roses has increased rapidly, reflecting not only changes in consumption patterns,
but also the selection of roses as the cultivation plant by a substantial number of floriculture farms receiving policy funds in the process of implementing the government’s facility modernization program. As the policy funds were converted into loans in 1998, the cultivation acreage of roses since then remained somewhat unchanged. However, the proportion of roses and chrysanthemums still remains high, accounting for over 55% of total flower cultivation acreage.

Up until the early 1990s, pot plants were comprised of a wide variety of sorts, including dwarf ground rattans, cactuses and orchids. Since the mid-1990s, however, orchids have become the major pot plant as their portion of cultivation area increased sharply due to an increase in national income. With the recent deterioration in economic conditions, the production amount of orchids, which have been regarded as expensive, is currently decreasing, while the relatively low-priced herbaceous ornamentals, such as petunias, pansies and begonias, are increasing significantly.

### 3.3.2. Consumption Trends

As flowers are regarded as luxury products as opposed to necessities, the per capita annual consumption remained below 10,000 won up until the early 1990s. However, with the improvement of national income from economic growth, flower consumption has increased three folds from 5,646 won in 1990 to 16,749 won in 2009.

The annual per capita consumption of cut flowers increased significantly from 1,382 won in 1990 to 9,383 won in 2005, but consumption has decreased to 6,642 won in 2009 due to decrease in cultivation area. The consumption of pot flowers, too, has been on the rise...
every year, increasing from 2,321 won in 1990 to 8,973 won in 2009. While the pot flower consumption, in particular, showed a slight decrease after the mid-1990s due to changing consumption patterns, including increased preference for cut flowers, it has shifted to an upward trend recently.

### 3.3.3. Import and Export Trends

Until the mid-1990s, flower imports exceeded exports. However, after the financial crisis in 1997, the consumption of relatively high-priced and high-quality orchids fell drastically, and bulb imports also declined with the rise in exchange rates, sharply reducing flower imports from US$26.74 million in 1995 to US$10.34 million 1998. On the other hand, exports expanded from US$6.36 million to US$11.48 million during the same period as flower prices and domestic consumption fell.

In the years thereafter, too, flower exports steadily increased, reaching US$77.18 million in 2009 with cut flowers leading the exports. The cut flower exports were mainly centered on roses, chrysanthemums and lilies,
with three major export items comprising over 68% of flower exports, which were very low until the early 1990s. The low amount of flower exports in the early 90s can be attributed to 1) high domestic prices, 2) a strict selection process involved in export, 3) the rise in logistic costs including air transportation costs, and 4) reluctance of farmers to export their products due to concerns over claims from importing countries.

Meanwhile, almost all the cut flowers centering on roses, chrysanthemums and lilies are exported to Japan due to the fact that 1) Japan is one of the top three flower consuming countries in the world, 2) geographic proximity is advantageous to maintaining the freshness of flowers, and 3) logistics cost, including air transportation costs, is lower compared to other countries.
3.4. Specialty Crops

3.4.1. Production Trends

The cultivation acreage of ginseng decreased at an annual average of 4.3% from 12,184 ha in 1990 to 8,940 ha in 1996. However, that figure has grown at an annual rate of 6.1% on average since 1997 to 19,702 ha in 2009, as ginseng was regarded as a highly profitable crop in the wake of the full-fledged liberalization of the agricultural market. Ginseng

Figure 3-32 Cultivation Area and Production of Ginseng

Source: Ministry for Food, Agriculture, Forestry and Fisheries, major agriculture and forestry statistics, each year.

Table 3-24 Cultivation Area by Ginseng Type

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</tr>
</thead>
<tbody>
<tr>
<td>Cultivation area</td>
<td>12,184</td>
<td>9,375</td>
<td>12,445</td>
<td>14,153</td>
<td>19,702</td>
</tr>
<tr>
<td>General ginseng</td>
<td>8,955</td>
<td>5,642</td>
<td>9,811</td>
<td>8,856</td>
<td>10,782</td>
</tr>
<tr>
<td>(73.5)</td>
<td>(60.2)</td>
<td>(78.8)</td>
<td>(62.6)</td>
<td>(54.7)</td>
<td></td>
</tr>
<tr>
<td>contracted(designated) cultivation</td>
<td>3,229 (26.5)</td>
<td>3,733 (39.8)</td>
<td>2,634 (21.2)</td>
<td>5,297 (37.4)</td>
<td>8,920 (45.3)</td>
</tr>
</tbody>
</table>

Source: Ministry for Food, agriculture, Forestry and Fisheries, major agriculture and forestry statistics, each year.
production had also been decreasing up until 1996 with the decline in its cultivation acreage, but has since been increasing by 2.7 times to reach 27,460 tons in 2009 compared to 1996.

Overall, the acreage of general cultivation fields for 4-year old ginseng declined up until 1996, but has started to increase since 1997, while the contracted (designated) cultivation acreage of 6-year old ginseng has steadily been rising. The recent increase in the general and contracted cultivation fields can be attributed to 1) the participation of private companies in line with the abolishment of the red ginseng monopoly system, 2) the production of 4-year old red ginseng, and 3) increases in the consumption and exports of red ginseng.

Mushrooms are classified into “agricultural mushrooms” cultivated as agricultural by-products and “forest mushrooms” picked from the forest or cultivated on bed logs. The cultivation acreage of agricultural mushrooms showed a sharp increase at an annual average rate of 6.7% from 483 ha in 1990 to 1,361 ha in 2005 owing to changes in consumption patterns and
increases in imports. However, that figure dropped by 40.5% from 2005 to 810 ha in 2009. Production also has been on the rise every year reaching 154,444 tons in 2009.

Table 3-25 Cultivation Area and Production by Type of Mushrooms

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<tbody>
<tr>
<td></td>
<td>Area</td>
<td>Production</td>
<td>Area</td>
<td>Production</td>
<td>Area</td>
</tr>
<tr>
<td>Mushroom</td>
<td>54</td>
<td>10,281</td>
<td>121</td>
<td>15,723</td>
<td>148</td>
</tr>
<tr>
<td>Oyster mushroom</td>
<td>335</td>
<td>43,732</td>
<td>542</td>
<td>72,801</td>
<td>670</td>
</tr>
<tr>
<td>Japanese Touchwood</td>
<td>94</td>
<td>810</td>
<td>393</td>
<td>3,346</td>
<td>100</td>
</tr>
<tr>
<td>Flammulina Velutipes</td>
<td>0.2</td>
<td>404</td>
<td>10</td>
<td>3,867</td>
<td>61</td>
</tr>
<tr>
<td>King Oyster mushroom</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Ministry for Food, Agriculture, Forestry and Fisheries, major agriculture and forestry statistics, each year.

Figure 3-34 Cultivation Area and Production of Tea Leaves

Source: Ministry for Food, Agriculture, Forestry and Fisheries, major agriculture and forestry statistics, each year.
Production status of agricultural mushrooms shows that cultivation area of oyster mushroom has been on the decrease since the mid-2000s, the yield has been rapidly increasing as bag cultivation and bottle cultivation methods are introduced thanks to advanced technology. The cultivation area of mushroom has been rapidly decreasing because the mushroom is produced based upon substrate cultivation requiring a lot of labour. In the meantime, cultivation area of flammulina velutipes is rapidly expanding as it is lucrative and requires relatively lower level of labour and management cost compared to other type of mushroom along with increasing consumption, representing the biggest portion of total mushroom production. In addition, cultivation of king oyster mushroom is gradually increasing.

The cultivation acreage of tea leaves was only 715 ha in 1995, but has increased significantly to 3,616 ha in 2009, showing a high annual growth rate of 12.3% due to consumption increases brought about by growing consumer interest in health food. Production is also on the rise every year with increased cultivation acreage, reaching 3,266 tons in 2009.

3.4.2. Consumption Trends

Previously, ginseng was mainly purchased as a gift. However, with the increase in household consumption owing to the rise in national income, the per capita annual consumption of ginseng has grown from 0.24kg in 1992 to 0.50kg in 2009. Tea consumption has grown at an annual rate of 12.4% on average from 0.01kg in 1995 to 0.05kg in 2009 in line with the heightened consumer awareness of health.

In the case of mushrooms, annual per capita consumption of oyster mushroom and mushroom increased up until the mid-1990s, but then it fell
Agriculture Industry Trends by Item 215

3.4.3. Import and Export Trends

Ginseng is a major export product of Korea with exports at around 2,000 tons every year, representing 10% of domestic production, and export of ginseng has been on the rise recently. Imports in 2006 have surged over 10 times compared to 1995 with the rapid increase of low-priced ginseng imports from China. However, with domestic production increasing recently, import is decreasing by more than 2 times compared to 2006 standing at 156 tons in 2009.

Mushroom exports have rapidly increased from 97 tons in 1995 to 16,221 tons in 2009. So far, trade balance deficit had been expanding every year due to the significant rise in low-priced mushroom imports from...
China, but recently import has been decreasing and export has been rapidly increasing, with trade balance turning surplus since 2008.

The export of tea leaves has increased more than 3 times from 366 tons in 1995 to 1,204 tons in 2009. However, its proportion of production has declined from 52.3% to 36.9% over the same period due to the expansion of domestic consumption. Tea imports have continued to rise every year as red tea imports have increased, but began to decrease again recently.

### 3.5. Outlook and Issues

The horticulture industry in Korea has declined with the cultivation acreage of vegetables and fruit trees falling due to the impact of liberalization of the agricultural market. Imports are expected to significantly expand with further market liberalization measures from the recent FTA and DDA negotiations. In the case of vegetables, the cultivation acreage is expected to further decrease with the increase of low-priced

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Table 3-26 Speciality Crops Trade

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<tbody>
<tr>
<td>Export</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ginseng</td>
<td>2,527</td>
<td>1,400</td>
<td>2,078</td>
<td>790</td>
<td>2,098</td>
<td>825</td>
<td>3,163</td>
<td>1,089</td>
</tr>
<tr>
<td>Mushroom</td>
<td>97</td>
<td>12</td>
<td>187</td>
<td>56</td>
<td>504</td>
<td>28</td>
<td>16,221</td>
<td>330</td>
</tr>
<tr>
<td>Tea</td>
<td>366</td>
<td>13</td>
<td>371</td>
<td>10</td>
<td>1,481</td>
<td>48</td>
<td>1,204</td>
<td>33</td>
</tr>
<tr>
<td>Import</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ginseng</td>
<td>37</td>
<td>8</td>
<td>107</td>
<td>32</td>
<td>297</td>
<td>61</td>
<td>156</td>
<td>31</td>
</tr>
<tr>
<td>Mushroom</td>
<td>7,600</td>
<td>104</td>
<td>11,801</td>
<td>91</td>
<td>17,411</td>
<td>154</td>
<td>11,420</td>
<td>80</td>
</tr>
<tr>
<td>Tea</td>
<td>117</td>
<td>7</td>
<td>410</td>
<td>17</td>
<td>850</td>
<td>40</td>
<td>448</td>
<td>33</td>
</tr>
</tbody>
</table>

Source: Korea Agro-Fisheries Trade Corporation.
imports, including red peppers, garlic, onions and carrots from China, and with change in consumption pattern leading to declining kimchi consumption. Fruit cultivation acreage is also anticipated to gradually fall owing to consumption substitution from the increase in cheap imports including bananas, oranges, kiwis and grapes.

A midst such circumstances, however, the cultivation acreage of western vegetables and fruit vegetables has increased due to the expansion in their consumption, while flower and specialty-crop production are also on the rise owing to improved national income. Furthermore, the facility horticulture industry (facility vegetables, flowers and mushrooms) can be fostered into a competitive sector as it can overcome inhibiting factors such as land, technology and labor better than other industries, and can better control supply and demand situation and remain competitive against import through application of cutting-edge technologies.

Accordingly, in order for the domestic horticulture industry to overcome the adversities it faces today and grow into a competitive sector, it must initially focus its efforts on the production of high-quality horticultural crops by introducing advanced technologies and establishing technology systems. Second, the industry needs to improve efficiency in distribution to allow for timely transactions of fresh horticultural crops through the development of low-temperature distribution systems and promotion of packaging and standardization. Third, it must encourage the consumption of horticultural and specialty crops by devising various schemes that satisfy consumer needs in line with the recent boom in well-being and changes in consumption patterns. Fourth, active government support is needed to foster high-quality horticultural and specialty crops into an export industry as a means to compete with low-priced agricultural imports from China.
Section 4. Environment-Friendly Agriculture

4.1. Background for Pursuing Environment-Friendly Agriculture

The relationship between agriculture and the environment in an agricultural ecological system possesses both the negative role of acting as a potential environmental pollutant and the positive role of preserving the environment according to the extent agricultural activities affect the environmental load. As an industry that utilizes and manages natural resources, agriculture has either a positive or negative effect on the environment depending on which farming methods are used and how agricultural and environmental resources are managed. Environmental load from agricultural production activities has continued to rise with the expansion of intensive high input-high output farming methods as key agricultural policies have been focused on increasing food production in order to increase farming household incomes and support the high population within a limited area of land. In particular, agricultural environment such as soil and water pollution has deteriorated due to the over-use of chemical fertilizers and pesticides for increasing productivity. In addition, environmental pollution load has also escalated due to the increased generation and inappropriate treatment of livestock wastes, resulting from intensive livestock production that rely on large-scale feed imports rather than crop production. Environmental load has further been burdened with the increase in energy use and waste generation due to the rise in demand for year-round supply of agricultural products and increased processing level of foods.

The environmental problems associated with water pollution and soil
contamination have become serious as intensive agricultural production has continued to increase. Accordingly, the development of environment-friendly agriculture that aims for harmony between agriculture and the environment has emerged as a major challenge in the agricultural sector. Environment-friendly agriculture in Korea took off in December 1994 with the establishment of the Sustainable Agriculture Department within the Ministry for Food, Agriculture, Forestry and Fisheries. Subsequently, the Environmentally Friendly Agriculture Promotion Act was legislated in 1997, followed by the introduction of the Direct Payment System for Promoting Environmentally Friendly Farming Practices in 1999 to establish the institutional foundations for fostering environment-friendly agriculture. The legislation for environment-friendly agriculture in Korea aims to build a sustainable agriculture that seeks harmony between agriculture and the environment. Article 2 of the Environmentally Friendly Agriculture Promotion Act defines the concept as the production of safe agricultural and livestock products, while maintaining or preserving the environment of the agricultural ecosystem through 1) non-use or minimal use of chemical materials including pesticides, chemical fertilizers, antibiotics and antibacterial agents and 2) recycling of agricultural and livestock by-products. In other words, environment-friendly agriculture simultaneously seeks to secure profitability in agricultural production, preserve the ecosystem, and guarantee the safety of agricultural products.

The promotion of environment-friendly agriculture plays an important role in Korea’s agricultural policy for converting conventional agriculture into sustainable agriculture. The Ministry for Food, Agriculture, Forestry and Fisheries actively establishes and implements a wide variety of policy programs for the development of a sound environment-friendly agriculture.
4.2. Current Status of Environment-Friendly Agriculture

4.2.1. Production of Environment-Friendly Agricultural Products

Environment-friendly agriculture in Korea was practiced mainly by private organizations until the early 1990s. Since the late 1990s, however, the number of farm households certified with environment-friendly agricultural products increased significantly with the full-fledged implementation of government policies promoting environment-friendly agriculture in the mid-1990s. The cultivation area where environmentally friendly farming is practiced increased sharply by 60% annually from only 2,039 ha in 2000 to 210,688 ha in 2009, comprising 11.6% of total area of farmland. In terms of types of certified environment-friendly agricultural products, 14.5% was organic products, 43% pesticide-free products and 42.5% low-pesticide products in 2000. In 2009, however, the proportion of farmland area growing organic products decreased relative to the significant increase in the farmland using low amounts of agrichemicals; the farmland where organic products are grown accounted for 6.6% while the farmland for pesticide-free products and that of low-pesticide products accounted for 35.2% and 58.1%, respectively (refer to Figure 3-36 and Table 3-27).

![Changes in Area of Certified Environment-Friendly Farmland](image)

In terms of area of farmland certified as environment-friendly agriculture by provinces, the proportion of farmland practicing environment-friendly agriculture was the highest in Jeollanam-do at
105,024 ha, which accounted for 52.1% of the total area of certified farmland nationwide, followed by Gyeongsangbuk-do comprising 11.9% at 23,916 ha, Chungcheongnam-do comprising 7.7% at 15,597 ha and Gyeongsangnam-do comprising 6.6% at 13,282 ha (refer to Figure 3-37). The area of farmland practicing environment-friendly agriculture varies greatly according to the level of implementation of environment-friendly agricultural policies by each province.

### 4.2.2. Marketing of Environment-Friendly Agricultural Products

A wide variety of marketing channels for environment-friendly agricultural products exists in the market today as its market size has expanded in line with the recent increase in demand and production.
Various sales networks have emerged as the production and distribution of environment-friendly agricultural products have been closely linked in order to differentiate them from regular agricultural products. Marketing channels of environment-friendly agricultural products can be generally classified into three categories: direct transaction with consumers, distribution through producers’ organizations (National Agricultural Cooperative Federation, environment-friendly agriculture organizations) and consumers’ cooperatives (Hansalim, Saenghyup), and supply to specialized distributors and department stores through specialized marketing companies.

It is estimated that 10~15% of environment-friendly agricultural products are bought and sold through direct transactions, while 50~55% are done through producer organizations and large retailers (including Hanaro Mart), 15~20% through consumer organizations such as Hansalim and Saenghyup, and 20~25% through specialized stores and the internet. Recently, the proportion of environment-friendly agricultural products
distributed through direct transactions and consumer organizations have decreased, while the proportion of large retailers and specialized distributors have increased significantly.

The distribution of environment-friendly agricultural products have recently been expanded to overall general marketing channels including large discount stores, supermarkets, and specialized markets such as unaffiliated environment-friendly product stores and online shopping malls. Meanwhile, large retailers are developing their own private brands (PB) as the competition between department, discount and specialized stores have become fierce. There are approximately 1,900 distributors of environment-friendly product such as agricultural cooperative stores, large discount stores and department stores as of the end of 2009 with the number of specialized stores rising significantly, recently.

4.2.3. Market Size and Outlook of Environment-Friendly Agricultural Products

It is difficult to pinpoint the exact market size of environment-friendly agricultural products as the transaction volume varies drastically depending on item and certification level. As a result, its market size was roughly calculated by applying certain assumptions to shipment volumes, percentage of distribution and distribution margins of environment-friendly agricultural products according to certification level.

On the basis of 2010, the market size of environment-friendly agricultural products is estimated to have grown by 1.6% to 3,465.4 billion won over the previous year, making up approximately 11% of the total agricultural product market. Within the environment-friendly agricultural product market, the market for grains is estimated to be 1,086.1 billion
won (rice 1,027.9 billion won), vegetables 1,000.0 billion won, fruits 830.0 billion won, potatoes 118.8 billion won, and special crops comprised mostly of mushrooms 429.5 billion won. (Table 3-28)

Assuming that the current consumption growth rate will slowdown, the market size is expected to grow by 9.4% in 2011 to 3,791 billion won and reach 4,710 billion won by 2014 as low-pesticide certification will be discontinued subsequent to 2010 to be partially replaced by pesticide-free certification. In 2016, the market size is anticipated to decrease to 4,648 billion won due to the disuse of low-pesticides. However, the market is expected to recover its growth from 2017 to reach 6,628 billion won in 2020, a 190% increase over 2010 and making up approximately 20% of the total agricultural product market.

Table 3-28  Environment-Friendly Agricultural Product Market Size Estimates and Forecasts (2008~2020)

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<tbody>
<tr>
<td>Grains</td>
<td>775</td>
<td>1,068</td>
<td>1,086</td>
<td>1,191</td>
<td>1,483</td>
<td>1,494</td>
<td>2,131</td>
</tr>
<tr>
<td>Rice</td>
<td>722</td>
<td>1,013</td>
<td>1,028</td>
<td>1,124</td>
<td>1,387</td>
<td>1,380</td>
<td>1,969</td>
</tr>
<tr>
<td>Vegetables</td>
<td>839</td>
<td>985</td>
<td>1,001</td>
<td>1,095</td>
<td>1,344</td>
<td>1,380</td>
<td>1,969</td>
</tr>
<tr>
<td>Fruits</td>
<td>420</td>
<td>841</td>
<td>830</td>
<td>861</td>
<td>904</td>
<td>552</td>
<td>787</td>
</tr>
<tr>
<td>Potatoes</td>
<td>114</td>
<td>114</td>
<td>119</td>
<td>137</td>
<td>197</td>
<td>237</td>
<td>338</td>
</tr>
<tr>
<td>Specialty crops &amp; others</td>
<td>314</td>
<td>404</td>
<td>430</td>
<td>508</td>
<td>782</td>
<td>985</td>
<td>1,405</td>
</tr>
<tr>
<td>Total</td>
<td>2,462</td>
<td>3,412</td>
<td>3,465</td>
<td>3,791</td>
<td>4,710</td>
<td>4,648</td>
<td>6,628</td>
</tr>
</tbody>
</table>

Note: Market forecasts of environment-friendly agricultural products were estimated by setting 2020 as the target year and by assuming the growth rates of each item will slowdown. The portion of no-pesticide certification replacing low-pesticide certification subsequent to 2016 was assumed to be 30% for grains, 35% for vegetables, 20% for fruits, 35% for potatoes and 20% for specialty crops.

Source: Korea Rural Economic Institute (2010).
4.3. Major Policy Programs for Environment-Friendly Agriculture

4.3.1. The Five Year Plan for Environment-Friendly Agriculture Promotion

The government has established and implemented policy objectives and a basic plan for the development of environment-friendly agriculture every 5 years according to the Environmental-Friendly Agriculture Promotion Act. The 1st Five-Year Plan for Environmental-Friendly Agriculture Promotion was established and implemented for 2001~2005. Subsequently, the 2nd Five-Year Plan established for 2006~2010 has implemented various programs in each area of production, distribution, consumption and institutions related to environment-friendly agriculture. The policy objective of the 2nd Five-Year Plan aims to 1) reduce the use of agrichemicals and chemical fertilizers by 30% from the 5-year average of the period 1999~2003 by its target year of 2010, and 2) expand the production of environment-friendly agricultural products to 10% of total agricultural products.

The basic direction of the 2nd Five-Year Plan is presented in five objectives: 1) expand recycling-oriented agriculture through the harmony between agriculture and the environment, 2) improve the quality of life of citizens through the supply of safe high-quality agricultural products, 3) enhance the competitiveness of domestic agricultural products through environment-friendly agriculture, 4) increase the income of farm households practicing environment-friendly agriculture and maintain its profitability, and 5) contribute to the preservation of the national land environment through environment-friendly management of agricultural environment resources.
The 3rd Five-Year Plan (2011~2015) embodies the vision of “realizing environment-friendly green industry in harmony with the public and nature” and presents 7 strategic objectives including establishment of production facilities, stimulation of marketing and consumption, promotion of processing and agricultural material industries, development of technologies and professional manpower, development of environment-friendly livestock and forestry sectors, and establishment of agricultural & environmental resource management system.

4.3.2. Establishment of Environment-Friendly Agricultural Zones

The Environment-Friendly Agricultural Zone Promotion Project is divided into environment-friendly agricultural district establishment project and environment-friendly agriculture complex establishment project. The policy objective of the environment-friendly agricultural district establishment project aims to create the foundations for practicing environment-friendly agriculture in a variety of ways centering on water supply source protection areas or regions requiring environment-friendly agriculture. The program targets farmers or producer organizations in regions (villages) that wish to establish environment-friendly agricultural districts. Eligibility is given to rural regions with over 10 farm households and collective farmland of more than over 10 ha. The program provides financial support to villages for building facilities and equipment needed for the production, distribution and education of environment-friendly agriculture. The size of the financial support varies from 0.2~1 billion won per site depending on the size and condition of the project. The budget size injected into the project reached 30 billion won in 2008, 22 billion won in 2009 and 24 billion won in 2010.
The environment-friendly agriculture complex establishment project aims to build large-scale environment-friendly agricultural districts for both livestock and crop growing. The project was implemented in 2006 with the objective of expanding the practicing area of environment-friendly agriculture to a significant level by converting small-scale, high cost environment-friendly agriculture into that of low cost and high efficiency. The program provides financial support for building facilities for the production of environment-friendly agricultural materials and equipment, and facilities for the production and distribution of environment-friendly crop and livestock products. It also provides support for the building of crop-and-livestock recycling centers, as well as the infrastructure for education and tourism. The areas that are subject to the program are extensive area with over 600 ha of farmland. Project budget per region is between 6~10 billion won depending on the size of the farmland. The budget is paid 40% by the central government, 40% by local government and 20% by the beneficiary. The period of the project is 3 years with 10% of the budget paid in the first year for project planning, design and initial equipment purchases, 50% paid in the second year for major equipment installations, and the remaining 40% paid in the third year for project completion. A total of fifty zones are planned to be established from 2006 to 2013. Twenty five zones have been selected for the program including three in 2006, six in 2007, nine in 2009 and seven in 2010, while nine zones have been completed. Evaluation of the project revealed that it has significantly contributed in expanding farming households practicing environment-friendly agriculture and also promoting the marketing of environment-friendly agricultural products.
4.3.3. Direct Payment System for Supporting Environment-Friendly Agriculture

The government has introduced and implemented the direct payment system for environment-friendly agriculture since 1999 to actively promote the preservation of agriculture and rural environments, and to raise the quality of environment-friendly agricultural products by compensating the farm households practicing environment-friendly agriculture for their initial reduction in income and difference in production costs. The direct payments are paid out over 3 years (3 times) to farmers or farmer groups that have received the environment-friendly agricultural product certification according to the Environmental-Friendly Agriculture Promotion Act. The payments are also paid out in different amounts according to the level of certification and the type of farmland (paddy field or upland). The direct payments per ha in the case of upland fields in 2010 were 794,000 won for organic products, 674,000 won for pesticide-free products and 524,000 won for low-pesticide products. In the case of paddy fields, the unit payment per ha in addition to the rice income direct payment was 392,000 won for organic products, 307,000 won for pesticide-free products and 217,000 won for low-pesticide products. As a reference, the unit fixed direct payment of the rice income compensation direct payment system is 746,000 won per ha for agriculture promotion regions and 597,000 won per ha for non-agriculture promotion regions. The budget size injected into the environment-friendly agriculture direct payment program reached 26.3 billion won in 2008, 41.3 billion won in 2009 and 49.0 billion won in 2010.
4.3.4. Pest Control Program Using Natural Enemies

The natural enemy-based pest control program was implemented in 2005 with the policy objective of establishing a production system for producing safe and environment-friendly agricultural products. It aims to reduce the use of agrichemicals by converting to a biological pest control system using natural enemies. In order to convert 50,000 ha (or half) of the cultivation area under greenhouse horticulture into a natural-enemy pest control zone by 2013, the program supports trial natural-enemy pest control projects and education for fostering related government employees and consultants. The project targets farmers, farmer association corporations and agricultural companies that grow specified crops in greenhouses of over 3,000m². Crops subject to support under the program have been expanded to 9 including strawberry, tomato, pepper (bell pepper), cucumber, watermelon, melon, grape and oriental melon. Financial support is paid 20% by the central government, 30% by local government, and 50% by the beneficiary. The fiscal budget put into the program reached 8.8 billion won in 2008, 9.1 billion won in 2009 and 2010.

Pest control micro-organism program using natural enemies was introduced in 2009 to reduce the use of pesticides by substituting chemical pesticides with biological pest control methods using micro-organisms so as to covert agricultural production into safe and high quality production system. The program targets farmlands with over 1,000 ha in area, providing 4.2 billion won paid 20% by the central government, 30% by the local government and 50% by the beneficiary. Crops subject to support are limited to 10 crops including strawberry, tomato, pepper (bell pepper), cucumber, watermelon, pumpkin, lettuce, parsley, perilla seed and Chinese cabbage.
4.3.5. Environment-friendly Fertilizer Support Program

Environment-friendly fertilizer support program can be categorized into organic fertilizer support program and soil conditioner support program.

The policy objective of the organic fertilizer support program lies in expanding environment-friendly recycling agriculture by 1) promoting recycling through the reuse of agricultural, forestry and livestock byproducts, 2) conserving the farmland soil environment, and 3) reducing the input of chemical fertilizers. Farmers and farming association corporations using organic fertilizers are eligible for the program that supports 3 types of organic fertilizers, namely mixed expeller cake fertilizers, mixed organic fertilizers and organic composite fertilizers, and 2 types of byproduct fertilizers, i.e. livestock manure composts and general composts. Central government support are paid in fixed sums. For organic fertilizers, 1,500 won per 20kg sack is paid, while animal manure composts are subsidized according to its quality grade at 1,200 won for A grade, 1,100 won for B grade and 900 won for C grade. General composts receive 1,000 won for A grade, 900 won for B grade and 700 won for C grade. In addition to the central government’s support, local governments also subsidize 600 won per 20kg sack with possible additional support according to the financial conditions of each local government. The budget size injected into the organic fertilizer support program reached 116.0 billion won in 2008, 121.8 billion won in 2009 and 145.0 billion won in 2010.

The soil conditioner support program aims to establish the foundations for practicing environment-friendly agriculture by improving soil resources through the use of soil conditioners (lime and sodium silicate) on farmlands with low available silicate and acidic soil. Another policy objective of the
program lies in establishing the foundations for environment-friendly agriculture by maintaining and preserving soil fertility. Soil acidification in Korea has become worse as crops are grown with high dependency on chemical fertilizers to add to the already acidic characteristic of the underlying host rock of Korean soil. The soil improvement program aims at establishing the foundations for practicing environment-friendly agriculture by 1) improving acidic soil, 2) improving soil by injecting soil conditioners (lime and silicate acid) into farmlands with low silicate content levels, and 3) maintaining and preserving soil fertility. The program has been implemented since the 1960s based on Article 20 (Improvement and Preservation of Soil) of the Farmland Act and Article 24 (implementation of programs for the improvement and preservation of soil) of its enforcement decree. All farm households farming in farmlands throughout the nation are eligible for the program. The subject of support are 1) rice paddies with under 130ppm of available silicate, 2) volcanic ash soil farmlands, 3) acidic farmlands with under pH6.5 of lime, and 4) farmlands contaminated with heavy metals. Financial support is paid 80\% by the central government and 20\% by the local government. Budget injected into the program reached 50.4 billion won in 2008, 81.4 billion won in 2009 and 110.1 billion won in 2010.

4.3.6. Green Manure Crop Seed Purchase Support Program

The green manure crop seed purchase support program is being pursued with the objective of enhancing soil fertility and preserving agricultural environment by increasing the content of soil organic matter through the cultivation of green manure crops. Green manure crops use stems and leaves as a substitute for fertilizers, having a fixing effect of free
nitrogen. The government is actively pursuing policies to increase the content of organic matters in farmlands to 3.0% by 2013 (content of organic matters in 2009 was 2.49%). Eligibility for the program is open to farmers and farming association corporations wishing to grow green manure crops (milk vetch, rye, whole-crop barley, hairy vetch, etc.) in idle farmlands. Financial support is paid 50% by the central government and the remaining 50% by local governments. The budget size of the program amounted to 15.7 billion won in 2008, 26.9 billion won in 2009 and 30.1 billion won in 2010.

4.3.7. Promotion Program for the Distribution and Consumption of Environment-Friendly Products

In order to promote the distribution and consumption of environment-friendly agricultural products, the government has provided education to producer and consumer organizations, expanded the installation of environment-friendly agricultural product specialty stores and increased financial support for the direct transaction of environment-friendly agricultural products. In addition, it is also reviewing measures to expand the trading of environment-friendly agricultural products at wholesale markets and to build an exclusive distribution center for environment-friendly products. Other initiatives include the development of processed environment-friendly agricultural foods and the identification of new sources of large demand, such as school and hospital meal services, for environment-friendly agricultural products.

With the purpose of fostering environment-friendly agriculture and protect consumers, the Environment-Friendly Agricultural Product Certification Program certifies the safety and quality of environment-
friendly agricultural products through comprehensive reviews according to the strict standards of specialized certification agencies. In the case of agricultural products, certification criteria are based on farm management, cultivation and packaging, water in use, seeds, cultivation methods and quality management. As for livestock products, the criteria are set on livestock farms and conditions, self-support forage base, livestock origin and introduction, feed and nutrition management, animal welfare, and disease and quality control. Certification is conducted at three levels for agricultural products - organic, pesticide-free and low-pesticide. However, new certifications for low-pesticide use has been halted since 2010 and is expected to be abolished in 2016. In the case of livestock products, certification is carried out at two levels - organic and antibiotic-free. Certification of environment-friendly agricultural products is conducted by the National Agricultural Products Quality Management Service at the public level and also at private certification organizations. Currently (as of December 2010), there are 70 designated private certification bodies under operation.

4.3.8. Agricultural Water Quality Improvement Program

The agricultural water quality improvement program aims to establish the foundations for a clean water supply for agricultural use and a pleasant environment for rural life through water quality improvement and sediment treatment at the source such as reservoirs and fresh water lakes. The program is carried out by the Korea Rural Community Corporation with priority support provided for agricultural water reservoirs with water quality of “slightly bad” or under based on the Framework Act on Environmental Policy. The program also requires agricultural water
reservoirs with high levels of water pollution and sediments to pursue the trial program for sediment treatment, which has been initiated since 2009. Financial support for water quality improvement may be used for the construction costs (including material costs), compensation for land purchases and additional facilities costs (such as construction supervision costs and project management costs). In the case of sediment treatment trial program, the funds may be used for construction costs (including material costs) for sediment dredging and treatment, compensation for land purchases and additional facilities costs (such as detailed design costs, construction supervision costs and project management costs). Financial support is provided 100% by the central government that reached 5.9 billion won in 2008, 20.5 billion won in 2009 and 20.6 billion won 2010.

4.3.9. Support Program for Livestock Manure Treatment Facilities

The livestock manure treatment facilities support program aims to foster an environment-friendly livestock industry by preventing water pollution and preserving living environments through the recycling of livestock waste into composts and liquid manure. The program covers 1) waste composting and liquefaction of livestock farm households, individual facilities in livestock farming zones, and farming association corporations(including regional agricultural and livestock cooperatives), 2) collective recycling facilities, including for energy use, of farming
association and private corporations, 3) resettlement village restructuring regions (leper resettlement villages nationwide), and 4) liquefied fertilizer distribution centers. For individual facilities, financial support may be used to install compost and liquefied fertilizer facilities, energy facilities such as bio-gas, purification and discharge facilities, supplementary machine and equipment such as chaff pulverizers, fillet equipment and livestock waste transportation tanks, and collective composting facilities. In the case of joint recycling facilities, the funds may be used for purchasing facilities and equipment for recycling wastes into composts, liquid fertilizers and energy, while resettlement village restructuring regions may use the funds for livestock waste treatment facilities and equipment. For liquefied fertilizer distribution centers, the use financial support is confined to the purchases equipment required for the collection, transportation and spraying of liquid fertilizers such as vacuum cars, liquefied fertilizer spraying vehicles, liquefied fertilizer sprayers. Funds for individual facilities are paid 30% by the central government, 20% by local governments and 50% through government loans. In case of collective recycling facilities, 50% is paid by the central government, 30% by local governments and 20% through government loans for composts and liquefied fertilizer facilities, while 30% by the central government, 30% by local governments, 20% through government loans and 20% by the beneficiary are paid for energy facilities.

The financial support limit for individual facilities of individual farm households is 400 million won for hogs, 200 million won for native and dairy cattle and 200 million won for chickens. In the case of corporate entities, the limit is 2 billion won for hogs, 800 million won for native and dairy cattle and 1 billion won for chickens. The financial support for joint recycling facilities is 4 billion won for composts and liquid fertilizers, and 7
billion won for energy facilities.

The government has been expanding its livestock waste treatment facilities support program with the aim to gradually reduce the ocean disposal of livestock wastes towards the complete reduction by 2012. The budget injected into the program was 59.7 billion won in 2007, 92.7 billion won in 2008, 114.1 billion won in 2009 and 121.9 billion won in 2010.

4.4. Project Performance of Environment-Friendly Agriculture

Owing to the environment-friendly agriculture promotion policies pursued since the mid-1990s, visible outcomes have been achieved. As of the end of 2009, farm households practicing environment-friendly agriculture accounted for 16.6% of all farm households. In addition, the cultivation area of environment-friendly agricultural products comprised 11.6% of total farmland area, while the quantity of certified environment-friendly agricultural products constituted 13.1% of total production of agricultural products. In the case of regions in which the ecosystem has deteriorated due to intensive high-input agriculture, environment-friendly agricultural practices have significantly contributed to the environmental conservation including the restoration of the ecosystem.

In assessing the overall performance of the environment-friendly agricultural policies pursued to date, significant outcomes have been achieved, including the verification of the practicability of environment-friendly agriculture and the expansion of farm households practicing it. However, the viable result for improving the environmental quality of the agro-ecosystem has been inadequate. Accordingly, policy initiatives to adjust the size and farming methods of agricultural production are needed.
to preserve a sound ecosystem and materials balance according to regions and water systems. In particular, bold investments and support are required to promote environment-friendly agriculture in the agricultural sector.

From a production perspective, the environment-friendly agriculture to date has focused on expanding the development of environment-friendly agriculture zones and certified environment-friendly agricultural products. On the other hand, however, it has relatively neglected the problems related with the environmental loading of agricultural production activities. In particular, less attention has been given to water pollution despite its severity including the subterranean water pollution from the outflow of excess nitrogen components and eutrophication from the outflow of phosphorus components in the agricultural sector. In addition, environmental problems in the livestock sector have emerged as social issues as adequate livestock waste treatment and environment-friendly livestock production systems were not established in line with the expansion in both size and specialization of the livestock industry. Furthermore, difficulties still remain in evaluating the performance and establishing the goals and directions of environment-friendly agriculture as the systems for monitoring the benefit conditions of farms have not been adequately established in the environment-friendly agricultural policy programs.

As the oldest program implemented among the environment-friendly agricultural policies, the Soil Conditioner Support Program has contributed
to the management of soil in Korea. However, the program needs to be improved to facilitate its systematic connection with education and public relations (PR) programs so that farmers can recognize the problems related with soil pollution. In the case of the environment-friendly farm development program, it has significantly contributed to the development of environment-friendly agriculture at the district level. In particular, the program has greatly contributed to conservation in the agricultural sector by allowing the practice of environment-friendly agriculture at a larger regional level, as opposed to the individual farm level. As a key mutual compliance policy program for promoting environment-friendly agriculture, the direct payment system for environment-friendly agriculture is assessed to be a prominent policy means to expand the number of farm households practicing environment-friendly agriculture. According to a survey on the direct payment system conducted on farms practicing environment-friendly agriculture, however, an upward revision in the unit support payment needs to be undertaken. It is evaluated that the livestock waste treatment facility support program has substantially contributed to the change in the understanding of animal farm households on the practicability of environment-friendly livestock farming through livestock manure recycling (composting or liquid-composting). It has further contributed to the promotion of environment-friendly agriculture by reducing the use of chemical fertilizers and agrichemicals through the supply of organic fertilizers from livestock waste recycling. However, despite the input of a significant amount of policy funds for livestock waste treatment, visible achievements have been insufficient due to deficient linkages with crop growing farms to alleviate the supply and demand imbalance of livestock manure composts and liquid manure composts within a region.
4.5. Major Implementation Plans for the Development of Environment-Friendly Agriculture

4.5.1. Infrastructure Building for Environment-Friendly Agriculture

In order to implement effective action plans for the development of environment-friendly agriculture, a roadmap for expanding recycling-based agriculture (crop production sector) and environment-friendly livestock farming (livestock sector) at the regional level must be devised in stages. First, the infrastructure for environment-friendly agriculture needs to be established through the development of technologies and human resources, the establishment of monitoring systems, distribution promotion support, and division of roles among related parties. With regard to technology development, best management practices need to be established and disseminated according to the environmental conditions at the regional level so that environment-friendly resource management can be applied. In the case of human resource development, young and talented farmers must be secured in each region to foster environment-friendly farms. By inducing environment-friendly farms to participate in environment-friendly training programs both at home and abroad, human resources must be utilized as leaders practicing environment-friendly agriculture. In addition, databases for an agricultural environment monitoring system and an agricultural environment index must be built to continuously identify and analyze the effects of agricultural production activities on environmental loading. In particular, establishing a monitoring system to measure the changes in the agricultural environment including water, soil and the ecosystem at the regional level is a necessary element for the development of a sound environment-friendly agriculture. In this respect, a gradual mid-
to-long-term program must be devised in creating an agricultural environment map using geographic information system (GIS) at the regional level and in establishing an agricultural environment load system.

4.5.2. Actual Practice of Environment-Friendly Resource Management

In order to expand the application of a sustainable agricultural system in Korea, a paradigm shift from maximum production in terms of farming methods to optimum production considering environmental characteristics is needed to factor in the social costs incurred from environmental pollution as opposed to the maximization of short-term income. In particular, the establishment of a Korean-style precision agriculture by promoting Integrated Nutrient Management (INM) and Integrated Pest Management (IPM) through the consideration of regional and crop characteristics and the full utilization of information technology (IT), bio technology (BT) and environment technology (ET) is a crucial task ahead. Accordingly, a crop production management system conforming to the characteristics of the soil and crop growth in different regions must also be established. Furthermore, development of expertise is also needed to develop and expand technologies for promoting IPM and INM projects at the working sites.

4.5.3. Establishment of Regionally-Based Resource Cycling Agricultural System

In order to establish a resource cycling agricultural system at the regional level, the by-products generated in the process of crop and livestock production must be recycled to the maximum extent while soil,
nutrients, pests and irrigation are comprehensively managed according to regional characteristics. The demonstration zones for a regionally-based resource cycling agricultural system should also be initially fostered and subsequently expanded to local regions so that crop production can be systematically linked with the livestock sector according to local conditions. In order to reduce the input of chemical fertilizers and agrochemicals and its outflows outside the agro-ecosystem, precise analysis of the amount of chemical ingredients currently being used should be performed along with the development of cultivation technologies for reducing the use of chemical inputs. In particular, a system that allows the comprehensive use of recycled organic resources, including food and livestock wastes as reusable resources, needs to be incorporated to establish a regional recycling system.

4.5.4. Increased Market-making for Smooth System Operation

In terms of production, environment-friendly products must be sufficiently differentiated in the market so that a recycling-based agricultural system can function properly. In addition, production and consumption linked programs, i.e. green marketing systems that can be trusted by consumers in the market, need to be developed to maintain 1) the environmental performance evaluation of regions with a recycling-based agricultural system and 2) the profitability of environment-friendly agricultural products. As all activities affecting customers, society and the environment are considered in green marketing, mutual exchange programs that allow consumers to experience and verify environment-friendly products through on the site visits play a crucial role. In particular, the government’s role related to market-making functions should be focused on
measures that support green tourism so as to realize the commercial value of the quality of agricultural products additionally derived from environmental performance improvements.

4.5.5. Policy Mix of Economic Incentives and Regulations

The economic incentive measures that affect environment-friendly activities include subsidies, environmental taxes and mutual compliance systems. The mutual compliance system, which combines subsidies with regulatory rules, is utilized as a powerful economic incentive program. The programs subject to menu-type direct payment systems that are linked to environment-friendly agricultural resource management include support for 1) farm households cultivating cover crops (milk vetch, rye, etc.) in the wintertime, 2) farm households cultivating water purification crops (lotus, parsley, etc.) in farmlands located near the influents of reservoirs and lakes, and 3) farm households that have reduced their livestock business size based on material balance at the regional level. The incentives that provide further benefits in addition to existing support measures according to the level of achievement in material balance based on recycling in connection with environment-friendly agricultural zone development programs at the regional level are also needed. In addition, environment-friendly mutual compliance programs must also be expanded to allow for the change in the size and techniques of agricultural production within the limits of permitted levels of environmental loading by water systems and regions. Furthermore, the introduction of stocking density regulations and a livestock breeding rights trading system in the livestock sector should also be reviewed in the mid-to-long term to maintain the environmental capacities at the regional level.
4.5.6. Establishment of Roles and Cooperation Systems

In order to effectively establish a sustainable agricultural system, a proper role sharing system among farmers, policy makers, consumers, researchers and related organization personnel should be constructed.

As a main constituent of the life industry, farmers should play a crucial role as members of a green enterprise with a sense of duty as both suppliers of food and environment managers of rural communities. Consumers should play both the role of recognizing the tasks of farmers in practicing environmental conservation at the regional level and the role of monitoring regional environments and the practice of environment-friendly agriculture. Researchers must reinforce their efforts to link policies with on-the-field research to expand sustainable agricultural development that incorporates the latest science technologies such as IT, BT, ET and nanotechnology (NT) to agricultural production sites. The central government must provide support for promoting sustainable agriculture, including formulation and implementation of mid- to long-term plans, revision of related programs, development of new environment-friendly and clean technologies, and budgets. Local governments must be in charge of formulating and implementing sustainable agriculture development plans at the regional level, in addition to providing farmer education and marketing for diffusing new environment-friendly technologies that have been developed. Producer organizations such as the National Agriculture Cooperative Federation must play the role of distributing environment-friendly agricultural products, educating farmers, and monitoring government policy implementations.

In order to expand the adoption of a recycling-based agricultural system at the regional level, the roles of related parties must be divided properly. In addition, a close cooperation system among the parties must
also be established. In this respect, local citizens with knowledge and consciousness of environmental conservation at the regional level must become a main driving force. In particular, regionally-based “Resource Cycling Agriculture Promotion Committee” (tentative) should be organized with the participation of consumers, policymakers and experts to develop and implement programs agreed on by local citizens through thorough discussions and opinion gathering.

4.6. Outlook and Issues

Environment-friendly agriculture in Korea plays an important role from a policy perspective in improving the environmental quality and reflecting social needs for safe agricultural products. Particularly, with the announcement of “low carbon green growth” as the future national development strategy in 2008, the government has set environment-friendly agriculture as the key area for green growth in the agricultural sector. Reflecting such changing conditions of this age, the Ministry for Food, Agriculture, Forestry, and Fisheries has set the vision of “realization of environment-friendly green industries in hand with the public and nature” to spur up its efforts to foster environment-friendly agriculture. Owing to the government’s active policies, the proportion of environment-friendly agriculture is expected to continue to increase from 11% of overall agriculture in 2009 to approximately 13% in 2010 and over 20% by 2020.

In evaluating environment-friendly agriculture policies that have been pursued to date, significant achievements have been made in expanding the number of farm households practicing environment-friendly agriculture and in increasing the production of environment-friendly agricultural products through the environment-friendly agricultural zone development
program and the environment-friendly agricultural direct payment system. However, visible achievements have been insufficient in improving the environmental quality of the agro-ecosystem and creating a diverse range of value-added in industries related to environment-friendly agricultural product processing. As such, key challenges for the sound sustainable development of environment-friendly agriculture have been set forth in the third environment-friendly agriculture promotion 5-year plan for 2011~2015, which include 1) promotion of distribution and consumption of environment-friendly agricultural products, 2) establishment of safety management system for securing consumer confidence, 3) promotion of environment-friendly agricultural product processing sector and upstream and downstream industries, and 4) establishment of agricultural and environmental resource management system. In addition of the continued implementation of such policy programs, environment-friendly agricultural infrastructures such as agricultural environment monitoring systems and environment-friendly agricultural maps must also be devised.

In addition, Korean-type precision agriculture must also be developed from a technical perspective, while establishing regional recycling-based agricultural systems, to expand environment-friendly resource management systems in the agricultural sector. Furthermore, in order to facilitate system operations, an adequate combination of policies must be employed, including economic incentives to expand the support for farm households practicing environment-friendly agriculture and regulatory means to manage excessive nutrients. Proper allotment of roles among related parties including policymakers and farmers must also be conducted. If such challenges are pursued in a proper manner, environment-friendly agriculture will play a pivotal role in the development of Korean agriculture as an engine of future growth.
Section 5. Korea’s Forest and Forest Industry

Korea has been known as the land of natural beauty. Although the beautiful scenery was damaged as the country went through difficult times, it is being recovered with people’s efforts to plant and grow trees in the mountains. Korea has distinctive four seasons with rich soil for the diversity of flora and fauna and healthy trees. Vigorous efforts of the government and the public helped enrich the ecosystem of forest. As the economy turns around, the public’s demand for forest rose with growing demand for its management as well, which raises the importance and role of forest. In that sense, it is necessary to manage our forest in a way to meet the demands of current generation and benefit the future generation as well and make practical efforts to do so. This paper summarizes general aspects of our forest and its industry focusing on sustainable management.

5.1. Forest Resources

5.1.1. Forest Environment

The Korean Peninsula is located in the Far East. Most of its northern borders are shared with China, with the rest bordered by Russia. On the southern part, the Korean Strait parts the peninsula from the islands of Japan.

Most of the mountains in Korea are distributed in the mid-northern region centering on the Taebaek Mountains stretching along the eastern coast. Belonging to the temperate climate zone, the weather in Korea can be divided into the summertime of seasonal winds during the rainy periods and wintertime of very cold continental winds. The changes in seasons are distinct with relatively short springs and falls compared to the long summers and winters.
Annual average temperature ranges from 3~16 degrees centigrade with annual rainfall between 600~1,600mm. Such weather conditions have allowed for numerous species of plants and various forest types to develop on the Korean peninsula.

Around 66% of its geological layers were formed in the Cenozoic era with granite and gneiss accounting for over 70% of all host rocks. Due to the regular changing continental climate and heavy rains in the summer seasons, the soil is easily susceptible to weathering and erosion. Most forest soils are acidic sandy loam.

Forest distribution in Korea can be divided into subtropical, temperate and frigid forests.

The subtropical forest regions include the southern coast region below 35 degrees north latitude, Jeju-do and southern coastal islands with annual average temperatures of 14 degrees centigrade and over. The major forest
of this region is the evergreen broad-leaved forest. Most of the natural forests in this region have been destroyed due to over-development and mountain fires. Subsequently, it has changed to deciduous broad-leaved forest, mixed forest, or Korean red pine forest. Key species of trees include Quercus acuta, Castanopsis cuspidata and the camellia tree.

The temperate forest region is located between 35~43 degrees north latitude excluding the high mountain areas. Annual average temperature is between 6~10 degrees centigrade. Key forests of the region were the deciduous broad-leaved forests, but they have been mostly destroyed, and have changed to Korean red pine forests. Major species of trees include oaks, white birches, zelkova trees, ash trees, Korean red pines, Korean white pines and Japanese black pines.

Frigid forest regions include the northern extreme of the Korean peninsula and the high regions with the temperature below 5 degrees centigrade. Key forests were boreal coniferous forests, but these have changed to general deciduous broad-leaved forests due to excessive development and mountain fires. Subsequently, parts of the forests either have gradually changed to mixed forests or are changing back to pure larch forests. Major species of trees include fir trees, Korean spruce, oaks, wild-walnut trees and white birches.

5.1.2. Forest Resources

The forest area of Korea at the end of 2009 was 6,370 thousand ha, constituting 64% of the national land area. However, it has been reduced approximately 57 thousand ha since 1995 due to development and natural disasters, including damages from pests and mountain fires. Forest growing stock is 109.39 m³ per ha, which is lower than the world average of 110 m³/ha.
Coniferous forests are spread extensively and account for 42% of total forest land, followed by 26% broad-leaved forests and 29% mixed forests. Major species of trees include Korean white pines, Korean red pines, larches and oaks with 55% of coniferous forests comprised of Korean red pines. However, the percentage of Korean red pines is on the decline due to the recent nationwide rampage of pests including pine wood nematodes.

With regard to the age-class of forests in Korea, trees aged 30 years and below account for 59% of total forest trees, requiring further cultivation. However, the percentage of forest trees aged 20 years and below continues to decrease, meaning that they are gradually entering into their final ages.
5.1.3. Ownership and Use of Forests

Forests are divided into national forests, public-owned forests and private-owned forests according to ownership. In terms of usage, forests are classified into preservation forest land and semi-preservation forest land. Preservation forest land can further be split into production forest land and public forest land. Forest land area by ownership over the last 10 years has changed with private-owned forests showing distinct declining trends every year, while national forests have steadily increased and public-owned forest remained virtually unchanged.

Twenty-four percent of the total forest land area is national forest. Most of the national forests are managed by 5 regional forest administrations under the Korea Forest Service. For the purposes of national land preservation, forest management, academic research and forestry technology development, most of the national forests are managed as vital national forests. Forest growing stock per ha of national forests is 135.3 $m^3$, which is significantly higher than 100.4 $m^3$ for private-owned forests.

Public-owned forests are possessed by local governments and public organizations, which account for 7.7% of total forest land area and 7.6% of
total forest growing stock. Forest growing stock per ha was low compared to national forests at 108.4 m³.

Private-owned forests constitute 68.3% of total forest land area, which are held by various entities such as individuals, citizen organizations, families and cooperative bodies. The number of private forest owners reaches approximately 2.04 million holding 4.39 million ha. However, 90% of the owners own forests of 5 ha or below putting the average forest land area per owner at mere 2.1 ha.

5.1.4. Forest Use

In terms of functions, forests provide the economic function of producing forest products and such public functions as national land preservation, water source buildup, wild life protection, oxygen supply and air purification. As an economic function, the total production of forest products in 2009 was 4,831.4 billion won, comprising 0.4% of gross domestic product. Net gross growing stock production accounted for 41.3% of total production at 1,998.0 billion won, while materials for landscaping comprised 17% at 820.8 billion won.

The public value of forests is estimated to be 73 trillion won, amounting to 7.7% of the gross national product. As future forests become dense, the water source buildup and national land preservation functions will be expanded, while the forest recreation population is also expected to

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<th>Public Value of Forests</th>
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<tr>
<td>Total</td>
<td>73 trillion 1,799 (100%)</td>
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<tr>
<td>Water Source Buildup</td>
<td>18 trillion 5,315 (25%)</td>
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<tr>
<td>Air Purification</td>
<td>16 trillion 8,365 (23%)</td>
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<td>Sediment Outflow Preservation</td>
<td>13 trillion 4,867 (18%)</td>
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<td>Forest Recreation</td>
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</tbody>
</table>
increase with the improvement of economic life. As a result, the value of public functions of forests is expected to continue expand in the future.

5.2. Development of Forest Policies

The Forest Act requires the Korean government to establish a forest master plan at the nationwide level every 10 years to develop and manage forest resources. Local governments must also devise regional forest plans in line with the actual conditions of the particular region according to the basic plan. Currently, the fifth forest master plan is being implemented.

Starting with the tree planting policy in the 1960s and shifting to a cultivating policy in the 1980s, the government was able to completely restore wastelands through the forestation of over 10 billion stocks during the afforestation period (1970s~1980s). During the forest land resource development period (1980s~1990s), the government focused its policies on developing economic forests through the improvement of tree species. As a result, growing stock increased by 8 times in just 40 years from only 10m³/ha in 1967. Coming into the 2000s, the public value of forests, which provide clean air and water in addition to stock growth, continued to increase. Accordingly, government policy shifted towards a policy of enjoying and using forests, along with pursuing sustainable forest management. As a result, today’s policy aims at optimal provision of various functions covering economic, social, environmental and cultural functions. In addition, in order to respond to the rapidly changing conditions and environment both at home and overseas, the fifth forest master plan, a vision for forest in the 21C was established and has set sustainable forest resource management as its policy paradigm to guide Korea’s forest policy into the future.
5.3. Major Forest Industries

5.3.1. Reforestation and Forest Tending

Reforestation plans are formulated by conducting an on-site survey of the terrain and soil conditions of the reforestation area. A wide variety of tree species are selected from the 21 economic tree types based on the optimum tree principle according to the location as valley, mountain base or mountainside. Saplings for reforestation are produced according to the long-term reforestation plan. However, they are also produced and supplied by taking into account the optimum reforestation based on the survey of forest soil and forestation plan desired by mountain owners.

On the 47th Arbor Day in 1992, the National Afforestation Commemoration Tower was erected at the Korea National Arboretum to celebrate the 20th anniversary of the commencement of the afforestation program in 1973. It provided the opportunity to convert the government’s reforestation policy towards resource development through the replacement of bad and diseased trees with economic tree species.

Stock growing is enhancing the outcome of reforestations and also facilitating the production of superior timber through systematic post-management of grass mowing, fertilizing, vine cutting, stock growing, natural forest cultivation and thinning for trees planted in connection to reforestations.

With regard to natural forest tending, the growth conditions of forest land
and forest wood are taken into account and natural forests that can be converted into superior stands are cultivated as timber forests by adjusting the growing space among upper forest trees. Thinning is conducted over several times prior to yielding timber by final cutting. The appropriate timing of thinning varies according to the condition of tree.

5.3.2. Erosion Control

Since the first erosion control project was implemented around Seoul in 1970 to restore wasted forests, Korea’s successful erosion control has received world fame. As the reforestation program was successfully implemented, the area of forest erosion control decreased continuously to only 48 ha in 2001 due to a decline in large wastelands. However, the area of forest erosion control reached 132 ha in 2005 because of a collapse in a large area of mountain land caused by frequent flood and storm damage, mountain fires and mountain area development. In addition, the size of forest erosion control increased with the substantial erosion in valleys due to avalanche damages from landslide and runoff. However, the size of forest erosion control fell back to 72ha in 2007 from 132ha which was quite high. The area of preventive erosion control has also increased to prepare for the rise in mountain area disasters. Furthermore, erosion control dam dredging, which was previously avoided, increased from 29 sites in 2002 to 420 sites in 2008, to 807 sites in 2009 and 262 sites in 2005 subsequent to extensive damage from localized torrential rainfalls.
5.3.3. Forest Management

In order to stimulate the management of private-owned forests, technical guidance and education need to be continuously provided to forest owners. However, most of the forest owners avoid investing in their property as either a significant number are small forest owners or the economic feasibility of forest investments is low.

Accordingly, the government began training forestry technology guidance counselors beginning in 1978, allocating such personnel to forest cooperatives to provide information on forestry technology and business management. The government also provided convenience to forest owners through proxy management of forest business.

The government also selects exemplary owners possessing forests of over a certain size and young and middle-aged settlers in rural communities with the will and capacities to work in the forest industry as forest successors. It also provides support to allow successors to play a leading role in the management of private forests within a region.

Forest roads represent forestry infrastructure used for forestation, forest tending, mountain fire fighting, pest control and transportation of various forest products. They are utilized in a variety of ways to contribute to the regional development of rural and mountain communities through the improvement of regional traffic and the development of tourism resources.

Forest road facilities were put into place beginning 1968 for national forests and since 1984 for private forests. As of 2009, the total extension of forest roads reached 16,616km with 4,040km paved in national forests and 14,263km paved in private forests. However, the length of such roads is greatly below advanced countries at 2.6m per ha compared to 44.9m in Germany and 5.4m in Japan.
5.3.4. Forest Protection

Mountain fires are dreadful disasters that instantly destroy forests which have been tended for many years. Occurrences of mountain fires subsequent to 2000 reached 523 cases annually, destroying an average of 3,726 ha of forest per occurrence. Mountain fires occur mostly in the dry and windy seasons of spring and fall. As such, springs and falls have been set as mountain fire precaution periods to conduct intensive fire prevention activities. However, potential factors for mountain fires have increased due to fair forest floors, increase in flammable materials within forests, and a surge in the mountain climbing population.

Currently, mountain fires tend to be very large when they occur. Accordingly, administrative capacities have been focused on securing monitoring facilities, expanding the number of helicopters, strengthening the controls on mountain access and mountain activities, modernizing fire fighting equipment and establishing a forest road network in order to establish an initial fire fighting system.
5.3.5. Mountain fire occurrences

The major forest pests in Korea include fall webworms, pine needle gall midges and pine moths. The areas affected by such pests accounted for 79% of the total affected areas in the early 1990s, but they have decreased to 56% levels in 2005. Coming into the 2000s, the forest areas affected by black pine bast scales and pine wood nematodes increased significantly with the areas affected by pine wood nematodes surging 366% in 2005 over 2000. Accordingly, pest prevention and control activities including aerial pest control and preventive injections have been conducted against pests and diseases significantly affecting forests. In addition, preventive activities of removing affected trees through such means as fumigation, chipping and incineration are being carried out.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Area affected (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>290,404 (100%)</td>
</tr>
<tr>
<td>Pine needle gall midge</td>
<td>155,897 (54%)</td>
</tr>
<tr>
<td>Pine moth</td>
<td>5,198 (2%)</td>
</tr>
<tr>
<td>Black pine bast scale</td>
<td>32,497 (11%)</td>
</tr>
<tr>
<td>Pinewood nematode</td>
<td>5,633 (2%)</td>
</tr>
<tr>
<td>Fall webworm &amp; other pests</td>
<td>91,179 (31%)</td>
</tr>
</tbody>
</table>

Table 3-30  Pest Outbreak (2009)

5.3.6. Forest Recreation

As part of the efforts to respond to the rising demand for forest recreation in line with the high level of industrialization and urbanization, while promoting multi-purpose management of forests in connection with rural communities and income, a...
natural recreation forest development program was selected and implemented as a key policy since 1988.

Currently, a total of 122 natural recreation forests have been developed nationwide with an area reaching 124,945 ha. Among the natural recreation forests, 38 are publicly-owned natural recreation forests in an area of 106,440 ha, which account for 31.1% of the total number of recreation forests and 85.2% of total recreation forest area. The average area per forest reaches 2,801 ha.

Natural recreation forests have been developed to allow visitors to rest peacefully while seeing and enjoying forests. In this respect, only the basic required recreation facilities have been installed preserving natural scenery to the maximum extent while minimizing damage at the same time. The facilities include hiking trails, benches, outdoor tables, camping areas, simple exercise facilities, shelters, lawns and nature observatories.

In 1987, the Korea National Arboretum and the Forest Museum with sizes of 500ha and 0.5ha, respectively, were established in Pocheon, Gyeonggi-do to provide natural classrooms and resting spaces. The Korea National Arboretum operates the world’s first plant garden for the blind, in addition to providing natural learning classrooms and resting places for citizens every year.

With the objective of establishing one arboretum and a forest museum for each province and region, a total of 22 arboretums and forest museums have been established by the end of 2006, starting with

<table>
<thead>
<tr>
<th>Classification</th>
<th>Places</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>56</td>
</tr>
<tr>
<td>National Arboretum</td>
<td>2</td>
</tr>
<tr>
<td>Public-owned Arboretum</td>
<td>30</td>
</tr>
<tr>
<td>Private Arboretum</td>
<td>18</td>
</tr>
<tr>
<td>School Arboretum</td>
<td>6</td>
</tr>
</tbody>
</table>
Wanju in Jeollabuk-do, Wando in Jeollanam-do, Jinyang in Gyeongsangnam-do and Yeondong in Jeju since 1988. Additional arboretums and forest museums are planned to be opened in the future. In the Gwangleung Forest Museum, a total of 180 thousand items including various materials, plant samples and wood products are on display.

5.4. Forest Industry

5.4.1. Production and Consumption of Forest Products

As of 2009, the total production of forest products reached 4,831.4 billion won, comprising 0.4% of gross domestic product. By item, net gross growing stock production accounted for 41.3% of total production at 1,998.0 billion won, while landscape materials, nut and fruit products, and mushrooms accounted for 17%, 13% and 6%, respectively.

The total exports of forest products in 2009 were valued at US$124.0 million 10.4% decrease from a year earlier, falling continuously since 1990 due to a decline in its international price competitiveness stemming from rising raw material costs and technological advancements in competing countries. Exports of wood and wood products accounted for the highest...
portion, comprising 41.6% of total exports of forest products at US$51.00 million, followed by US$30.00 million for chestnuts, US$6.00 million for plywood and US$4.00 million for pine mushrooms. The export items of forest products are very limited with the top 4 export items accounting for 77.2% of total exports. The major countries for export include Japan, China, the US, Taiwan and the Arab Emirates.

Imports of forest products have increased every year to US$2,865.0 million in 2009, comprised mainly of logs, stone, plywood, sawnwood, lamination, particle board, lumber and fiberboard. The major countries for import include China, Malaysia, the US, New Zealand, Indonesia, and Canada.

5.5. Import & Export of Forest Products

5.5.1. Supply and Demand of Wood

The wood processing industry in Korea has developed from small-sized sawmills into an industry producing high value-added products such as plywood, boards, sawnwood, wood houses, charcoal and wood vinegar. The demand for wood products is expected to further expand due to the
environment-friendly characteristics of wood. The total log consumption in 2009 was 8.19 million $m^3$ with 100% of the total consumption consumed for domestic demand for the 3rd consecutive year since 2007. In line with the recent increase in the use of domestic timber, the self-sufficiency ratio of logs increased 4.9% from 33.9% in 2008 to 38.8% in 2009 owing to the increase in the relative competitiveness of domestic timber as a result of the rise in the price of log imports from shipping charge increases.
5.5.2. Wood Processing Industry

As of 2005, the plywood production capacity of a total of 5 companies reached 777 thousand m³, and the actual production volume of plywood stood at 493 thousand m³ while imports and exports recorded 1,272 million m³ and 7 thousand m³, respectively. A total of 3 particle board producers (4 plants) produced 934 thousand m³ of particle board in 2009 with a total production capacity of 1,012 thousand m³ while imports amounted to 677 thousand m³ (0 exports).
The production of plywood, which uses imported logs as its main raw material, has gradually declined due to the short supply of raw materials and price increases. On the other hand, the production of particle and fiber board, the raw materials of which can come fully or partially from as waste wood or thinning wood, continues to rise. However, there have recently been mismatches in the supply and demand of particle and fiber board due to the demand for bio-energy development that uses waste wood and thinning wood as raw materials in line with the recent high oil prices and heightened concerns over energy security.

The lumber industry produces rectangular lumber and boards used largely in housing construction. There are around 339 companies operating currently with an annual production of approximately 2,947 thousand m³.

The construction work in the wood house industry has increased every year with a rising preference for countryside houses. To date, wood houses have been imported in sets from Finland and Canada. However, the use of domestic lumber has expanded with the increased supply of wood housing materials from the forest product distribution center in Yeoju.

Chips are supplied as raw material for manufacturing pulp, while sawdust is used for such environment-friendly purposes as livestock waste.
purification or organic fertilizer manufacturing. Recently, sawdust production using by-products generated from forest tending projects has been on the rise.

5.5.3. Forest Products for Short-Term Income

Due to favorable weather conditions, a wide variety of forest by-products are produced in Korea. With the recent consumer preference for chemical-free natural foods, mountain fruits, mushrooms, medicinal herbs and saps produced within forests have been developed as short-term sources of income to alleviate the weak profitability that stems from the long-term investment nature of forestry while, at the same time, earning income through the intensive use of mountain land.

Chestnut production has been stable at around 76 thousand tons in 2009 with per capita consumption decreasing from its peak of 2.2kg in 1997 to 1.6kg in 2007. Chestnut exports in 2009 were 12,889 tons, but they are currently declining due to the reduction in the chestnut market of Korea’s main export country of Japan. Imports of chestnuts are comprised of frozen ones for processing and raw for roasting. The large amounts of
frozen chestnuts imported can be attributed to the low tariff rate at just 27%. Meanwhile, 2,640 tons of raw chestnuts were imported in 2006, exceeding its minimum market access quota of 2,170 tons.

The production amount of dry oak mushrooms in 2009 was 2,992 tons with 22,797 tons of production of raw oak mushrooms for domestic consumption. Oak mushroom exports have continued to fall since 1990 due to the high price of raw oak mushrooms for domestic consumption and low price competitiveness compared to Chinese products in overseas markets.

Oak mushroom imports have been on the rise since the beginning of Korea’s diplomatic relations with China. Oak mushrooms are mostly imported in the dried form. However, the import amount of prepared oak mushrooms has surged recently. The North Korean oak mushrooms imported custom-free through South-North Korean trade have also increased significantly in recent days.
5.5.4. Overseas Forest Development

Overseas forestation has been actively pursued with the objective of maintaining one million ha of overseas forest land by 2050 while, at the same time, supplying 50% of domestic demand for wood to secure both a long-term stable supply of wood resources and carbon emission rights in preparation for the implementation of the United Nations Framework Convention on Climate Change.
With the start of forest development in Indonesia in 1968, a wide variety of forest businesses including the production of logs and plywood have currently expanded into Malaysia, Papua New Guinea, the US, Solomon Islands, Fiji, Guyana and Russia. Going forward, an initial expansion into the geographically nearby region of Southeast Asia is being pursued to bring in residual forest wood in the region in the form of logs or processed wood.

5.6. Outlook and Issues

The forest resource management of each country in the world today is focused on the continued management of forests so that they can be passed down to future generations. Accordingly, forest resources must be maintained continuously. Secondly, regional societies that can manage forest resources must also be maintained. Thirdly, economic activities must be sustainable so that such regional societies can be maintained through forest resources. Such perspectives provide a glimpse of the sustainability of Korea’s forest resources and forestry.

The Korean forestry is well established to attain sustainable forest resource management in terms of both quality and quantity of forest resources. This has been possible through steady investment and policy programs that have been implemented over the years. However, the inconsistent voluntary investments by forest owners due to the advent of new pests and diseases that damage the structure of forest resources or the forest itself and the lack of economic feasibility will act as a burden in preserving Korea’s forest resources. In particular, any temptation to convert mountain land to other uses leads to land development which, in turn, lowers the quality and quantity of forest resources.
The economic feasibility issue is expected to emerge as the most important factor determining the sustainability of Korea’s forestry. Forests must be preserved in order to satisfy the national demand for continued forest utilization which, in turn, requires voluntary investments by forest owners. However, investments of forest owners cannot be induced at the current levels of economic feasibility. In addition, economic feasibility in forest management must also be secured to maintain local regional communities. However, maintaining sustainable regional communities is also questionable under the current levels of economic feasibility. Accordingly, securing economic feasibility will become a crucial standard in determining the sustainability of forest resources in Korea.
Chapter 4

Agriculture-Related Industries

1. Agro-Food Marketing
2. Food Industry
3. Agricultural Input Industry
4. Agricultural Trade
Chapter 4. Agriculture–Related Industries

Section 1. Agro-Food Marketing

Agro-food products undergo a complex channel of marketing in Korea. Fresh produce, in particular, involves multiple steps in its marketing process as they are largely produced and supplied by small farms. The modernization of marketing in Korea took place with the establishment of public wholesale markets. Recently, however, the emergence of large retailers has increased the overall efficiency of agro-food marketing. This chapter examines the changes in the marketing channels and transaction methods of agro-foods in Korea.

1.1. Agro-Food Marketing Channel

The concept of agro-food marketing includes the series of logistics services that agro-foods undergo following production up to its final consumption. It involves the grading, packaging, storage, processing and transportation of agro-foods and also covers its transactions and sales promotion activities. The marketing process serves as the intermediate step between production and consumption, thus affecting as well as being affected by consumption and purchasing behaviors of consumers. The process also mutually influences the production and shipment patterns of producers.

1.1.1. Changes in Agricultural and Livestock Products Consumption Patterns

The food consumption patterns of Koreans changed vastly over the past 20 years. Rapid rises in national income led to a continued decrease in
the consumption of rice and other grains, while increasing the consumption of fruits, vegetables and meat. Urbanization and the rise of non-grain consumption led to the need for a marketing system that could supply increasing amounts of fresh produce to consumption centers in large urban areas.

The consumption of fruits, vegetables and meat has stabilized in this decade. While the consumption patterns for agricultural products have remained about the same in terms of quantity, changes in quality have been dramatic in recent years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Grains</th>
<th>Rice</th>
<th>Vegetables</th>
<th>Fruits</th>
<th>Meat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>195.2</td>
<td>132.4</td>
<td>120.3</td>
<td>21.8</td>
<td>11.3</td>
</tr>
<tr>
<td>1990</td>
<td>167.0</td>
<td>119.6</td>
<td>132.6</td>
<td>41.0</td>
<td>19.9</td>
</tr>
<tr>
<td>2000</td>
<td>166.8</td>
<td>97.9</td>
<td>165.9</td>
<td>40.7</td>
<td>37.5</td>
</tr>
<tr>
<td>2005</td>
<td>150.5</td>
<td>83.2</td>
<td>145.5</td>
<td>44.7</td>
<td>36.6</td>
</tr>
<tr>
<td>2008</td>
<td>149.1</td>
<td>86.2</td>
<td>153.6</td>
<td>44.0</td>
<td>40.7</td>
</tr>
</tbody>
</table>

Source: KREI, Food Balance Sheet, each year.
The production of agricultural products rose rapidly up to the mid-1990s, and the liberalization of the agricultural market and the subsequent rise in agricultural product imports led to a glut in the domestic market between the late 1990s and the early part of the new millennium. Oversupply and higher national income led to price differentiation based on quality. More consumers began to pay attention to food safety and environmental-friendly agricultural products. The market for environmental-friendly agricultural products rose from 150 billion won in 2000 to 760 billion won in 2005.

Agro-food products began to improve in quality and smaller packages became increasingly popular. As the size of the family has gotten smaller, consumers have begun to prefer smaller packaging despite higher unit prices and pre-cooked foods. Such changes led to the need for improvements in packaging and processing facilities as well as changes in packaging materials and methods. The size of the pre-processed food market, including fresh-cut produce, is estimated to be nearly 300 billion won. The increase in national income led to convenience-seeking consumers, who began to prefer large one-stop shopping centers. As more people began eating out, marketing channels had to be reformed to keep the food material supply smooth.

1.1.2. Complex Marketing Channels of Agricultural Products

Agricultural products have a complex marketing system due to their unique system of small quantity batch production with high marketing costs. Korean consumers also tend to be exacting about the quality of fresh produce, creating more challenges for the distribution network.

Rice and other grains follow a distribution process from farms to rice
processing complexes (RPCs) or milling plants, retail markets, and then finally to the consumer. RPCs are found in 302 locations around the country, carrying out the drying, storing, processing and sale of rice. The government’s procurement policy, which had a significant influence on the market in the past, has been abolished, and private economic entities control the distribution process. Since grain is a standardized product and can be stored, the role of wholesale markets in the rice industry is minimal. Most grain products are supplied directly to retail markets from producing areas (local processing companies).

Vegetables, fruits and other horticultural products are distributed from the farm to a local shipping organization, wholesale market, retail market and finally to the consumer. Horticultural products are difficult to standardize as well as store. Thus, joint shipments are difficult to carry out and the products follow a multi-step distribution process. Local shipping organizations include agricultural cooperatives (or crop units) and farming
association corporations, and local distributors (collectors) also operate on the local level.

Consumer markets are characterized by large retailers, such as discount stores and supermarket chains, as well as the traditional wholesale market, with large-scale distribution on the rise. Direct marketing such as e-commerce is becoming popular as well. Horticultural products have different and complex distribution systems by crops.

Livestock products pass through a distribution network that begins at the farm producer and moves to the slaughterhouse, wholesale market (auction), retail market and finally to the consumer. Livestock processing complexes (LPCs) are increasingly replacing the slaughterhouse-wholesale market.
market stage of the process.

Marketing channels for agricultural products, especially fruits and vegetables, are complex in Korea. Fruits and vegetables are shipped to wholesale companies from producers' organizations or local collectors, and are distributed to intermediate wholesalers in the wholesale market, retailers, and then to the consumer. Leafy and root vegetables tend to have the most complex marketing channels.

1.1.3. Rapid Diversification of Marketing Channels

The rapid development of the Korean economy resulted in drastic social changes. National income rose quickly and changed consumption patterns, which led to the diversification of marketing channels for agricultural products. Since 32 public wholesale markets have been established after the mid-1980s and the number of large retailers has increased after the mid-1990s, the marketing system of agricultural products dramatically changed.
The usage rate of the marketing route shows that wholesale markets have held steady around 48% from 1998 to 2006, while pseudo-markets fell from 42% to 24%. On the other hand, large retailers have enjoyed considerable success, rising from 4% to 14%, with direct marketing and e-commerce rising from 6% to 15%.

1.2. Marketing of Agricultural Products by Local Producers

1.2.1. Increase in the yet Small Volume of Local Producer Marketing

At the production level, the largest number of items is shipped from local agricultural cooperatives, followed by individual suppliers and joint suppliers. Systematic shipping services are provided by agricultural cooperatives that perform individual settlement, joint packaging and joint transportation, while joint suppliers provide joint grading, transportation and payment. Leafy and root vegetables are usually supplied by individuals or by systematic shipping system. Fruits and fruit vegetables are supplied by joint or systematic shipment, while flavor vegetables are supplied by systematic shipment. Joint shipment and systematic shipment have become more widely used in recent years, with 11% of total fruit and fruit vegetable supplies following joint payment (pooling).

The reduction in individual shipping at the local producers’ level and the rise in joint shipping are the result of the efforts of individual farmers as well as government support that enabled the creation of large-scale shipping organizations. Local joint shipping organizations include local distribution organizations and associated marketing organizations. The role of local distribution organization is assumed by the National Agricultural Cooperative Federation and farming association corporations that receive support from the government for the construction of agricultural product
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Table 4-2  Local Marketing Organizations Subject to Evaluation by Type

<table>
<thead>
<tr>
<th>Organization Type</th>
<th>Total</th>
<th>Agricultural Cooperative</th>
<th>Farming Association Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated Marketing Organization</td>
<td>22 (5)</td>
<td>14 (4)</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Specialized Organization</td>
<td>287 (189)</td>
<td>257 (187)</td>
<td>30 (2)</td>
</tr>
<tr>
<td>General Organization</td>
<td>100 (29)</td>
<td>67 (28)</td>
<td>33 (1)</td>
</tr>
<tr>
<td>Marketing Promotion Program Organization</td>
<td>409 (223)</td>
<td>338 (219)</td>
<td>71 (4)</td>
</tr>
<tr>
<td>Supply and Demand Program Organization</td>
<td>474</td>
<td>464</td>
<td>4</td>
</tr>
<tr>
<td>A P C</td>
<td>206 (155)</td>
<td>128 (112)</td>
<td>78 (43)</td>
</tr>
<tr>
<td>Fruit Cooperative Federation</td>
<td>3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Total (excluding overlap)</td>
<td>714</td>
<td>602</td>
<td>112</td>
</tr>
</tbody>
</table>

Note: Number in parenthesis for marketing promotion program organizations represents the number of organizations participating in supply and demand stabilization program. Number in parenthesis for APC represents the number of organizations that maintain local marketing centers among organizations participating in marketing promotion program and supply and demand stabilization program.


packing center (APC) due to their active distribution activities. Associated marketing organizations conduct collective marketing activities. According to Korea Agro-Fisheries Trade Corp.’s comprehensive evaluation report of local producer distribution organizations (2009), there are currently a total of 711 local producer marketing organizations (excluding 3 fruit cooperative federations), of which 599 are agricultural cooperatives and 112 are farming association corporations. Among the local producer marketing organizations, 409 organizations participate in the marketing promotion program, of which 22 are associated marketing organizations. 287 are specialized organizations and 100 are general organizations. The number of local producer marketing organizations participating in the
supply and demand stabilization program is 474. In addition, among the 206 organizations that maintain APCs, 155 participate in either marketing promotion program or supply and demand stabilization program.

The sale locations of agricultural products largely depend on the shipment size and product characteristics, with the shipment size becoming an important factor in the selection of the locations. The average shipment size is 2.6 tons for individual shipment, with 15.6 tons for each joint shipment. A survey of wholesale market transactions shows that over half of total transactions involve less than 10 package units (i.e. boxes) per transaction. A production structure that depends on small farms accounts for the similarly small scale of shipments and transactions, with joint shipping organizations faring slightly better. This marketing structure creates lower efficiency in logistics and raises transaction costs such as searching costs.

1.2.2. Operation of Agricultural Products Packing Centers (APC)

APCs are facilities equipped with grading and packaging machines and low-temperature storage to promote packaging and standardized shipment of fruits and vegetables. The government has supported the establishment of APCs in main production areas to function as the center of
local product marketing and to overcome the limitations often faced by small-scale farms by strengthening their market bargaining power through the integration of production and marketing. APCs also allow for producers to better respond to the rapidly changing marketing environment.

The transaction volume of APCs is steadily increasing, handling 6.4 million tons of horticultural products in 2008, a 8.4% increase from 5.9 million tons in the previous year. The average transaction volume per local
marketing organization has also increased by 11.2% as the number of organizations has fallen. In addition, the transaction volume of organizations with APCs among local marketing organizations has also increased 10.6% from 2007.

Associated marketing organizations have the largest transaction volumes, followed by agricultural cooperatives and farming association corporations.

1.3. Wholesale Markets

1.3.1. Changing Environment of Agricultural Wholesale Markets

While several different types of markets handle the wholesale distribution of agricultural products, public wholesale markets manage most of the wholesale distribution. Public wholesale markets were financed by both the central government and local governments according to the “Agricultural Product Distribution and Price Stabilization Act,” and are established and operated by regional governments. Other wholesale markets include joint markets, which are operated by agricultural cooperatives and the National Agricultural Cooperative Federation (NACF) under the auspices of city and provincial governments, and pseudo-wholesale markets that are not required to report to regional governments and thus lie outside the oversight of the central or regional governments.

The first public wholesale market was established at 1985 in Garak-dong in Seoul, and a total of 32 markets have been built by 2004, including the Seoul Gangseo Wholesale Market and the Gwangju Seobu Wholesale Market. Transactions through public wholesale markets have increased to 8.5 trillion won by value and 6.5 million tons by volume. However, the volume has recently leveled off at 6.5 million tons.
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Figure 4-4  Overview of Public Wholesale Market Transactions of Fruits and Vegetables


Table 4-6  Percentage of Public Wholesale Market Transactions to Total Agricultural Product Transaction Volume

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>8,562</td>
<td>9,707</td>
<td>8,320</td>
<td>9,318</td>
<td>8,424</td>
<td>9,053</td>
<td>8,484</td>
<td>8,963</td>
<td>8,927</td>
</tr>
<tr>
<td>Fruits</td>
<td>2,007</td>
<td>2,264</td>
<td>2,682</td>
<td>2,247</td>
<td>2,334</td>
<td>2,563</td>
<td>2,515</td>
<td>2,685</td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>198</td>
<td>225</td>
<td>210</td>
<td>214</td>
<td>242</td>
<td>195</td>
<td>203</td>
<td>202</td>
<td>206</td>
</tr>
<tr>
<td>Total</td>
<td>10,767</td>
<td>12,196</td>
<td>11,212</td>
<td>11,779</td>
<td>11,083</td>
<td>11,582</td>
<td>11,250</td>
<td>11,680</td>
<td>11,818</td>
</tr>
</tbody>
</table>

Unit: thousand tons, %

Note 1) Transaction volume = Production volume × Commercialization rate (Vegetables 92.6%, Fruits 93.2%, Potatoes 90.8%),
2) Food grains and livestock excluded,
Source: MIFAFF, Key Statistics for Agriculture, Forestry Fisheries and Food, Wholesale Market Statistical Yearbook.
The amount of fruits and vegetables that passed through public wholesale markets (including potatoes) increased from 2.0 million tons in 1990 to 5.9 million tons in 2005. Over 50% of total fruits and vegetables distribution is handled by public wholesale markets, indicating the importance of the facilities in the national agricultural products marketing system.

The volume of fruits and vegetables (including potatoes) distributed through public wholesale markets has increased from 1.95 million tons in 1990 to 6.51 million tons in 2009. The transaction volume of public wholesale markets account for 55% of the total transaction volume of fruits and vegetables, signifying its importance in the marketing channels of agricultural products.

Transactions in wholesale markets for agricultural products take the form of auctions and bids through consignments, with exceptional cases of settled-price, optional, and unlisted transactions taking place. Settled price and optional transactions are used for some listed products which are brought into the market in only small amounts and are handled by a small number of middlemen. Wholesale market companies offer a fixed price to middlemen in these transaction types. Specified products are directly purchased by or consigned to middlemen when the market carries only small amounts as in the case of unlisted transactions.

The majority of transactions today take the form of listed transactions, where suppliers sell their products through consignment to wholesale companies. The creation of the Market Wholesaler System in 2004 following the opening of the Gangseo Wholesale Market has led to an increase in transactions. The market wholesaler is designated by the operator of the market to carry out both the collection and distribution of agricultural products, acting as an intermediary and a wholesaler (a
purchaser and consignee) in the market.

Listed transactions through auctions and bids have fallen steadily, while other types of transactions have continued to increase. Fruits are widely sold in settled price and negotiated transactions, and vegetables are largely sold in unlisted transactions.

1.3.2. The Accomplishments and Limitations of Public Wholesale Markets

Thirty-three public wholesale markets have been established since
1985, significantly increasing the flow of agricultural products through wholesale marketing channels and building stable sales outlets for producers even within the limitations of an agricultural system dominated by small-scale farms. The establishment of listed auction systems and a fair pricing system has enabled producers to supply their products steadily, and created a payment settlement system. The wholesale markets have also allowed consumers to receive a steady supply of agricultural products despite the rapid urbanization of the nation.

However, wholesale market transactions have stagnated in recent years, due to a number of problems and limitations. First, wholesale markets cannot react quickly to the rapid growth of retailers and changes in purchasing patterns. The number of large retailers has increased dramatically since the late 1990s, however wholesale markets cannot efficiently merchandise their products, and cannot provide small packaging, processing and grading, and product safety management. Although the influence of large retailers has increased, wholesale markets have not fully performed the functions of product collection, distribution and price setting to address the changing market conditions.

Second, there is a shortage of agricultural product transaction facilities that are equipped for building an advanced marketing system. There are not enough low-temperature systems and processing and packaging facilities. Mechanization of handling equipment, which can help reduce marketing costs, has also lagged behind.

Third, wholesale distributors lack proper product collection and distribution capabilities. Wholesale companies are used to a consignment and auction system of sales. Thus, they cannot fully carry out the role of the sales agency for producers and the collection function that suits the
changing needs of consumers. Marketing costs increase due to the lack of distribution capabilities of small middlemen. Wholesale markets must develop their operations in production locations as well as provide support for retailers. Wholesale markets of the future must focus their operations not on maintaining a fair trading system, but rather on improving efficiency. To achieve this goal, wholesale markets must ensure flexible transaction systems and expand by merging wholesale market corporations with middlemen.

1.4. Large Retailers

1.4.1. Overview of Large Retailers

Following the liberalization of the service market for marketing in 1996, the number of large retailers has increased rapidly around discount stores, rising from around 100 in 1999 to 300 in 2005 and 386 in 2008 with sales reaching approximately 3 trillion won. Such large retailers have increased drastically to dominate the retail market since 2000.

Large retailers have strengthened their positions in the market through integrated purchasing and price leadership of their chains. The liberalization of the retail market and the rise of larger retailers that utilize advanced market techniques have begun to edge traditional markets and small and medium retailers out of the market. Supermarkets in Korea can be classified into traditional supermarkets, department stores, and large retailers.

Until 1995, traditional supermarkets comprised 75.7% of the total number of supermarkets, a share that dropped to 24.7% by 2005. Department stores also lost their share of the market from 16.0% to 6.1% during the same period. However, large retailers were able to increase their
share of the total market from 8.3% to 69.2% during the same period. In Korea, food products are the main products of large retailers, creating direct competition between large retailers and traditional supermarkets. Traditional supermarkets are usually small and few in number. Thus, they cannot compete with large retailers such as discount stores in terms of price leadership or product selection.

The NACF operates 15 distribution centers that are supported by the government and provides agricultural products from producing districts for its retail network of Hanaro Mart and Hanaro Club stores. As the number of distribution centers rose, total sales increased from 857.2 billion won in 1998 to 2.8 trillion won in 2005, an increase of nearly 320%.

Distribution centers have created new marketing channels separate from wholesale markets, diversifying the distribution network of agricultural products and enhancing overall efficiency. Using these distribution centers (including direct purchasing by large retailers), the distribution chain only includes 3 or 4 steps of ‘producer,’ ‘local shipping organization,’ ‘distribution center (large retailer),’ and finally ‘retailer’ or
The use of a wholesale market includes wholesale market corporations and middlemen into the process, expanding the distribution chain by several more steps.

Stiffening competition among retailers began to highlight the need for increased efficiency in marketing. Thus, contract transactions and vertical integration of distribution processes are on the rise. As the number of large retailers such as supermarkets, department stores and discount stores

<table>
<thead>
<tr>
<th>Table 4-9</th>
<th>Changes in Direct Purchasing from Producers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
</tr>
<tr>
<td>Fruits</td>
<td>35.4</td>
</tr>
<tr>
<td>Vegetables</td>
<td>21.9</td>
</tr>
</tbody>
</table>

continue to increase, large retailers have strengthened their own wholesale functions to purchase products directly from producers. In particular, the number of discount stores has increased dramatically since 2000, with direct buying increasing as well. Fruits, which can be easily purchased in packaged and standardized units compared to vegetables, are high in the proportion of direct purchasing, rising almost twofold from 35.4% in 1999 to 61.3% in 2005 in the case of discount stores. The percentage of direct purchasing of vegetables rose from 21.9% to 51.3%, an increase of 230%, during the same period.

The purchasing market of large retailers (discount stores) is largely led by the purchaser. While there are numerous suppliers that wish to provide agricultural products of similar quality, a smaller number of large retailers can select local suppliers for their products. Thus, the market is dominated by purchasing parties, and large retailers hold sway over the market. The market share of the top four companies in terms of sales in the retail market rose from 2.0% in 1995 to 42.9% in 2006.

1.4.2. Pros and Cons of Increased Market Dominance of Large Retailers

Large retailers brought about a number of positive changes to the market by leading the purchasing market, increasing the scale of the production, improving the product quality and enhancing the capacity of the producer organization. Large retailers were able to bring in wholesale market merchants such as middlemen, market wholesalers, pseudo-market consignees, intermediary wholesalers as well as agricultural cooperatives, crop units, farming association corporations, and large-scale farms as competing vendors, resulting in lower purchasing costs. Large retailers are
also able to build supply chain management (SCM) systems for stable and efficient agro-food purchases by creating vertical relationship marketing or channel integration between producers, vendors and their own logistics centers. In other words, large retailers attempt to increase logistics efficiency through these systems. Large retailers can also accurately gauge the needs of consumers and tailor their product lines accordingly, as well as provide positive shopping experiences and the convenience of one-stop shopping.

The market dominance of large retailers is increasing, and they are using their leverage in the market to expand their own “private brands” (PB) lines. Producers are often pressured to modify their products to retailers’ specifications, supply them at lower costs, and to bear the burden of marketing and logistics expenses.

1.5. The Function of Marketing Make-up

1.5.1. Increased Logistics Efficiency of Agricultural Products

The establishment of 32 public wholesale markets after the mid-1980s and the proliferation of large distribution centers created a strong marketing infrastructure. However, marketing inefficiency, as well as the need for ensuring food safety and maintaining product freshness, and rising packaging costs resulted in high marketing costs, the share of which reaches 43.5% of total purchasing prices. Logistics costs accounted for 8.0744 trillion won, or 35.3% of total distribution costs, with other expenses including packaging, processing, and loading, food loss and cleaning, and others significantly higher than national logistics costs. The mechanization rate of loading and unloading processes increased from 14% in 2003 to 23% in 2006. However, the level of mechanization is still very low, indicating that the majority of loading and unloading of products are
Logistics efficiency is improving gradually. The logistics efficiency rate is a function of total logistics costs divided by consumptive logistics costs. The index fell from 67.4% in 1999 to 58.7% in 2000, and to 53.3% in 2006, indicating that logistics efficiency is increasing.
1.5.2. Standardized Packaging and Safety Management of Agricultural Products

The level of standardization in agricultural products represents the level of marketing efficiency. The percentage of packaged products out of total agricultural products increased from 75% in 1998 to 89% in 2006, with the shipping rate of products with standardized packaging rising from 17% to 50% during the same period. Standardized shipments are most common in fruits, and less common for vegetables.

Consumers are increasingly demanding higher product quality and food safety standards. To meet these demands, the cultivation of environmentally friendly crops is increasing rapidly. The percentage of environmentally friendly agricultural products increased from less than 1% in 2000 to 6% in 2006. Safety inspection failure rates have fallen and stayed at the 1.1~1.3% level since 2000. Adherence to the labeling regulation of the country of origin increased from 93% in 1998 to 97% in 2006, indicating that almost all agricultural products today bear such labels.

<table>
<thead>
<tr>
<th>Table 4-10</th>
<th>Standardized Packaging and Safety-Related Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>'98</td>
</tr>
<tr>
<td>Packaging rate</td>
<td>75.1</td>
</tr>
<tr>
<td>Standardized package shipment rate</td>
<td>17.1</td>
</tr>
<tr>
<td>Environmentally friendly agricultural products shipment rate</td>
<td>(0.1)</td>
</tr>
<tr>
<td>Safety inspection failure rate</td>
<td>4.2</td>
</tr>
<tr>
<td>Country of origin labeling rate</td>
<td>92.5</td>
</tr>
</tbody>
</table>

Note: Numbers in ( ) represent data from 1999.
Source: MIFAFF.
1.6. Outlook and Issues

Korea’s agricultural product marketing system underwent significant changes in the past two decades. These changes were led by public wholesale markets in the 1980s and 1990s, with large retailers expanding their influence in this decade. As the direct marketing system becomes increasingly commonplace with large retailers, the integration will become even greater. As consumers increase their food spending by dining out, the food service industry will continue to expand, which in turn will further develop food material distribution markets that will demand efficient supplies of high-quality products.

In order to respond to a rapidly changing consumer market, suppliers must increase the scale of their shipping systems. Small local organizations must band together with others in the same region and form inter-regional partnerships to secure year-round supplies. Local shipping organizations must also increase their marketing capabilities. New regulations will be required to prevent large retailers from using their market power to carry out unfair business practices. Wholesale markets, which are the backbone of the distribution system, should have more flexibility in their transaction systems and should be better equipped to enhance the logistics function. It is essential to standardize and classify agricultural products and develop post-harvest management technologies to cope with high quality-oriented and differentiated consumption patterns.
Section 2. Food Industry

Rising income levels have led to increasing household food expenditures as more families dine out or consume processed foods. Such changes have led to a rising effort to link the food industry to the domestic agricultural sector. The food industry is receiving policy focus not only due to its potential for increasing the value added of agricultural products, but for expanding their market as well.

The food industry encompasses the food processing industry, the food marketing industry, and the food service industry. A wider definition of its scope includes the food manufacturing industry, collection and brokerage of agricultural food materials, transportation and warehousing, food manufacturing equipment or container industry, packaging, food service industry, and the food wholesale and retail industries.

The successful development of the food industry is highly dependent on a quality assurance and food safety management system that enables consumers to choose domestic agricultural products and foods. The government has initiated a wide variety of certification systems, such as the environmentally-friendly agricultural product certification system, as well as traceability programs, the Good Agricultural Practices (GAP), and the Hazard Analysis Critical Control Point (HACCP) to ensure food safety.

2.1. Current Status of Food Industry

2.1.1. Food Processing Industry

While the share of the agricultural sector in the nation’s economy continues to fall each year, the relative importance of the food industry in agriculture-related industry is rising. An examination of the value added
and percentage by industry shows that the share of agriculture and forestry industry in the total industry continued to fall from 4.6% in 2000 to 2.7% in 2008, while the share of the food industry in agriculture-related industry rose from 54.2% to 63.2% during the same period.

The food processing industry’s share of the total gross domestic product (GDP), as well as the manufacturing industry’s value added, is on downward trend. That is because total production and added value of food processing industry continued to increase, but growth momentum of the industry relatively slowed compared to other manufacturing industry.
Figure 4-9  Change in the Share of Food Processing Industry’s Value Added

Source: National Agricultural Cooperative Federation, Livestock Price and Supply–Demand Data,

Table 4-12  The Number of Businesses and Sales of Food Processing Industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of businesses</th>
<th>Sales (shipped)</th>
<th>Production per business</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(100 million won)</td>
<td>(100 million won)</td>
</tr>
<tr>
<td>1990</td>
<td>4,654</td>
<td>147,108</td>
<td>31.6</td>
</tr>
<tr>
<td>1995</td>
<td>6,248</td>
<td>262,342</td>
<td>42.0</td>
</tr>
<tr>
<td>2000</td>
<td>6,421</td>
<td>371,997</td>
<td>57.9</td>
</tr>
<tr>
<td>2001</td>
<td>6,985</td>
<td>396,994</td>
<td>56.8</td>
</tr>
<tr>
<td>2002</td>
<td>7,550</td>
<td>426,485</td>
<td>56.5</td>
</tr>
<tr>
<td>2003</td>
<td>7,940</td>
<td>436,417</td>
<td>55.0</td>
</tr>
<tr>
<td>2004</td>
<td>8,051</td>
<td>477,666</td>
<td>59.3</td>
</tr>
<tr>
<td>2005</td>
<td>8,389</td>
<td>482,642</td>
<td>57.5</td>
</tr>
<tr>
<td>2006</td>
<td>8,495</td>
<td>489,461</td>
<td>57.6</td>
</tr>
<tr>
<td>2007</td>
<td>4,257</td>
<td>481,490</td>
<td>113.1</td>
</tr>
<tr>
<td>2008</td>
<td>4,061</td>
<td>552,116</td>
<td>136.0</td>
</tr>
</tbody>
</table>

Note: 1) the figure from 1990 to 2006 includes businesses with more than 5 employees, and the figure from 2007 to 2008 includes businesses with more than 10 employees.

National Statistical Office, Mining and Manufacturing Industry Statistics Report for each calendar year.
Valued added of food processing industry increased from 8.6 trillion won in 1998 to 14 trillion won in 2009, but the share of food processing industry’s value added in the total value added of manufacturing industry decreased from 7.2% in 1998 to 5.3% in 2009.

The number of businesses, sales, and production of the food processing industry have increased steadily since 1990. However, production per business has remained stable since 2000, showing little change in the past several years.

Among food processing companies with more than 10 employees, companies with less than 50 employees represents 82%, showing that the overall size of food processing businesses is small.

<table>
<thead>
<tr>
<th>Category</th>
<th>Food Processing Industry</th>
<th>Beverage Processing Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of</td>
<td>Number of businesses</td>
<td>Sales (100 million won)</td>
</tr>
<tr>
<td>employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 ~ 19</td>
<td>1,870</td>
<td>51,794</td>
</tr>
<tr>
<td>20 ~ 49</td>
<td>1,246</td>
<td>90,163</td>
</tr>
<tr>
<td>50 ~ 99</td>
<td>414</td>
<td>98,123</td>
</tr>
<tr>
<td>100 ~ 199</td>
<td>187</td>
<td>105,493</td>
</tr>
<tr>
<td>200 ~ 299</td>
<td>47</td>
<td>41,799</td>
</tr>
<tr>
<td>300 ~ 499</td>
<td>24</td>
<td>52,908</td>
</tr>
<tr>
<td>more than 500</td>
<td>13</td>
<td>31,256</td>
</tr>
<tr>
<td>Total</td>
<td>3,801</td>
<td>471,536</td>
</tr>
</tbody>
</table>

Note: 1) Figure for 2008 inudes businesses with more than 10 employees,
2.1.2. Food Service Industry

The food service industry’s share of the total agriculture-related industry increased from 20% in 2000 to 22% in 2008. The development of the food service industry is attributable to the five-day workweek, increasing participation of women in the labor market, rising interests in health and leisure, and changing eating habits and food culture stemming from the conspicuous trend toward nuclear families and an aging population. The major food consumption items shifted from fresh produce to processed foods and eating away from home. In terms of structure of food service industry, rapid rise of western-style restaurant, including family restaurant, fast food and pizza, and fusion restaurant, franchise and catering industry resulted in diversification of food service industry that had formerly been divided among Korean, Chinese, Japanese and western restaurants.

The percentage of expenditure on food at home for urban households in their total food expenditure rose from 56.1% in 2003 to 53.8% in 2009, while the percentage of expenditure on food away from home is increasing from 43.9% to 46.2%. The growth of the food service and catering industry led to a concurrent increase in both the food materials supply industry and fresh-cut produce industry as changing lifestyles and improvements in transportation and distribution technologies changed the structure of the food distribution industry, from dealing mainly in fresh foods to more packaged and ready-to-eat products. The size of the food materials supply industry rose significantly from 10 trillion won in 2000 to 12.8 trillion won in 2005. Approximately eighty thousand tons of vegetables, or 7% of the total domestic vegetable production, are processed as packaged fresh-cut produce, and the share of production has steadily increased every year to process 110,000 tons of food ingredients per year.
### Table 4-14  Monthly Food Expenditure and Changing Expenditure Structure in Dining Out per Household (2005 constant price)

<table>
<thead>
<tr>
<th>Category</th>
<th>Food Processing Industry</th>
<th>Beverage Processing Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of employees</td>
<td>Number of businesses</td>
</tr>
<tr>
<td>10 ~ 19</td>
<td>1.870</td>
<td>51,794</td>
</tr>
<tr>
<td>20 ~ 49</td>
<td>1.246</td>
<td>90,163</td>
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<td>100 ~ 199</td>
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<td>105,493</td>
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<td>200 ~ 299</td>
<td>47</td>
<td>41,799</td>
</tr>
<tr>
<td>300 ~ 499</td>
<td>24</td>
<td>52,908</td>
</tr>
<tr>
<td>more than 500</td>
<td>13</td>
<td>31,256</td>
</tr>
<tr>
<td>Total</td>
<td>3,801</td>
<td>471,536</td>
</tr>
</tbody>
</table>

Source: National Statistical Office.

### Figure 4-10  Fresh-Packaged Processed Food by Product Type (2005)

- Wild greens: 9.542 ton (9%)
- Fruits: 17,055 ton (16%)
- Mushrooms: 371 ton (0%)
- Vegetables (salad): 36,431 ton (33%)
- Vegetables (cooking): 46,153 ton (42%)

Unit: ton
2.1.3. Food Exports and Imports

Food imports have continued to rise even while exports have been slowing, causing a severe trade deficit. Exports rose slightly from $2.09 billion in 2000 to $3.31 billion in 2009, while imports surged from $4.33 billion in 2000 to $18.34 billion. Exports are limited to a small number of products and countries, and therefore export diversification has not been achieved. Major exports include ramen noodles, soju, corn starch and kimchi to markets including Japan, the United States, Russia and China.

Research and development investment in the food industry amounts to only 1% of the total national (public and private) R&D investment, accounting for 230 billion won out of total R&D investment of 24.2 trillion won. In proportion to sales, food companies’ R&D investment accounts for 0.82%, lower than the industry average of 2.42% and the manufacturing sector’s investment ratio of 2.9%. As a result, Korea’s food technology is only 30~60% level of industrialized nations, and requires an overall improvement in the technological base, including specialized workforce and technological infrastructure.

Source: Korea International Trade Association.
2.2. Linking the Food Industry to Agriculture

The agricultural sector contributes to the development of the food industry and better health of people by supplying high-quality agricultural products on a stable basis, while the food industry uses as many domestic food products as possible to increase the value added of agricultural products and farm incomes, thereby contributing to a symbiotic relationship.

Strengthening the linkage between the domestic agricultural sector and the food industry is thus necessary to expand the demand for Korean agricultural products and promote their consumption. Linking the two industries together will also allow for re-recognition of role of agriculture in the nation and contribute to succeeding and developing cultural heritage of Korea. The overseas expansion of the Korean food service industry and increasing export of food industry, including export of traditional Korean foods abroad will contribute to globalizing Korean food and culinary culture, enhancing national status around the world.

The promulgation of the 'Food Industry Promotion Act' in 2007 and the amendment of the 'Fundamentals of Agriculture, Rural and Food Industry Act' shifted the focus of agricultural policy away from the policy that focused on agricultural production to the one that focuses on food and consumer.

The food industry acts as the driving force for the growth of agriculture and is directly linked with food security. For these reasons, the food industry is considered to be a part of agricultural policy and must be managed accordingly. There is a demand that food policy shift away from the traditional focus on the production and supply of agricultural products towards a more consumer-oriented approach, requiring a more efficient linkage between the food industry and agriculture.
In order to strengthen the ties between the two industries, the government is pursuing policies that aim to develop local food processing industries, expand the food processing demand for domestic agricultural food products, revitalize the production and consumption of processed traditional foods, discover and commercialize traditional food items, and promote the globalization of Korean food.

2.2.1. Local Agricultural Food Processing Industry

As of late 2007, there were 473 food processing companies that receive government support. Currently, a total of 348 companies among them are in operation, and 124 companies stopped operation due to shortage of capital and decreasing sales. The annual sales of the companies operating in late 2007 totaled 611.8 billion won (average of 1.76 billion won per company), with 22.4 billion won in exports (average of 240 million won per company), an average of 18.1 employees, and 360 million won in investment of 93 companies, showing that the size of agricultural food processing companies is small.

The food processing industry in rural areas is burdened with low price competitiveness due to increasing price of agricultural produce. It also suffers from a lack of consumers’ recognition of, and preference for, its products. Smaller operations in rural regions have less capability in technology, publicizing and marketing to develop new products and improve quality, and they also lack professional managerial ability of managers.
To overcome these difficulties and develop regional agricultural food processing industries, the government is initiating a variety of policies, including a restructuring policy that uses management evaluations to rank companies based on their performances. The government is also strengthening its support for advanced food safety management programs, including HACCP, GAP and efficient operation system, thereby building consumer confidence and promoting the differentiation of domestic products from imported foods. The development of joint brands, as well as joint marketing networks in different product and consumption zones through cooperative organizations, is another major policy task.

In order to expand the food processing demand for domestic agricultural products, the government is pursuing the creation of a
certification system for food service companies and a distribution network to ensure the stable supply of superior domestic food products to the food industry and service companies. An information system will also link producers’ organizations with clients and users in the industry.

2.2.2. Traditional and Regional Foods

Traditional foods, including unique regional and local foods, refers to the foods that have been eaten traditionally in Korea, including the foods traditionally served at weddings, commemorative ceremonies, temples, and palaces. Traditional foods are usually made from materials grown in local areas. Regional and local foods are more limited in geographical scope compared to general traditional foods, and defined as foods that use ingredients and recipes unique to a local area and have been customarily consumed by the residents of a region. Regional foods mesh well with the concepts of ‘foods inseparable from the land,’ ‘slow foods’ and ‘local foods,’ promoting healthy lifestyles through eating of fresh local foods.

A large number of traditional and regional foods have lost their unique flavors due to industrial development and improvements in transportation as regional boundaries began to be blurred and people began to turn to westernized foods and living environments. The recent rise in income levels and the rising demand for traditional foods, as well as the five-day workweek, have given people more time to pursue leisure and cultural activities. Thus, the uniqueness of traditional and regional foods and their image as health foods can be utilized to develop foods that can meet people’s demand for healthy food and more time spent on leisure. Regional foods could also be used to promote local economies by creating links between local food festivals, events and rural tourism.
As part of its efforts to develop the traditional food industry, the Ministry for Food, Agriculture, Forestry and Fisheries has designated 808 traditional food companies to receive government support since 1989. A ‘master artisan system’ has also been created to protect the valuable knowledge and techniques of traditional food crafts, with the Songhwa Baekil-ju maker Cho Young-gui and three other traditional food producers and experts designated as the first four liquor and spirit master artisans in 1994. There are currently 16 master artisans for liquor and spirits, two for traditional Korean confectioneries, three for green tea, and one artisan each for plum processing, traditional dry snacks, and traditional rice syrup making to form a total of 24 master artisans. The government also created a quality certification system in 1991 to guarantee the quality of superior traditional food items that are produced using Korean agricultural produce as raw materials. As of 2010, 42 items including kimchi and Korean confectionery, and 427 factories have been certified.

In 2007, the Ministry for Food, Agriculture, Forestry and Fisheries established the ‘Korean Food Globalization Project’ as part of its overall goal of developing the superior Korean food culture into a high value-
added national image and brand product as a new engine of economic growth. It plans to provide 78 billion won for investments over the next four years. The fund will be used to provide support for creating the foundations of the globalization of Korean food, enhancing the competitiveness of Korean restaurants abroad, and strengthening the promotion of Korean food and culinary culture around the world.

2.3. Agricultural Food Product Quality Certification and Safety Management: Traceability and GAP

2.3.1. Food Certification Systems

There are a number of certification systems for food quality management. As of 2010, 42 traditional food items and 427 production factories have received the traditional food quality certification. The processed food KS certification system bestows the Korea Standard (KS) certification to processed foods that meet the quality requirements of the system through inspection of factory and item. There were a total of 152 standards defined by 2009, and 92 companies (158 factories) have received certifications for 38 products. As for the Geographical Indication (GI) system, 60 products are registered in the system as of December 2009, including Bosung green tea.

The Hazard Analysis and Critical Control Point (HACCP) certification targets livestock food products, designed to prevent bacterial contamination or antibiotic residue in meat and other livestock products. The food items to which HACCP is applied include beef, pork, and chicken as well as ham, sausages, dressed meat, milk, cheese, butter and ice cream, and egg products.
2.3.2 Agricultural Product Safety Management System

The agricultural product traceability system records and manages information on the production, distribution, and sales of agricultural products to ensure that any quality or safety problem that may arise can be traced back to its source in the production chain, and take actions if necessary. The purpose of this system where information on agricultural products can be traced is to secure food safety and gain consumer confidence in agricultural products by promptly figuring out causes of problems and taking necessary measures. The traceability system was introduced as a voluntary registration
system in January of 2006 to record and manage information regarding production, distribution and final consumption of agricultural food products. For beef, a trial project is under way in Korea. For agricultural products, traceability system is one thing, and the GAP is another. Traceability is however a prerequisite for GAP.

The Good Agriculture Practices (GAP) system ensures safety of agricultural food products by providing standards for the management of risk factors including pesticides residue, heavy metals or other harmful organisms that may reside in soil, water or products from the production to harvest and packaging stages. The GAP system was created to minimize harm to the environment and supply safe agricultural products to consumers by allowing them to know about the management of pesticides, heavy metals and micro-organisms that may occur from the cultivation to harvest, processing and storage phases.
GAP was introduced as a means to improve global competitiveness of agricultural products in April 2003 as countries pursued an agreement on GAP in international settings including FAO and Codex. GAP projects were conducted on a trial basis from 2003 to 2005. In 2003, five items including paprika and nine farms were subject to the project and they increased in number in 2009 - 105 items covering fruits and vegetables and 28,562 farms. For legislation of the GAP project, the Korean government revised the Act on Quality Management of Agricultural Products in August 2005, and modified enforcement ordinances and regulations in January 2006. In addition, for the smooth introduction of GAP, standard guidelines for cultivation, GAP and traceability standards were set. The number of standard guidelines for cultivation rose from 67 items in 2003 to 82 in 2004 and to 105 in 2009. GAP standards consisting of 110 articles suggest standards for recording and storing information on GAP products that producers, distributors, and sellers deal with.

GAP certification was officially implemented as private certification system like in Europe since 2006, in which government manages and supervises private certifying agencies and private certifying agencies issue

<table>
<thead>
<tr>
<th>Year</th>
<th>Items</th>
<th>Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>2005</td>
<td>47</td>
<td>965</td>
</tr>
<tr>
<td>2007</td>
<td>100</td>
<td>30,557</td>
</tr>
<tr>
<td>2009</td>
<td>all</td>
<td>70,612</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture and Forestry.
certification and manage farm households. 20 institutions were designated as private certifying agencies on a pilot basis including the NACF, Korea Agro-Fisheries Trade Corporation, E-Mart, and Lotte Mart as of 2009. A total of 70,612 farm households are participating in GAP certification system as of 2009.

The most immediate issue facing the GAP system is to increase consumer awareness of the system and foster experts with regard to GAP education and certification inspection.

Recently food safety issues are taking place in a large scale and consumers are becoming more interested in health, with more factors emerging that threaten the safety of livestock products. HACCP, being implemented against these backdrops, is a system that is designed to prevent the occurrence of food-related biological, chemical and physical hazards in livestock products from farm to consumer.

<table>
<thead>
<tr>
<th>Table 4-17</th>
<th>Current Status of Introduction of HACCP in Livestock Food Products, December 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slaughterhouse</td>
<td>Processing plant for livestock products</td>
</tr>
<tr>
<td>143</td>
<td>461</td>
</tr>
</tbody>
</table>

Note: Processing plant for livestock product includes dairy industry, processing industry for meat for human consumption, egg processing industry and sales industry for meat for human consumption.

Source: National Veterinary Research and Quarantine Service.
The HACCP system was first applied to slaughterhouses and processing plant for livestock products in 1997, and all slaughterhouses in the nation were mandated to comply with HACCP guidelines in July of 2003. The application standards of HACCP for transportation, storage, warehousing and sales associated with meat production were made in 2004. As of 2009, 143 slaughterhouses, 461 processing plants for livestock products and 81 compound feed factories are applying HACCP.
Section 3. Agricultural Input Industry

The agricultural input industry is an important industry charged with supplying agricultural inputs that form the basis of agricultural production, and it has recently become an export industry as well.

The agricultural machinery industry has been developing in tandem with the mechanization of rice production. The government’s agricultural machinery supply programs began in 1980, and rice industry mechanization has currently reached nearly 100%. The resulting saturation of the domestic agricultural machinery market has led manufacturers to expand their exports abroad.

The fertilizer industry achieved self-sufficiency in the 1970s and quickly became an export industry. It has recently provided a significant amount of 

![Tractor and Rice Planting Machine](image1)

![Agrochemical Sprayer and Combine Harvester](image2)
fertilizers to North Korea as an aid. The expansion of environmentally-friendly agriculture has created a burgeoning eco-friendly fertilizer industry.

Seed industry goes beyond a simple approach of developing new varieties through traditional cross-breeding, developing itself into convergence industry that is combined with pharmaceutical and materials industries, and active efforts are being made to develop new seed utilizing nano technology as well. With the government implementing 2020 Seed Industry Promotional Strategy for development of seed industry, there is a great possibility that Korea emerges as powerful nation in seed industry through strengthening the fundamentals of seed industry and seed companies.

3.1. Agricultural Machinery Industry

3.1.1. Agricultural Machinery Market Trends

The agricultural machinery industry has stagnated in the past decade as government subsidies for purchasing farm equipments have been drastically scaled back.

<table>
<thead>
<tr>
<th>Table 4-18</th>
<th>Production Status of Major Agricultural Machineries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power tiller</td>
<td>52,707</td>
</tr>
<tr>
<td>Farm tractor</td>
<td>16,441</td>
</tr>
<tr>
<td>Power-driven rice transplanter</td>
<td>41,603</td>
</tr>
<tr>
<td>Binder</td>
<td>10,015</td>
</tr>
<tr>
<td>Combine</td>
<td>15,392</td>
</tr>
<tr>
<td>Cultivator</td>
<td>25,479</td>
</tr>
</tbody>
</table>

Source: Korea agricultural machinery industry, Korean society for agricultural machinery, “Agricultural machinery almanac”, each year.
Production trends of major agricultural machineries before the 2000s when the government permitted subsidizing agricultural machineries show that there were 89,000 power tillers, 29,000 rice-transplanter and 51,000 cultivators. But the production of agricultural machineries drastically decreased since the 2000s as the government’s subsidies were switched to loan system. The production of tiller decreased by 94% in 2008 compared

Table 4-19  Current Status of Agricultural Machinery Companies by the Number of Employee

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 10</td>
<td>26 (19.7)</td>
<td>73 (25.6)</td>
<td>111 (37.9)</td>
<td>123 (38.1)</td>
<td>146 (41.5)</td>
<td>171 (46.0)</td>
</tr>
<tr>
<td>between 11 and 30</td>
<td>59 (44.7)</td>
<td>119 (41.8)</td>
<td>128 (43.7)</td>
<td>143 (44.3)</td>
<td>147 (41.8)</td>
<td>142 (38.2)</td>
</tr>
<tr>
<td>between 31 and 50</td>
<td>18 (13.6)</td>
<td>44 (15.4)</td>
<td>24 (8.2)</td>
<td>26 (8.0)</td>
<td>27 (7.7)</td>
<td>29 (7.8)</td>
</tr>
<tr>
<td>between 51 and 100</td>
<td>14 (10.6)</td>
<td>24 (8.4)</td>
<td>12 (4.1)</td>
<td>13 (4.0)</td>
<td>14 (4.0)</td>
<td>13 (3.5)</td>
</tr>
<tr>
<td>between 101 and 500</td>
<td>7 (5.3)</td>
<td>19 (6.7)</td>
<td>15 (5.1)</td>
<td>15 (4.6)</td>
<td>15 (4.3)</td>
<td>14 (3.8)</td>
</tr>
<tr>
<td>between 501 and 1,000</td>
<td>2 (1.5)</td>
<td>6 (2.1)</td>
<td>3 (1.0)</td>
<td>3 (0.9)</td>
<td>3 (0.9)</td>
<td>3 (0.8)</td>
</tr>
<tr>
<td>more than 1,000</td>
<td>6 (4.5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Korea agricultural machinery industry, Korean society for agricultural machinery, "Agricultural machinery almanac", each year.
to the level in 1995, while the production of rice transplanter and cultivator decreased by 69%, and 64%, respectively, during the same period.

After the government’s policy of providing agricultural machineries at half-price was abolished resulting in declining domestic consumption, production activities of agricultural machinery companies contracted. In other words, operational rate of agricultural machinery declined by 13.1% from 63.8% in 1997 to 50.7% in 2007, hovering around 50% these days.

With operational rate of agricultural machinery companies declining in general, the size of their businesses are becoming smaller, with the number of companies with more than 50 employees decreasing every year from 21.9% in 1995, 10.2% in 2005 and to 8.1% in 2008. In the meantime, the number of small businesses with less than 10 employees climbed from 19.7% in 1995 to 46.0% in 2008, increasing by 26.3%.

The tractor ownership per farm household rose rapidly in the 1990s, but as tractor equipment became larger after 2000 and the market began to consist mostly of users replacing older equipment, tractor ownership began to decline. Combine harvester ownership has remained stable after 2000,
with large combines becoming increasingly popular in recent years. The number of rice-planting machines has declined by around 3,000 units per year after a peak in 2001, as ride-on models are increasingly replacing the walk-behind types.
The ownership rate of major agricultural machineries shows that tiller has a highest level of penetration rate at 60%, followed by tractor and rice-transplanter at around 20%, and cultivator at 34%.

The mechanization rate of rice farming rose from an average of 68% in 1990 to 90% in 2004. In 2006, the mechanization rate of rice cultivation excluding the drying operation exceeded 98%, resulting in the almost total mechanization of the rice industry.

The labor input per 10a of rice cultivation, another indicator of mechanization, fell from 130.5 hours in 1980 to 20.8 hours in 2005, and to 16.3 hours in 2009, a drop of 87.5% in 29 years resulting from the rapid mechanization of rice cultivation, planting, harvesting, and pest control. The rise in leased agricultural land and the expansion of cooperative organizations for sharing machinery also contributed to the rapid development of agricultural mechanization.

3.1.2. Import and Export of Agricultural Machineries

There have been calls for expanded export of agricultural machinery as a solution to stagnation of agricultural machinery market. Export of

<table>
<thead>
<tr>
<th>Table 4-21 Import and Export Record of Agricultural Machinery by Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Export (A)</td>
</tr>
<tr>
<td>Import (B)</td>
</tr>
<tr>
<td>Trade Balance (A-B)</td>
</tr>
</tbody>
</table>

Source: Korea agricultural machinery industry, Korean society for agricultural machinery, “Agricultural machinery almanac”, each year.
agricultural machinery in 2008 was 400 million USD, 9.5 times increase from 1995. The export figure of 2008 showed tractor made up about half of the export at 49.5%, followed by components (13.9%), farm working machinery (13.1%) and mill machinery (10.7%). With agricultural machineries being exported to more than 10 countries, the U.S., an active importer of garden tractor and attachments tractor as of 2008, is Korea’s biggest export market for agricultural machinery representing 38.5% out of total export, with China being the second at 7.5%. In addition to them, Australia, Japan, Russia and Turkey are important importers.

20 countries are importing agricultural machinery and import amount increased by 5.8 times from 80 million USD in 1995 to 470 million USD in 2008. Major importing country of agricultural machinery is Japan, representing 47.5% out of total import as of 2008. Japan is mainly importing large rice transplanter or large combine that are not produced by the nation. Following Japan in the list of importing nations are the U.S.(12.0%) and Germany(10.9%).

Meanwhile, trade balance turned black entering 2000 as import growth rate of agricultural machinery was lower than export growth rate, but it returned to deficit recently as import from Japan sharply increased.

3.1.3. Production Outlook for Agricultural Machinery and Tasks

Agricultural machinery rent project implemented by the National Agricultural Cooperative Federation (NACF) is an influential factor to such an extent that it can change the basis of Korea’s agricultural machinery industry as the project is exploring ways to buy new agricultural machinery with comprehensive agricultural fund. Thus, the production and distribution level of agricultural machinery hinges on the extent to which
agricultural machinery rent project is implemented.

In addition, the major issues facing the agricultural machinery industry include the following: standardization of export models and dimensions to secure international competitiveness; specialization in overseas markets through accurate market research; and product line adjustments among companies in the industry to prevent overlapping fixed facilities from creating an unnecessary drag in profitability.

3.2. Fertilizer Industry

3.2.1. Changes in Production and Consumption Conditions

There are currently a total of nine chemical fertilizer manufacturers in Korea, including Namhae Chemicals, Dongbu Hannong Chemicals, and Samsung Fine Chemicals, with total sales of 1,128,400 million won, of which 30% is from fertilizer sales.

<table>
<thead>
<tr>
<th>Year</th>
<th>Production capacity (A)</th>
<th>Production (B)</th>
<th>Consumption (C)</th>
<th>Operational Rate (B/A)</th>
<th>Self-sufficiency rate (B/C)</th>
<th>Consumption per Cultivated Area (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>4,032</td>
<td>3,752</td>
<td>2,365</td>
<td>93.1</td>
<td>158.6</td>
<td>458</td>
</tr>
<tr>
<td>1995</td>
<td>4,688</td>
<td>3,648</td>
<td>2,092</td>
<td>77.8</td>
<td>174.4</td>
<td>424</td>
</tr>
<tr>
<td>2000</td>
<td>4,588</td>
<td>3,729</td>
<td>1,875</td>
<td>81.3</td>
<td>198.9</td>
<td>382</td>
</tr>
<tr>
<td>2005</td>
<td>3,857</td>
<td>3,950</td>
<td>1,877</td>
<td>102.4</td>
<td>210.4</td>
<td>376</td>
</tr>
<tr>
<td>2006</td>
<td>3,867</td>
<td>3,183</td>
<td>1,272</td>
<td>82.3</td>
<td>250.2</td>
<td>257</td>
</tr>
<tr>
<td>2007</td>
<td>3,758</td>
<td>3,432</td>
<td>1,622</td>
<td>91.3</td>
<td>211.6</td>
<td>340</td>
</tr>
<tr>
<td>2008</td>
<td>3,207</td>
<td>3,188</td>
<td>1,471</td>
<td>99.4</td>
<td>216.7</td>
<td>311</td>
</tr>
<tr>
<td>2009</td>
<td>3,257</td>
<td>2,558</td>
<td>1,293</td>
<td>79.5</td>
<td>197.8</td>
<td>267</td>
</tr>
</tbody>
</table>

Source: Fertilizer Industry Association, “Fertilizer almanac”, each year.
Agriculture-related Industries

Fertilizer self-sufficiency was achieved in the 1970s, and the fertilizer industry exports around 1.5 million tons of fertilizer each year. The falling exports and lower domestic demand after 2000 reduced the industry’s operating level to 80%. While the production of single fertilizers like urea fell, the development of horticultural fertilizers and low-density complex fertilizers enabled the industry’s complex fertilizer production capacity to double from 1980. Complex fertilizers account for 70% of total fertilizer production, with nitrogenous single fertilizers accounting for 27%.

Korea’s fertilizer consumption (based upon ingredient) per ha exceeded 450kg after the late 1980s, making itself one of the biggest consumer of fertilizer in the world, but after 1990 consumption continued to decline standing at 267kg in 2009, a decrease of 41.7% compared to the level in 1990.

Following large-scale aid to North Korea in 1999, fertilizer exports have averaged 1.3 to 1.8 million tons per year until 2007, but decreased to nearly 1.4 million tons after 2008 when the aid to North Korea stopped. Fertilizer aid to North Korea, starting at 155,000 tons in 1999, averaged about 300,000 tons every year, reaching 2.555 million tons until 2007.

Table 4-23 Fertilizer Import and Export

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Export</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>1,427</td>
<td>1,342</td>
<td>1,479</td>
<td>1,595</td>
<td>1,768</td>
<td>1,386</td>
<td>1,403</td>
</tr>
<tr>
<td>Amount</td>
<td>239</td>
<td>190</td>
<td>292</td>
<td>343</td>
<td>425</td>
<td>741</td>
<td>327</td>
</tr>
<tr>
<td>Import</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>974</td>
<td>1,229</td>
<td>1,628</td>
<td>1,219</td>
<td>1,339</td>
<td>1,418</td>
<td>908</td>
</tr>
<tr>
<td>Amount</td>
<td>157</td>
<td>164</td>
<td>402</td>
<td>314</td>
<td>385</td>
<td>722</td>
<td>431</td>
</tr>
</tbody>
</table>

Note: Aid to North Korea is included.
Source: Fertilizer Industry Association, "Fertilizer Almanac", each year.
Complex fertilizer, urea and ammonium sulfate are Korea’s largest export products, with majority of exports going to Southeast Asian nations including Thailand, the Philippines, Malaysia and Indonesia.

Major raw materials for fertilizer production, including potassium chloride and natural calcium phosphate, are almost totally dependent on imports, and urea imports began in 1989 following the rationalization of the fertilizer industry. Fertilizer import recorded about 910,000 tons and 430 million tons in monetary term in 2009.

3.2.2. Changes in Fertilizer Prices and Distribution Policies

The government established a special fertilizer account in 1962 to provide farms with fertilizers at below market prices, the difference of which was paid through the funds in the account. The fertilizer market was liberalized in January of 1988 to reduce the government’s financial burden and enhance fertilizer production and distribution by promoting market

| Table 4-24 | NACF’s Market Share in Fertilizer Market (volume based) | unit: % |
| --- | --- | --- | --- | --- | --- | --- |
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| Chemical Fertilizer | 100.0 | 100.0 | 100.0 | 100.0 | 99.8 | 99.8 |
| Fertilizer for Horticulture use | 54.5 | 54.4 | 53.9 | 51.3 | 49.5 | 48.4 |
| Other Fertilizer | 93.1 | 90.7 | 55.3 | 47.4 | 77.5 | 91.1 |
| Sum | 94.1 | 92.6 | 73.1 | 68.2 | 85.6 | 92.2 |

Note: Other fertilizer includes organic fertilizer, by–product fertilizer and 4 complex fertilizers, Source: NACF, Fertilizer Industry Statistics, 2006,
forces. Thus, the deficiencies from fertilizer subsidies were absorbed by the fertilizer account, while the NACF (National Agricultural Cooperative Federation) created its own fertilizer supply plan to determine optimal purchasing and selling prices.

The liberalization of the fertilizer market and the involvement of the NACF in the supply management led to a significant increase in supply and distribution efficiency. Inventories were greatly reduced, logistics and warehousing costs fell, and more private dealers began to enter the retail market and create services competitive against the NACF.

The liberalization of the market did not create radically new distribution systems. Chemical fertilizers are fully controlled by the NACF, and the organization takes up a less than 50% share of the horticultural fertilizer market. The NACF’s share of the total fertilizer market in 2005 was 92%.

### 3.2.3. Fertilizer Industry Outlook

The abolition of the subsidy system, rising material prices, and falling demand for chemical fertilizers have reduced sales and depressed profitability in the fertilizer industry. Changes in the industry’s environment at home and abroad, rather than internal reasons, are responsible for these trends. While fertilizer consumption in developing countries is on the rise, advanced industrialized nations tend to use less fertilizer. Skyrocketing oil prices have driven raw material costs to record highs, and the world fertilizer market has become unstable in recent years.

The launch of the WTO and worldwide changes in subsidy policies led to the abolition of price support systems in Korea in 2005, and the rising popularity of environmentally-friendly and organic foods as well as the concern for food safety has resulted in a turning point for the fertilizer
industry. The demand for chemical fertilizers has fallen while environmentally-friendly fertilizers have become popular. Industrialization and urbanization, the aging farm household population, and rising food imports have led to the contraction of domestic agricultural production, which will inevitably lead to a falling demand for fertilizers.

The fertilizer aid to North Korea that began in 1999 seemed to create a new demand, but fertilizer importers including Thailand, Vietnam, the Philippines and Indonesia began to expand their fertilizer production and reduce their reliance on imports. These external and internal changes have led to calls for increasing the competitive capabilities of the fertilizer industry.

The industry needs to diversify its business operations in order to respond to these environmental changes and achieve stable growth. Diversification must be pursued in the direction of maximizing synergic effects and it can be more efficiently undertaken under the premises of human resource structure reform and adoption of new business management systems. Efficiency and competitiveness must be enhanced through restructuring. Each fertilizer company must also restructure itself to create an optimized production structure and develop the most competitive fertilizers. In response to the falling market demand for chemical fertilizers, it must expand the development and production of environmentally-friendly fertilizers.

3.3. Seed Industry

3.3.1. The Seed Market and Related Policies

In the 1990s, large international seed and plant genetics corporations have begun to realize the future potential of the seed industry and began to acquire small seed companies or enter into various partnerships. The entry of foreign seed corporations into the Korean market began in earnest
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around the financial crisis of 1997 and 1998 when Korea’s major vegetable seed companies were acquired by foreign companies. In terms of market share, foreign companies controlled 65% of the market in 1997, with domestic companies controlling the remaining 35%. However, the rise of Korean seed companies after the financial crisis, including Nongwoo Bio and Koregon and Dongbuhitek, has enabled Korean companies to increase their share of the market to 48% by 2008.

Until 1997, the Korean government’s seed management policy was defined by the ‘Major Crop Seed Act’ that oversaw important grain crops and the ‘Seed Management Act’ that oversaw other seed- and plant-related

<table>
<thead>
<tr>
<th>Table 4-25 Seed Management System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Items</strong></td>
</tr>
<tr>
<td><strong>Before 1997</strong></td>
</tr>
<tr>
<td><strong>After 1998</strong></td>
</tr>
<tr>
<td><strong>Related Regulation</strong></td>
</tr>
<tr>
<td><strong>Seed Breeding Agency</strong></td>
</tr>
<tr>
<td><strong>Genetic Resource Preservation</strong></td>
</tr>
<tr>
<td><strong>Seed Production</strong></td>
</tr>
<tr>
<td><strong>Seed Distribution</strong></td>
</tr>
</tbody>
</table>
enterprises (Table 4-22). International intellectual property rights began to be applied to the seed industry after the 1990s. In response, the government established the integrated ‘Seed Industry Act’ in 1998 to deal with these changes in the international market and enhance the competitiveness of the domestic industry.

At present, the supply ratios of domestic seeds are high at 95% for food crops, 90% for vegetables, and 80% for special crops. However, only 20% of fruit seeds and 5% of floriculture seeds are of Korean origin. The use of foreign seeds entails the payment of royalty fees, which increases the operating costs of farms. Foreign fruit varieties tend to be older and relatively free from royalty payments, but the majority of flowers grown in Korea involve royalty payments to foreign owners of the varieties.

### 3.3.2. Seed Supply

Seed industry refers to an industry that is related to seed, for example, to develop new varieties for producing crops and to distribute the developed crops through processing and preparing. The Korean seed market is estimated at 581 billion KRW in total, representing about 1.1% of the world’s seed market. In terms of size, it is estimated that vegetable seeds make up the biggest portion at 150 billion KRW, followed by floriculture seed and rice seed.

Food crop seed has been developed by the government in its effort to develop new varieties, and to produce, process and distribute seeds for securing a stable supply of food for its people. The total production of food crop seed is worth 83 billion KRW in which seed distributed by the government is 69.5 billion KRW at 83.7% and the seed produced by private sector is about 13.6 billion KRW. However, if there is an active
participation by the private sector in distributing food crop seed, a wide variety of high-quality functional variety is highly likely to be released, expanding the market share of food crop further in the future.

Table 4-26  Market Size of Food Crop Seeds

<table>
<thead>
<tr>
<th></th>
<th>Rice</th>
<th>Barley</th>
<th>Bean</th>
<th>Corn</th>
<th>Potato</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government-distributed seed</td>
<td>519</td>
<td>29</td>
<td>17</td>
<td>11</td>
<td>119</td>
<td>695.0</td>
</tr>
<tr>
<td>Private sector-distributed seed</td>
<td>11</td>
<td>1</td>
<td>0.5</td>
<td>37</td>
<td>86</td>
<td>135.5</td>
</tr>
<tr>
<td>Sum</td>
<td>530</td>
<td>30</td>
<td>17.5</td>
<td>48</td>
<td>205</td>
<td>830.5</td>
</tr>
</tbody>
</table>


Table 4-27  Production of Vegetable Seed by Kind of Crops

<table>
<thead>
<tr>
<th></th>
<th>Leafy and Stem Vegetable</th>
<th>Root Vegetable</th>
<th>Fruit Vegetable</th>
<th>Flavour Vegetable</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chinese Cabbage</td>
<td>Cabbage</td>
<td>Spinach</td>
<td>Carrot</td>
<td>Radish</td>
</tr>
<tr>
<td>1990</td>
<td>109,517 (14.5)</td>
<td>2,064 (0.3)</td>
<td>64,926 (8.6)</td>
<td>21,954 (2.9)</td>
<td>459,888 (61.0)</td>
</tr>
<tr>
<td>1995</td>
<td>187,634 (10.3)</td>
<td>4,840 (0.3)</td>
<td>145,783 (8.0)</td>
<td>76,171 (4.2)</td>
<td>1,149,896 (63.0)</td>
</tr>
<tr>
<td>2000</td>
<td>292,511 (14.3)</td>
<td>26,010 (1.3)</td>
<td>235,929 (11.5)</td>
<td>63,267 (3.1)</td>
<td>1,079,154 (52.6)</td>
</tr>
<tr>
<td>2005</td>
<td>212,949 (12.7)</td>
<td>79,247 (4.7)</td>
<td>223,501 (11.5)</td>
<td>43,412 (2.6)</td>
<td>862,183 (51.4)</td>
</tr>
<tr>
<td>2009</td>
<td>134,281 (11.1)</td>
<td>78,807 (6.5)</td>
<td>129,084 (10.7)</td>
<td>39,591 (3.3)</td>
<td>543,233 (45.0)</td>
</tr>
</tbody>
</table>

Note: The number in bracket refers to percentage in sum.
Source: Korea Seed Association,
The production of vegetable seed that combines overseas and domestic seed production has been on a downward trend since 2000, currently standing at 1.21 million kg because cultivated area of Chinese cabbage and radish, which represent the biggest portion of seed production, has been declining. By item of vegetable, root vegetable represents 48.3%, leafy and stem vegetable 32.2%, flavour vegetable 13.8%, and fruit vegetable 5.7%.

In Korea’s production of vegetable seed, the percentage of foreign seed has been rapidly increasing since foreign seed started to enter the nation. The percentage of foreign seed, which was merely 15.4% in 1991 has continue to increase to reach 78% in 2009. The reason behind such an increase in foreign seed includes worsening domestic conditions to produce seed due to increasing production cost caused by increasing land price and labor cost as well as inhibitors that makes it difficult for the nation to produce different type of seeds with different characteristics, including climate.

Fruit seeds are mainly developed by National Institute of Agriculture in Korea.
Horticulture & Herbal Science except for some of the individual developers, and there is no reliable statistics to show the exact market size of fruit seed. In terms of market size of each type of fruit, apple is estimated to be worth 19.5 billion KRW, tangerine 5.5 billion KRW, persimmon 4.1 billion KRW and peach 4.0 billion KRW, totaling about 40.8 billion KRW.

Sales of floriculture seed continue to increase every year, reaching 7 billion KRW in 2008, a 4.4 times increase from 2000, and in addition, sales of bulb flowers was 4.5 billion KRW as of 2008.

Seed export is mainly comprised of vegetable seed that makes up more than 90% of total export. Vegetable seed export continues to increase from 6.1 million USD in 1990 to 19.6 million USD in 2009, increasing by 3 times. Export market for vegetable seed shows that Japan, the U.S,
China and India make up 73.3% of the total export, while by item red peppers, radish, cabbage and Chinese cabbage make up 74.6% of the total export. It is predicted that seed industry is highly likely to develop into an successful export industry due to Korea’s proximity to big seed importing countries such as China and India and strong preference for seeds produced by Korea.

Net import of seed in 2000 was 11.5 million USD, and started to decrease since then. And it decreased to the level of between 6 million and 8 million USD recently, and as a result trade balance surplus sharply increased from 3.7 million USD in 1990 to 11.6 million USD in 2009.

### 3.3.3. Outlook and Issues

As seed industry is expected to expand its business scope and the global seed companies put more efforts on concentration and scale-up amidst nations’ effort to their strengthen seed sovereignty, Korea’s development plan for seed industry should be implemented in a way that it can respond to those trends. Therefore, development plan for Korea’s seed industry needs to focus on, first 1) pursuing turning seed industry into

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**Table 4-30 Import and Export Trends of Vegetable Seed per Year**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Export (A)</td>
<td>6,095</td>
<td>7,388</td>
<td>18,002</td>
<td>15,277</td>
<td>19,563</td>
</tr>
<tr>
<td>Net Import (B)</td>
<td>2,397</td>
<td>7,835</td>
<td>11,521</td>
<td>5,710</td>
<td>7,954</td>
</tr>
<tr>
<td>A-B</td>
<td>3,697</td>
<td>△447</td>
<td>6,481</td>
<td>9,567</td>
<td>11,610</td>
</tr>
</tbody>
</table>

**Note:** Net import subtracts overseas seed production from total import.

**Source:** Korea Seed Association,

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Agriculture in Korea 330
convergence industry, second 2) transforming it into future promising industry through expanding export and third 3) fostering competitive global seed specializing companies.

Global trends regarding seed industry is that the entity that leads the industry shifts from government to private companies, and it is very important to nurture domestic seed companies as fostering of private companies can lead to enhanced competitiveness of seed industry.

Various efforts need to be made to foster domestic seed companies. First, we need to expand the size of seed market through transferring food crops to private sector. Second, efforts need to be made to strengthen private capability through nurturing and utilizing individual breeders. Third, we need to create the basis for domestic seed production with more support going into it. Fourth, scaling up of seed companies need to be encouraged through expanding export. And fifth and last, it is very important to strengthen the protection of developers through enhancing of effectiveness of variety protection system.
Section 4. Agricultural Trade

Agricultural trade in Korea has gone through many changes from its focus on exports in the 1950s to become import-oriented today. During the 1950s, primary commodities played an important role as a source for acquiring foreign currencies. However, subsequent to the 1960s in which an economic development strategy of industrialization and export-orientation started to be implemented, the relative de-industrialization of agriculture deepened. In addition, the share of agricultural products in Korea’s exports decreased significantly, falling from over 40% in the early 1960s to less than 1% today.

Agriculture trade policy has been one of the many factors behind such change in agriculture trade. During the 1960s and 1970s, agricultural export promotion policies were actively implemented as part of the government’s export-oriented economic policy. During the 1990s, the need for agricultural export promotion policy increased even more as liberalization in the agriculture market expanded. On the other hand, the need for import regulation policies also increased in line with liberalization. However, trade policy regulations are gradually being lifted according to the WTO rules resulting from the conclusion of the Uruguay Round (UR) of negotiations. The paper will describe Korea’s agricultural trade and trade policy.

4.1. Liberalization of Agricultural Market in Korea

4.1.1. Prior to Uruguay Round Negotiations

Korea has continued to implement a market liberalization policy since economic development was started in full scale in the 1960s. A key market liberalization policy of the 1960s was the conversion of Korea’s import...
restriction regulations from a positive list system to a negative list system. In the late 1970s, import liberalization measures were further accelerated as the Korean economy achieved an export target of US$10 billion in 1977 driven by its outward-oriented growth policy. Such growth led to an increase in foreign currency reserves, which, in turn, increased pressures from foreign countries to liberalize imports. Accordingly, the government finalized its import liberalization plan in 1978 and implemented substantial measures for import liberalization. As part of such measures, Korea opened its markets to 162 agricultural products in 1978 and 1979 and increased its import liberalization rate from 53.8% to 68.6% (based on the number of items).

Coming into the 1980s, market liberalization was further expanded with 1) the introduction of the import liberalization pre-notification system in 1984, 2) conclusion of the Korea-US trade negotiations in 1988, and 3) discontinuance of the application of the GATT's balance of payments clause (a.k.a. BOP graduation) in 1989. In particular, market liberalization in the 1980s was mainly targeted at agricultural products. Other measures implemented also included disuse or relaxation of the import-export recommendation system, the import-export link system, and the actual demand system. Such actions all represented market liberalization measures that brought about import expansion as opposed to exports so as to accelerate the liberalization of the domestic agriculture market.

With the conclusion of the Korea-US trade negotiations in 1988, Korea opened its markets to 243 agricultural products during the period between 1989 and 1991. During 1986~1989, Korea’s balance of payments recorded surpluses that led to increased import liberalization. In line with Korea’s surplus in balance of payments, GATT requested consultations with Korea to determine whether to continue to apply Clause B of Article
XVIII of the GATT to Korea. As a result, Korea agreed to discontinue its application of the clause in October 1989. According to its agreement with GATT, Korea implemented its schedule to liberalize its import restriction items (273 items a.k.a. BOP items) in two phases over a 6-year period from 1992 to 1997 that was pre-notified on the import and export periodic bulletin.

The pre-notification also called for imports subject to market liberalization to be evenly opened up each year in terms of its numbers. However, as the Uruguay Round of negotiations were concluded during the implementation period of the initial pre-notification plan (1992~1994), import items included in the second phase of the plan adhered to the agreements of the UR negotiations. In effect, market liberalization rates in the agriculture, forestry and fisheries sectors increased significantly in line with the gradual import liberalization pre-notification plan, rising from 76.1% in 1989 to 84.7% in 1991 as a result of the 1989~1991 pre-notification plan following the Korea-US trade negotiations. The rate further increased to 92.1% in the 1992~1994 schedule plan as the application of GATT’s BOP clause was discontinued (the agriculture and forestry market liberalization rate in 1994 was 93.7%).

4.1.2. Result of the Uruguay Round Negotiations

The conclusion of the UR negotiations resulted in the acceleration of overall reforms and liberalization in the agriculture sector both domestically and internationally. Korea gradually opened up its agriculture and forestry markets, with the exception of the rice market, as a result of the UR agreements. Of the 1,513 agriculture and forestry products in 1995, 1,466 products were automatic import approval items, equating to an
import liberalization rate of 95.6%. The rate rose to 98.5% in 1998 with the partial opening of the fruit, vegetable and livestock markets in 1996 and 1997. In 1998, 1,620 out of a total of 1,644 agricultural products fell under automatic import approval items. The 24 items that were not subject to automatic import approval were products related to rice and beef. With the liberalization of beef imports in 2001, only 16 rice-related products were not subject to automatic import approval. As a result, Korea maintains an agriculture and forestry product import liberalization rate of 99.1% subsequent to 2002. In the case of forest products, all 224 products have been liberalized subsequent to 1995. New concession duties were set for 108 BOP items\(^1\) as a result of the UR negotiations. The custom duties imposed on products included in this list range anywhere from 9.6% to 946.6%. Dairy products, spice vegetables, fruits, nuts, oil crops, and maniocs fell under this category. Among the BOP items, import quotas were maintained, while simultaneously raising custom duties, for a specified period for concession items. At the same time, imports were liberalized for non-concession items by setting ceiling binding tariffs. In implementing the UR agreements, Korea maintained its developing country status, which allowed for tariff reductions at an average rate of 24% (2/3 the level of industrialized countries) over 10 years beginning 1995. Korea expanded its products, subject to state trading and mark-ups, to 97 items in the UR agreements, while also designating 63 new items as subjects for specific tariffs.

\(^1\) BOP products refers to the products which were under import restriction before the conclusion of UR agreement and therefore could not be liberalized as consultation with Committee on Balance-of-Payment Restriction reached an agreement not to restrict import in 1989 citing balance of trade deficit as developing country (according to Article 18, paragraph B, GATT).
As a measure to expand market access beyond tariffication and tariff reduction, Korea introduced and subsequently increased market access quotas. Accordingly, minimum market access (MMA) quotas for rice imports were expanded from initially 1% of domestic consumption in 1995 to 2% in 1999 and 4% in 2004. MMA quotas for barley, sweet potatoes and potatoes with imports less than 3% of domestic consumption (based on an average over 1986~1988 period) were increased from initially 3% of domestic consumption in 1995 to the 5% level in 2004. On the other hand, Korea also implemented its UR agreements to guarantee or expand current market access (CMA) quotas for import items exceeding 3% of domestic consumption that includes soybeans, corn and peanuts.

Livestock products consist of mostly BOP items that were liberalized at higher tariff rates, through tariff increases or ceiling binding tariffs, than the effective rates imposed prior to their liberalization. Korea was able to impose import restriction measures on beef up until 2000, but subsequently agreed to full liberalization at a tariff rate of 41.2% in 2001. However, duties on beef were raised from pre-UR levels of 20% to 44.5%. The 44.5% duty on beef was reduced by 10% over 10 years (1995~2004) to 40% in 2004. Beef quotas were also expanded from 106 thousand tons in 1995 to 225 thousand tons in 2000, with complete liberalization subsequent to 2001.

The market for pork has been fully open since July 1997 after a series of tariff and import quota increases. In particular, custom duties were raised from 25% prior to the UR agreement to 37% only to be reduced by 1.2% every year to 25% by 2004. Import quotas were increased from 22 thousand tons in 1995 to 180 thousand tons in the first half of 1997. Market liberalization for chicken products took a similar path as pork. In the case of most dairy products, the market was fully opened beginning in July 1996
after a period of ceiling binding tariffs and import quota increases.

Some fruits and vegetables categorized as BOP items that had been protected by import restriction measures prior to the UR negotiations became open to imports subsequent to 1995 through increased duties via ceiling binding tariffs. However, market liberalization for oranges, orange juice, tomatoes and apple juice was postponed one to one and a half years to begin market liberalization in 1996 (in the case of grapes and apple juice) or July 1997. On the other hand, there were also items that were liberalized at low tariff rates without any tariff increase measures, namely grapes, grape juice, apples, apple juice and other fruit juices. Key spice vegetables such as peppers, garlic and onions were liberalized from 1995 with increased duties imposed through ceiling binding tariffs.

4.1.3. Liberalization of Rice Market

In the UR negotiations, Korea opted to choose MMA quotas over tariffication in opening its rice market. While the principle of removing non-tariff barriers was decided at the UR negotiations, high tariffs (tariff equivalents) amounting to the price difference between domestic and overseas markets were also recognized to minimize the adverse effects of liberalization. However, several countries including Korea and Japan chose to grant a certain amount of rice quotas and discuss tariffication at later negotiations as opposed to accepting tariffication and the removal of non-tariff barriers.

Annex 5 of the WTO Agreement on Agriculture, which provides the basis for rice negotiations related to Korea, states that ‘any negotiation on the question of whether there can be a continuation of the special treatment shall be initiated and completed within the time-frame of the last year of the implementation period, and if it is agreed that a Member may continue to
apply the special treatment, such Member shall confer additional and acceptable concessions as determined in that negotiation. While there are cases in which member countries that received special treatment have converted to tariffication (example: Japan and Taiwan), there have not been any instances of negotiating for the continuation of special treatment as with Korea. Korea notified the WTO Secretariat of its intentions to commence negotiations on rice on January 21, 2004. Stakeholder members were directed to communicate their intent to negotiate to both Korea and the WTO Secretariat to begin the negotiations on issues related to rice market liberalization.

A total of 9 member countries notified their intent to participate in the negotiations-U.S., China, Thailand, Australia, India, Pakistan, Argentina, Egypt and Canada. With initial talks with the U.S. started on May 6, the rice negotiations were concluded through a series of over 50 consultations including 9 with the U.S., 6 with Thailand, 7 with Egypt and 5 with India.

The agreement of the negotiations notified to the WTO is as follows:

1. Continuation of delayed tariffication: 10 years from 2005 to 2014
   - Multilateral interim review of the status of implementation in the fifth year of implementation period, i.e., 2009
   - Retention of right to convert to tariffication at any time during the extension period

2. Mandatory import quota: Equal increase annually from 225,575 tons in 2005 (4.4% of 1988~1990)
   - Method of mandatory quota import: Continuation of state trading, provided that 10% of quotas in 2005 are sold to the market with its increase to 30% in 2010 to be maintained until 2014
   - Allocation of country quotas for current imports to 4 member states-U.S., China, Thailand and Australia-reflecting imports during 2001~2003, while operating new import quotas on a most-favored nations basis
   - Country quotas: China 116,159 tons, U.S. 50,076 tons, Thailand 29,963 tons, Australia 9,030 tons.
4.1.4. Participation in WTO/DDA Negotiations

The UR agreements were implemented separately by industrialized countries and developing member states. The period for implementation was 6 years ending in 2000 for industrialized members and 10 years up to 2004 for developing economies. In line with this implementation schedule, the WTO initiated a new market liberalization plan, launching the Doha Development Agenda (DDA) at the Ministerial Conference in Doha, Qatar in November 2001.

Negotiations in the agricultural sector were already in progress according to the UR agreements, irrespective of the launch of DDA negotiations. Article 20 of the UR agreement on agriculture refers to the next round of negotiations by stating that “recognizing that the long-term objective of substantial progressive reductions in support and protection resulting in fundamental reform is an ongoing process, Members agree that negotiations for continuing the process will be initiated one year before the
end of the implementation period…” Accordingly, agriculture negotiations in the WTO were started at the March 2000 conference as stipulated by Article 20 of the Agreement on Agriculture. The WTO negotiations on agriculture, which have been discussed as a built-in agenda of the UR agreements, have developed in part into multilateral negotiations with the launch of the DDA negotiations in November 2001.

DDA negotiations are currently moving towards a mutual agreement that has progressed through the stages of chairman Harbinson’s first draft modalities announced in February 2003, draft Cancun ministerial declaration adopted in September 2003, agreement on the framework achieved in August 2004, draft ministerial declaration announced in Hong Kong in November 2005, and Chairman Falconer’s proposal of draft modalities in July 2007, chairman Falconer’s proposal of the 3rd amended modalities and collapse of small-scale ministerial meeting in July 2008, and proposal of the 4th amended modalities and collapse of small-scale ministerial meeting in December 2008. Korea, on its part, is actively participating in such multilateral negotiations, focusing its efforts to reflect the current situation of the domestic agricultural sector in response to the global trends in market liberalization. Domestically, Korea is devising support measures in response to the conclusion of DDA negotiations, while also expanding its financial support and investment in agriculture.

4.1.5. Market Liberalization through FTA Negotiations

Korea shifted its international economic policy towards further market liberalization subsequent to the financial crisis in the late 1990s. As part of its new policy, Korea actively pursued regionalism through FTAs and
bilateralism in addition to its existing trade policy centered around the WTO and multilateralism. This, in effect, meant a policy shift towards utilizing FTAs as a means to revitalize the economy by 1) corresponding to the global expansion of FTAs, 2) improving international perception, 3) expanding foreign capital inflows and 4) exploiting new export markets. Subsequent to its policy conversion, Korea has simultaneously pursued FTAs with numerous countries coming into the 2000s.

Since its first FTA with Chile, Korea has actively sought to conclude regional agreements with Singapore, the European Free Trade Association (EFTA) and Association of Southeast Asian Nations (ASEAN) and India, and in the process of implementing the negotiation results. The Korea-US FTA was agreed upon in April 2007. The Korea-US FTA can go into effect starting in 2012 at the earliest.

Negotiation with the EU led to signing of the agreement in October 2010, and it is expected to become effective in July 2011. In addition to the conclusion of FTA negotiation with Peru (2010), FTA negotiations with Canada, Mexico, Japan, Australia, New Zealand, Colombia and GCC are underway, or the possibility of resuming negotiation with them is being explored. Regarding the Korea-China FTA that is expected to have the greatest impact on agriculture of Korea, joint study was completed in the first half of 2010, and official negotiation is likely to start in the near future. Such bilateral negotiations have accelerated the liberalization of the agriculture market. Accordingly, both farmers and the government are also actively responding to such changes. The results of the recently concluded negotiations with the US and ASEAN are as follows.

The initiation of negotiations on the Korea-U.S. FTA was declared in February 2006. From June 2006 to March 2007, a total of 8 rounds of trade
negotiations took place with subsequent high level meetings being held to finally reach an agreement in June 2007. The total number of items subject to negotiations in Korea’s agriculture sector was 1,531 with tariff concessions agreed on in 16 basic forms - immediate, 2 years, 3 years, 5 years, 6 years, 7 years, 9 years, 10 years, 12 years, 15 years, 16 years, 17 years, 18 years, 20 years, specific date and exceptions. When the seasonal custom duties, non-HS-code-based split HS code based concessions, and the quotas provided in the agreement are taken into account, it could be thought that diverse methods of tariff concessions were adopted in the FTA. Korea’s items subject to short-term custom duty elimination total 934, comprising 61% of all items and 68% on the basis of import amount value. Among the short-term items, 578 products are subject to immediate custom tariff elimination, constituting 37.8% of the total (based on 1,531 items) and 55.8% on the basis of import amount value.

Despite the high proportion of items subject to short-term custom tariff elimination in the agricultural sector, Korea was able to include most of its sensitive agricultural products as long-term tariff elimination items. The item groups that have a low share of short-term tariff elimination obligations include meat products (short-term proportion of 7%), dairy products\(^2\) (8%), cereal flours & and starch (36%), vegetables (40%) and fruits & and nuts (40%). In particular, the number of long-term tariff elimination items out of the 93 meat products (HS-2) reaches 73, while 47 HS-4 items (mostly dairy products) out of a total of 51 are subject to current levels of custom duties or tariff elimination over 10 years or more.

\(^2\)In terms of tariff concession, actual scope or speed of liberalizing dairy products is different from this classification when including TRQ provided by Korea.
While 53% of HS-code 10-digit items (grains) are subject to short-term customs elimination, rice, which was classified as Korea’s most sensitive product (16 items based on 10-digit HS code), was set aside as a special treatment item that is not subject to complete liberalization for tariff elimination and quotas. Meanwhile, all of the 25 tobacco items based on the 10-digit HS code were categorized products subject to long-term tariff elimination. In addition, the share of items subject to short-term customs elimination for prepared meat products (HS-code 16) was also very low at 4%.

The FTA talks with ASEAN commenced with the initial negotiations conducted on February 1, 2005. The negotiation on trade in goods was concluded at the 11th meeting held in April 2006 and came into effect in June 2007. In the agriculture area, Korea is not expected to be significantly affected by the FTA as either most of the sensitive items were excluded from the market liberalization measure or the range of its market liberalization was reduced to a minimum. A total of 71 items (based on 10-digit HS code) including rice, beef, pork, chicken, red peppers, garlic, onions, tangerines, pineapples and bananas were excluded from the tariff elimination list. Meanwhile, the duties on major items such as apples, pears and oranges with the current tariff rates of 50% or lower were agreed to be maintained at under the 50% level up until 2016, which is almost the same as excluding these items from tariff elimination schedules in real effect.

Tariff concessions on Korea’s agricultural products in Korea-EU FTA exist in various forms. Tariff elimination period is from immediately to the next 20 years, and 5 year tariff elimination period, which is a short-term elimination period is divided into 4 kinds: immediately, 2 year elimination period, 3 year elimination period and 5 year elimination period. Tariff
elimination period of 6 years to 10 years, which is a medium-term elimination period is divided into 3 kinds of 6 year, 7 year and 10 year elimination period. Tariff elimination period of more than 10 years includes 12 year, 13 year, 15 year, 16 year, 18 year and 20 year elimination period. In addition to them, there are concessions types, including seasonal tariff, TRQ provision and maintaining current tariff and tariff exception. Products subject to seasonal tariff are fresh orange and grape, and TRQ is provided for orange under the condition that tariff for Korean tangerin during harvest season is maintained. Grape is subject to the condition that tariff is eliminated in 17 years during harvest season.

Products which tariffs are immediately eliminated right after implementation of the agreement include 610 products, representing 42.1% of total 1,449 agricultural products. The number of products which tariff elimination period is 2 and 3 years stands at 3 and 14, respectively. Products whose tariff elimination period is 5 years is 278, the third biggest portion among tariff elimination types in terms of number of products for concession (19.2% of the total). The number of products whose tariff elimination period is within 5 years is 905, making up 62.5% of the total, with the products whose tariff elimination period is 3 years and 7 years being 3 and 45, respectively. The number of products whose tariff elimination period is 10 years is 286 (representing 19.7% of the total), making up the second biggest portion in terms of products for concession only after products for the immediate tariff elimination. The number of products whose tariff elimination period is 10 years is 334, making up 23.1% of the total. Representing the biggest portion among products whose tariff elimination period is within 15 years is those products whose tariff should be eliminated within 15 years (96 products).
The number of products that were exempt from concessions or those whose current tariff is maintained without TRQ is 41 (representing 2.8% of the total).

4.2. Agricultural Exports

4.2.1. Exports by Item

Korea’s export in goods increased from US$33 million in 1960 to US$373.6 billion in 2009. The growth rate of agricultural exports (including forestry products) accounted for less than 3% of the overall export growth rate during the same period, increasing from US$10 million to US$ 3.3 billion.

Accordingly, the portion of agriculture exports in total exports has also fallen drastically since the early 1960s. The share of agriculture exports in total exports peaked in 1962 at 43.1%, but has dropped considerably to 16.2% in 1970, 6.7% in 1980 and to 2.2% in 1990. Coming into the 2000s, the percentage has continued to fall and hovers around less than 1% since 2000.

With the passage of time, Korean exports of agricultural products have undergone many changes. During the 1950s and 1960s, major agricultural exports included rice, cocoons, ginseng and tobacco. In the 1970s, canned mushrooms, chestnuts, pine mushrooms, arrowroot wallpaper, and oriental medicine herbs emerged as new export items while rice exports decreased sharply. Since the 1980s, the export of fruits, vegetables (kimchi, bell peppers, cherry tomatoes, eggplants, etc.), processed foods, pork and floricultural products, along with Korean traditional products such as ginseng, tobacco and chestnuts, increased significantly to diversify Korea’s export products.
Since the 1990s, fruits, vegetables, flowers and pork have emerged as new export items. The export of these products has been actively promoted by the government as they provide high values added and have a higher potential for exports. In particular, the exports of traditional Korean foods such as kimchi and soy fermented products, which have a direct impact on farm household income, together with greenhouse vegetables and floricultural products have recently increased. Major fruit exports include apples, pears and tangerines, while cucumber, tomatoes, onions, eggplants, carrots and kimchi are the main vegetable exports. The key export items of floricultural products include roses, lilies, chrysanthemum, cactus and orchids.

While agriculture exports declined in the early 1990s and also in the late 1990s during the financial crisis in Korea and other Asian countries, the exports have shown a steady increase outside these periods. During the recent 10 years (2000~2009), agricultural exports increased at an annual average of more than 10%. In 2009, the agricultural exports of US$100 million or higher included tobacco products (US$480 million), vegetables...
(US$250 million), snacks (US$250 million), alcoholic beverages (US$240 million), noodles (US$210 million), coffee products (US$200 million), sugar products (US$180 million), fruit products (US$170 million), sauces (US$110 million), and ginseng products (US$110 million). The export items of US$50 million or higher included floricultural products (US$77 million), feeds (US$55 million), beverages (US$77 million), dairy products (US$54 million), wood products and others (US$ 75 million). There are no major livestock and forestry products whose export value is more than US$ 100 million.

Korea has a fundamentally disadvantageous environment for growing and exporting grains and large livestock due to its limited cultivation area. Accordingly, Korea has focused on expanding exports of garden products.

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<tr>
<th>Year</th>
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</tbody>
</table>

Vegetable exports increased by big margin and most of those products are being exported to Japan. Export of fresh fruit is also rapidly increasing, with major export market being Southeast Asia. As Japan is geographically a neighboring country and there are no big problems related with the quarantine of fresh agricultural products, it is highly likely that Korea’s exports to Japan will increase. On the other hand, however, the growth in fruit exports has been insignificant. It will be even harder for fruit exports to increase without addressing the issues related with price competitiveness and quarantine. In the case of floricultural products, the possibility of Japan-bound exports rising is high given that quality improves.

4.2.2. Exports by Country

The major export markets for Korea’s agricultural products are Japan, Russia, China, the U.S., and Hong Kong. Agriculture exports to these 5 countries represent more than 60% of Korea’s total agricultural exports. However, Korea’s export dependence on those 5 countries has been on a downward trend from 76% in 2000 to 60% in 2009. Japan is one of Korea’s biggest markets for agriculture exports. However, Japan’s portion of Korea’s agricultural exports has sharply declined from 45.5% in 2000 to 25.7% in 2009, mainly due to the halt in the export of pork to Japan that once exceeded one third of all Japan-bound agricultural exports in 1999 (US$ 94 million).

The next important market for Korea’s agricultural exports is the U.S. with a size of US$ 340 million (10.2% of total agricultural exports) in 2009. Russia’s portion increased from 4.8% in 2000 to 7% in 2009, while exports bound for Hong Kong has been on the decline. China’s portion increased from 7.7% in 2000 to 12.7% in 2009.
Fresh agricultural products such as chestnuts, pine mushrooms, kimchi, cucumber, tomatoes, floricultural products and bell peppers comprise the main bulk of exports headed for Japan. The exports to Russia are mainly processed foods including snacks, bread, instant noodles, coffee and mayonnaise. China-bound exports consist mainly of sugar, snacks, chewing gum, ginseng and alcoholic beverages, while processed foods are exported to developing countries. With respect to the US, fresh agricultural produce comprise only a small portion of exports with noodles, snacks, soy
fermented products and pears constituting the main share. An obstacle to
the exporting of fresh agricultural products to the U.S. includes not only
price competitiveness but also physical distance, difference in eating
patterns, and quarantine.

4.2.3. Export Promotion Policy

Korea’s export promotion policy was solidified and actively developed
in the 1960s and early 70s. However, the export policy for agricultural
products was pursued passively in the 1950s and 1980s compared to other
periods. Coming into the 1990s, a diverse range of export expansion policies
were once again introduced to respond to the globalization and liberalization
trends in agriculture. However, the Korean government was unable to
implement policies in the form of direct export subsidies due to the reinforced
international rules including the WTO regulations and a monitoring system
that have all been established as a direct result of the Uruguay Round trade
negotiations. Accordingly, the export promotion policies being implemented
today are mainly indirect export expansion policies aimed at providing
marketing support, information, and market entry assistance.

In the 1960s, the Korean government targeted export-oriented
industrialization as its goal and began implementing more aggressive
outward-looking economic policies. In the agriculture sector, complex
export development plans were pursued. The government also established
and operated an agriculture price stabilization fund to mitigate the instability
in agricultural exports caused by unstable domestic production and prices. A
system of linking imports to exports (for example, importing bananas and
pineapples for the export of apples, or importing wool in exchange for
exporting tuna) greatly contributed to the increased trade in agricultural
products. The government also implemented a policy to control export prices and shipment timing through a unified export channel.

Korea’s agriculture export promotion policies today are being implemented through various new programs for overseas market penetration and export information support based on its aggressive export assistance in the 1960s and 70s. In order to continuously increase agriculture exports, Korea has recently reinforced and implemented comprehensive measures to 1) expand production and distribution of agricultural export products and 2) penetrate overseas markets. The government is also developing export complexes for the continued supply of high-quality agricultural products for exports, while, at the same time, providing support for overseas market penetration, distribution, and export financing in its attempts to efficiently expand the exports of agricultural produce.

As market liberalization is being further accelerated in the new millennium, the Korean government is strengthening its activities to penetrate overseas markets so as to overcome the limitations posed by the shrinking demand in the domestic market. As part of the activities, the government plans to focus on promoting 30 major export products to increase farm household income and expand the Korean food culture. Accordingly, the government plans to increase the exports of agricultural foods products from US$2.5 billion in 2007 to US$4.0 billion by 2013 and to US$6.0 billion by 2017.

Taking into account the various environments surrounding existing agricultural product exports and agricultural products with high future export potential, the government also plans to expand the number of agricultural export complexes, which are currently in operation for major items, from 148 in 2006 to 180 in 2010 and 200 by 2013. It also aims to expand programs for
establishing stable sales channels by 1) fostering export-specialized producer organizations supplying promising export products and 2) outsourcing production to leading export companies. Through such export promotion policies, the government plans to strengthen the environment for full-time farmers to actively participate in agriculture exports.

The Korean government further plans to spread Korean food and Korean food culture overseas centering on traditional and local native foods. Accordingly, it is actively developing and supporting various programs, such as the construction of a database on Korean restaurants overseas and PR activities informing people overseas of the excellence of Korean food, to contribute to the exports of Korean agricultural products. Overseas market penetration programs are being implemented through the Korea Agro-Fisheries Trade Corporation centering on participation and marketing at international food expos, dispatch of market exploration teams, and packaging design development projects. It mainly participates in the food expos of major export target countries of Korean agricultural products including Japan, the U.S., China (Hong Kong), Russia, Brazil, Australia and Singapore. As part of its overseas marketing efforts aimed at publicizing Korean agricultural products in international markets and attracting buyers, the government is also installing outdoor electric signboards in addition to the advertisements on buses and in magazines and leaflets. It further produces and distributes directories of promising export products and Korean exporting companies every year for buyers.

4.3. Agricultural Imports

4.3.1. Imports by Item

Agricultural imports (including forestry products) increased from
US$82 million in 1960 to US$13.3 billion in 2006. However, its share of total imports decreased from 24% in 1960 to 14% in 1980, 5.3% in 2000 and to 4.3% in 2006. Prior to the financial crisis in the late 1990s, agricultural imports increased steadily to reach US$10.9 billion in 1996. However, it fell to US$10.1 billion in 1997 when the financial crisis began and further decreased to US$6.4 billion in 1998. While agriculture imports began to pick up once again in 1998, it was not until 2004 that it recovered to the pre-financial crisis levels.

The largest imports of agricultural products by Korea are grains (rice, barley, corn, soybean and potatoes). Grain imports were only 2 million tons in 1970. However, by 1980, the amount of imports increased to 5 million tons and exceeded 10 million tons in 1990. In 2009, 13 million tons of grains were imported to Korea. With such a sharp increase in grain imports, the grain self-sufficiency rate remained at 27% in 2009. The major imported grains include corn and wheat for feed, wheat for human consumption, and soybeans. Rice imports increased every year according to UR agreements and 270 thousand tons were imported in 2009.
The largest import grain is corn. Corn imports have significantly increased since the mid-1970s with a sharp rise in the demand for feed corn driven by the increase in meat consumption. The size of corn imports was only 280 thousand tons in 1970, but it increased to 2 million tons in 1980, 6 million tons in 1990, and 9 million tons in 2000. The amount of corn imported in 2006 was 8.6 million tons and they were imported mainly from the US and China.

Wheat is imported for use as both feed and food. Feed wheat imports are highly substitutable with domestic feed wheat and corn. Accordingly, large amounts of wheat are imported for feed use when international corn prices are high. Currently, food wheat imports remain stable at 2 million ton levels. The amount of wheat import in 2009 was 3.9 million tons, and the countries that Korea imports wheat from include the U.S., Canada, Australia, Argentina and Ukraine.

Up until the 1960s, soybeans were supplied domestically. However, the self-sufficiency rate of soybeans fell sharply from 85% in 1975 to 22% in 1985 and to 13.6% in 2006. On the other hand, the annual consumption of soybeans per person increased from 6.4kg in 1975 to 9.1kg in 2006. Due to such falls in self-sufficiency, coupled with increased consumption, soybean imports grew from 60 thousand tons in 1975 to 1.1 million tons in 2009. Soybeans are mainly imported from the US, Brazil, Paraguay and China.

Meat imports remained at minimal levels in the early 1970s. However, it has reached 89 thousand tons in 1990 with the increase in beef imports since the late 1970s. Subsequently, meat imports continued to grow, reaching 390 thousand tons in 2000 and 499 thousand tons in 2003. In 2004, it fell to 370 thousand tons as beef imports from the US were prohibited due to the bovine spongiform encephalopathy (BSE) that broke
out at the end of 2003. However, meat imports recovered to 480 thousand tons in 2009, driven by rising pork imports as meat imports shifted towards pork in line with decreasing beef imports.

Fruit imports have increased substantially since the late 1980s due to the effects of market liberalization, rising almost 10 times from US$36 million in 1990 to US$350 million in 2000. Fruit imports in 2009 reached US$720 million, increasing two-fold compared to 2000. Accordingly, its share of total imports has climbed from 0.7% in 1990 to 4.1% in 2000 and 3.9% in 2009, showing that its importance in agricultural import is increasing. Major imported fruits include banana, pineapple, grape and orange. Bananas are mainly imported from the Philippines, while the rest are brought in from Ecuador, Taiwan and the US. Major suppliers of other fruits are the US for oranges, Chile for grapes and the Philippines for pineapples.

### Table 4-33 Agricultural Imports of Korea

<table>
<thead>
<tr>
<th>Year</th>
<th>Agricultural Products</th>
<th>Livestock Products</th>
<th>Forestry Products</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vegetables</td>
<td>Fruits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>5,105</td>
<td>187</td>
<td>349</td>
<td>1,679</td>
</tr>
<tr>
<td>2001</td>
<td>5,325</td>
<td>192</td>
<td>354</td>
<td>1,467</td>
</tr>
<tr>
<td>2002</td>
<td>5,702</td>
<td>196</td>
<td>419</td>
<td>1,949</td>
</tr>
<tr>
<td>2003</td>
<td>6,213</td>
<td>279</td>
<td>507</td>
<td>2,116</td>
</tr>
<tr>
<td>2004</td>
<td>7,445</td>
<td>361</td>
<td>564</td>
<td>1,775</td>
</tr>
<tr>
<td>2005</td>
<td>7,397</td>
<td>330</td>
<td>616</td>
<td>2,361</td>
</tr>
<tr>
<td>2006</td>
<td>8,117</td>
<td>412</td>
<td>713</td>
<td>2,749</td>
</tr>
<tr>
<td>2007</td>
<td>10,089</td>
<td>577</td>
<td>852</td>
<td>3,235</td>
</tr>
<tr>
<td>2008</td>
<td>13,905</td>
<td>582</td>
<td>823</td>
<td>3,352</td>
</tr>
<tr>
<td>2009</td>
<td>11,754</td>
<td>491</td>
<td>717</td>
<td>2,485</td>
</tr>
</tbody>
</table>

Vegetable imports have increased relatively slowly prior to the 1990s, remaining at US$800 thousand in 1980 after rising from US$300 thousand in 1970. However, vegetable imports soared in the 1990s, reaching US$180 million in 1997 and US$490 million in 2009. Key import items include red pepper, garlic and onion, which are on the rise centering on minimum market access quotas. Recently, kimchi imports have been on the rise. Major spice vegetables such as red peppers, garlic and onions are mainly imported from China.

4.3.2. Imports by Country

The markets for Korea’s import of agricultural products are diversified compared to exports. While 70% of total agriculture exports are focused on 5 countries, the share of the top 5 countries in Korea’s imports is 55%. The US, China, Australia, Indonesia and Malaysia comprise the top 5 agricultural exporters to Korea. Indonesia and Malaysia mainly export forestry products. In addition to the top 5 exporting countries, major exporters of agricultural products to Korea include Japan for cigarettes, Thailand for cane sugar and coffee, and Brazil for soybeans, soybean meals, coffee and oranges.

In 2009, the US exported US$4.4 billion worth of agricultural products to Korea comprising a 23.9% market share. The US share of the Korean market declined from 30% in the late 1990s to 24% in 2009, but still remains the biggest exporter for Korea. Decreasing U.S market share in Korea is attributable to the significant effects of import restrictions on US beef resulting from the outbreak of BSE. With the recent increase in U.S beef, U.S market share is also increasing. China has the second largest share of Korea’s agriculture import market next to the US. China’s agriculture exports to Korea were US$2.8 billion in 2009 to record a
market share of 15.4%. China’s export of agricultural products to Korea and its market share continue to increase. Australia exported US$1.7 billion in agricultural products to Korea in 2009, increasing over 2 times over 2000. A major driving force behind Australia’s increase in agriculture exports to Korea is the decline in US beef imports in Korea. Japan maintains US$300 million in agriculture exports to Korea, but its market share remains less than 2%.

<table>
<thead>
<tr>
<th>Year</th>
<th>US (US$)</th>
<th>China (US$)</th>
<th>Japan (US$)</th>
<th>Australia (US$)</th>
<th>Indonesia (US$)</th>
<th>Others (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2,433 (28.8)</td>
<td>1,393 (16.5)</td>
<td>217 (2.6)</td>
<td>776 (9.2)</td>
<td>366 (4.3)</td>
<td>3,265 (38.6)</td>
</tr>
<tr>
<td>2001</td>
<td>2,371 (28.0)</td>
<td>1,098 (13.0)</td>
<td>207 (2.4)</td>
<td>665 (7.9)</td>
<td>360 (4.3)</td>
<td>3,762 (44.5)</td>
</tr>
<tr>
<td>2002</td>
<td>2,471 (25.8)</td>
<td>1,601 (16.7)</td>
<td>203 (2.1)</td>
<td>802 (8.4)</td>
<td>327 (3.4)</td>
<td>4,180 (43.6)</td>
</tr>
<tr>
<td>2003</td>
<td>2,740 (26.8)</td>
<td>2,062 (20.2)</td>
<td>214 (2.1)</td>
<td>804 (7.9)</td>
<td>332 (3.2)</td>
<td>4,069 (39.8)</td>
</tr>
<tr>
<td>2004</td>
<td>2,745 (24.5)</td>
<td>1,511 (13.5)</td>
<td>219 (2.0)</td>
<td>1,199 (10.7)</td>
<td>302 (2.7)</td>
<td>5,244 (46.7)</td>
</tr>
<tr>
<td>2005</td>
<td>2,199 (18.5)</td>
<td>2,217 (18.6)</td>
<td>200 (1.7)</td>
<td>1,360 (11.4)</td>
<td>255 (2.1)</td>
<td>5,658 (47.6)</td>
</tr>
<tr>
<td>2006</td>
<td>2,826 (21.2)</td>
<td>2,199 (16.5)</td>
<td>213 (1.6)</td>
<td>1,657 (12.4)</td>
<td>551 (4.1)</td>
<td>5,881 (44.1)</td>
</tr>
<tr>
<td>2007</td>
<td>3,554 (22.0)</td>
<td>3,001 (18.5)</td>
<td>256 (1.6)</td>
<td>1,601 (9.9)</td>
<td>593 (3.7)</td>
<td>7,178 (44.4)</td>
</tr>
<tr>
<td>2008</td>
<td>6,261 (31.1)</td>
<td>2,623 (13.0)</td>
<td>307 (1.5)</td>
<td>1,847 (9.2)</td>
<td>537 (2.7)</td>
<td>8,545 (42.5)</td>
</tr>
<tr>
<td>2009</td>
<td>4,386 (23.9)</td>
<td>2,822 (15.4)</td>
<td>341 (1.9)</td>
<td>1,693 (9.2)</td>
<td>413 (2.3)</td>
<td>8,692 (47.4)</td>
</tr>
</tbody>
</table>

Note: number in ( ) indicates its proportion (%) of the total.
4.3.3. Import Regulation Policies

Similar to export promotion policies, import regulation policies are also being reduced with market liberalization. The importance of import regulation policies for Korea increased as agriculture imports significantly grew in the early 1980s. However, such policies have been substantially lifted subsequent to the UR negotiations. If the ongoing WTO’s DDA negotiations are to be implemented, import regulation policies are expected to disappear for the most part.

One of the key import regulation policies implemented in Korea in the 1950s was the import quota system that determined the amount of individual items approved for import according to the government’s semi-annual trade plan. After the government’s announcement in 1956 to classify imports into automatic approval, restricted, and embargoed items according to the government’s trade plan, the system was implemented without any significant changes until 1960. The import license system, which only applied to restricted import items, was used as a means to regulate imports. In December 1957, Korea’s trade system was substantially revised with the enactment of the International Trade Act that replaced the ordinances of the US military, the president and the commerce ministry.

During the 1960s and 70s, various import programs were implemented to regulate imports, such as the designation of import items and volume control according to the semi-annual trade plan, temporary special duties, and
the import-export link system. The regulation of the number and quotas of automatic import approval items under the semi-annual trade plan was one of the most effective ways to control imports. In fact, it acted as an effective policy in inhibiting imports despite a series of exchange rate increases. The negative list system that was introduced in 1967 brought about a significant change in the import regulation policy of agricultural products and, in turn, provided an opportunity to make a shift into an open economy system. Tariff rates were adjusted downward every 2~3 years to achieve market liberalization based on both quota regulation and tariff reductions.

While there were other continued import liberalization measures subsequent to the introduction of the negative list system, it was not until 1978 that full-fledged liberalization measures were accelerated. The government finalized its import liberalization plan as a result of international pressures to open the domestic market, which had lead to the liberalization of 162 import items in 1978 and 1979. In the mid-1980s, the import liberalization pre-notification system was introduced as liberalization expanded into the overall domestic industry through the abolition or relaxation of the import-export recommendation system, the import-export link system and the ‘actual demand system.’ In 1988, 243 agricultural, forest and fisheries products were liberalized as a result of the Korea-US trade negotiations. During the period between 1992 and 1994, Korea further opened its market to 131 agricultural, forestry and fisheries products according to the initial import liberalization pre-notification plan due to the discontinuance of the application of GATT’s balance-of-payments clause. Since the implementation of the 1995 UR agreement on agriculture, most of Korea’s agricultural products have been open to imports. As of 2007, only the rice market has not been liberalized, but it
Agriculture in Korea

does not maintain any special import restrictions except for custom duties. Overall, the level of Korea’s agricultural custom duties is significantly high.

4.4. Outlook and Implications

The liberalization of Korea’s agricultural market is expected to be further accelerated as 1) it is likely that WTO will reach an agreement on DDA negotiations and 2) as Korea aggressively pursues FTA negotiations. Even if Korea maintains its developing country status in the WTO negotiations, the magnitude of market liberalization is expected to be bigger than the UR agreements. FTA negotiations with China are likely to have the greatest effect on the domestic agricultural sector after the Korea-US FTA. In addition, with the negotiations planned or currently underway with MERCOSUR, Australia, India, Canada, Mexico and Japan, the market liberalization through bilateral negotiations is also expected to pick up speed.

Korea’s agricultural policies in response to such market liberalization trends have been significantly restricted by WTO regulations. For that reason, Korea is converting its agricultural policy towards minimizing market distortions within the confines of WTO rules. Good examples of such policies are 1) direct income payment policy, 2) value-added improvement programs through the reinforcement of linkages with secondary and service industries related to agriculture, such as processing and storage industries, 3) marketing promotion programs for brand building and distribution efficiencies, and 4) increased education for farmers. Import regulation policies are also expected to be removed completely or relaxed with the exception of regulations related to sanitary and phytosanitary measures including the safety and pest control of agricultural import products. Furthermore, the relatively high level of custom...
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duties currently maintained by the Korean government compared to industrial commodities is also expected to be lowered significantly.

Agricultural trade is expected to expand significantly, driven by imports rather than exports. In addition, the demand for a wide range of high-quality agricultural products is expected to increase in line with Korea’s economic growth and changes in social demographics. As a result, agricultural imports are also expected to increase. In particular, the increase in feed grain and meat imports is expected to continue as the demand for meat products rises, while the imports of tropical fruits and vegetables are also likely to grow. Furthermore, trade partners and items for agricultural trade are expected to expand. As trading partners for both imports and exports have already diversified, such trends are likely to accelerate further in line with the global expansion of market liberalization.

Diversifying trading partners and increasing trade flows are expected to increase the possibility of harmful pests and foods coming into Korea. Therefore, establishing and implementing measures to protect both the national health and natural environment from harmful pests, diseases and foods will emerge as the most important task in agricultural trade policy. Despite the gradual decline in the share of the domestic agricultural industry due to the expansion of agricultural market liberalization and subsequent increase in agriculture imports, social needs for multifunctionality (environment preservation, balanced national development, succession and development of traditional culture, food safety, etc.) in the agriculture industry is increasing. Accordingly, another important challenge facing agricultural business and trade policy is figuring out how to achieve a balance between changes in the agricultural trade environment and the social need for agriculture.
Chapter 5

Rural Communities and Regional Development

1. Rural Communities
2. Regional Development
Chapter 5. Rural Communities and Regional Development

Section 1. Rural Communities

The effect of Korea’s rapid industrialization on rural communities that began in the 1960s is unprecedented in world history. The shrinking and aging rural population became both the impetus and the result of these changes. In 1990, the rate of decrease in agricultural population began to lessen, but the number of people engaged in agriculture continued to drop. These quantitative and qualitative changes greatly affected the family and village structures of rural communities. Traditional large families were replaced by single elderly or elderly couple households comprised only of seniors. The farming organizations and cooperatives based on family and local ties at the village level have been replaced by large inter-regional economic and social groups and these groups are increasingly important. These rapid changes in rural communities have led both the awareness and values of rural residents to more progressive paths, a trend that has entered a stabilizing phase since 2000. Also, the increase in international marriages and the rise of multi-cultural households, as well as the increasing number of urban residents “returning to the farm” or moving to rural areas for various reasons such as leisure, have led to the rapid diversification of rural residents.

1.1. Population Decline, Aging and Diversification

1.1.1. Population Decline

In 1970, nearly half of the population was engaged in agriculture, with farming households comprising 42.4% (2,483,000 households) of total
households, and 44.7% (14,422,000 people) of the total population engaged in agriculture. However, these figures have fallen to 7.1% (1,195,000 households) and 6.4% (3,117,000 people), respectively, 39 years later in 2009.

The share of rural population in the total population continuously dropped from 58.8% in 1970 to 42.7% in 1980, 25.6% in 1990, 20.3% in 2000 and to 18.9% in 2008.

In recent years, depopulation in rural communities (administrative units of “eup” and “myeon”) has slightly slowed down and, since 2005, these communities have seen a moderate rise in their population, although there are differences within agricultural communities. From 1990 to 2008, for example, the population of eup districts fell an annual average of 2.9%, while myeons witnessed 0.8% increase in their populations on average annually (see Table 5-1). This indicates people are migrating to the eup districts, where they can enjoy more favorable living conditions than other districts with regards to community facilities or employment opportunities.

### Table 5-1 Comparison of Eup and Myeon Population Growth

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nationwide</strong></td>
<td>43,411</td>
<td>44,609</td>
<td>46,136</td>
<td>47,279</td>
<td>49,540</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Eup &amp; Myeon Total</strong></td>
<td>11,102</td>
<td>9,572</td>
<td>9,381</td>
<td>8,764</td>
<td>9,357</td>
<td>△0.9</td>
</tr>
<tr>
<td>- <strong>Eup</strong></td>
<td>3,604</td>
<td>3,484</td>
<td>3,756</td>
<td>3,944</td>
<td>4,175</td>
<td>0.8</td>
</tr>
<tr>
<td>- <strong>Myeon</strong></td>
<td>7,498</td>
<td>6,088</td>
<td>5,625</td>
<td>4,820</td>
<td>5,182</td>
<td>△2.9</td>
</tr>
<tr>
<td><strong>Share of Eup - Myeon(%)</strong></td>
<td>25.6</td>
<td>21.5</td>
<td>20.3</td>
<td>18.5</td>
<td>18.9</td>
<td>-</td>
</tr>
</tbody>
</table>

A long-term study that covered the period from 1985 to 2000 examined four villages in Chungcheongnam-do to analyze long-term social and economic changes for each household type categorized by their economic activities. According to the study, the percentage of farming households that earn the whole or majority of their income from agriculture fell from 64.2% to 44.5% (from 47.1% to 16.5% for full-time farming households), while non-farming households expanded from 15% to 28.1%. The proportion of households that retired from both agricultural and non-agricultural activities due to age and other factors rose from 10.4% to 23.3%. These figures show that farming households without young successors for the family business choose to retire and remain in their rural communities, or engage in non-farming occupations if labor is available in the households.

<table>
<thead>
<tr>
<th>Table 5-2</th>
<th>Occupational Changes of Households in Sample Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1985</td>
</tr>
<tr>
<td>Farm Households</td>
<td></td>
</tr>
<tr>
<td>(Full-time)</td>
<td>124 (64.2)</td>
</tr>
<tr>
<td></td>
<td>91 (47.1)</td>
</tr>
<tr>
<td>Non-Farm Households</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>29 (15.0)</td>
</tr>
<tr>
<td>Other</td>
<td>20 (10.4)</td>
</tr>
<tr>
<td>Total</td>
<td>193 (100.0)</td>
</tr>
</tbody>
</table>

Source: Oh Nae-Won et al. (2001).
The population drop within rural regions is sometimes related to the geographical location and proximity to urban centers of the area. In the four sample villages of the above study, compared to villages closer to cities, population decline becomes steeper in the order of plain, semi-mountainous and mountainous areas.

1.1.2. Aging

In Korea, young people have accounted for most of the decrease in the rural population, resulting in the rapid aging of the population and smaller infant and youth populations. The percentage of the total population above the age of 65 rose from 3.5% in 1975 to 9.3% in 2005, approximately a 2.7
times increase in 30 years. However, the rural population is aging much more rapidly, with the percent of aged residents reaching 18.6% of the total rural population in 2005 compared to 7.2% in cities. The gap has grown larger since the beginning of urbanization and industrialization. In 2020, 25.4% of the rural population is expected to be over 65, compared to a national average of 15.1%.

Different aging trends have been observed within rural communities. In 2005, the aged populations in eup and myeon areas were 11.8% and 24.2%, respectively, indicating that myeon areas have already become a super-aged society with more than 20% of their population aged over 65. Among 209 eups, only 25%, or 52 eups, have entered into this stage of society, while 991 out of 1,208 myeons, or 82%, belong to this classification.

1.2. Changes in Rural Family Structure

The falling rural population and rapid aging have resulted in the change of family structure as well. The number of families comprised of only a single generation has been rising, overtaking urban families since 1985. The percentage of families with two generations is falling more rapidly in rural regions than in urban regions. Families with three generations under one roof were once very common in rural areas, but their numbers have fallen quickly and currently urban and rural regions have similar proportions of such families. The number of households with only a single individual is rising nationwide, but more quickly in rural areas.

Given that rural communities have significant number of elderly households, it is highly likely that the single-generation or single-individual households in the regions are comprised of elderly couple or single (whose
partner died) whose children live in cities. The decrease in the number of households with two generations and the more rapid decline of such families in rural areas indicate such household generation composition changes.

The notable trend in family structure changes in recent years is rapid growth of single elderly households and grandparent-headed families. The number of aged citizens who live alone rose comprehensively nationwide from 349,020 in 1995 to 782,708 in 2005. At the same time, the number of grandparent-headed homes increased significantly from 35,194 in 1995 to 58,101 in 2005. In rural communities, the number of single elderly households grew from 198,976 in 1995 to 366,809 in 2005, while that of grandparent-headed families rose from 16,356 in 1995 to 21,633 in 2005.

Based on <2010 Statistics on the Aged Population> released by the Statistics Korea in Sep. 2010, aged citizens living alone numbered 1,021,008 (an estimation) or 6.0% as of 2010. The number is expected to reach 2,338,354 or 8.0% by 2020.
The biggest reason why aged citizens living alone are emerging as a social issue is that most of them are not only economically poor and unhealthy, but they are also not well protected by social security net. Their unnoticed death, depression and suicide stemming from isolation are growing social issues. In addition, an analysis of the 2009 welfare panel prepared by the Korea Institute for Health and Social Affairs shows that the elderly who live alone in rural communities are given less welfare services than those living in cities in terms of medical expenditure support, free meals, basic livelihood supplies, home care and meal delivery.

Grandparent-headed families are becoming a complicated social problem related to the agricultural sector, the elderly, women and children, as well as succession of poverty. Although they suffer diverse problems in the aspects of income, health and education, these homes do not attract much attention from the Korean society and the government support for them is insufficient.
1.3. Changes in Rural Community Organization

As a result of decreasing populations and changing demographics, rural community organizations have been forced to undergo significant changes. Traditional rural society had a wide range of social groups with distinct unifying qualities and functions. Such factions were defined by common regional boundaries, blood ties, economic situations, social statuses, or political objectives and some were community based while others were of external origin.

Groups and organizations in local communities are generally classified into primary groups, which are formed through ascribed relationships such as kinship or local ties, and secondary or interest groups, which are formed through achieved relationships. In Korea, family groups and clans form the largest kinship groups. Local groups are formed through geographical relationships, and these include native groups such as “Daedonggye,” or general village organization, and involuntary groups such as “ri” that forms the smallest administrative unit in a rural community. Interest groups can be classified into economic and social interest groups based on their functions.

1.3.1. Changes in Village Organizations

The “Clan Group” was formed by extended family members sharing common ancestors to manage the family’s tombs and resources, and conduct ancestral rituals for the entire family. In the past when extended families tended to live in close proximity, clan groups formed an important part of village organization and exerted significant influence on the social and economic activities of the rural community. However, rural population began to fall and families moved apart, depriving the clan group of its
importance as a kinship organization. Since such a group is hierarchical with the oldest generation assuming the leadership, the departure of key individuals from a farming village and difficulties in participating in family events and ancestral commemorations made such an organization largely irrelevant.

The most important native social group in a rural community was the “Daedonggye,” created and operated by members of the community. The Daedonggye was charged with the tasks of conducting village-wide ancestral ceremonies, organizing effective division of labor, promoting cooperation in weddings, funerals and other community affairs, administering joint tax payments and village construction work, creating funds as needed by the community, and other tasks befitting the self-sustaining community organization.

However, the incorporation of villages into the national administrative system led to the replacement of Daedonggye with the administrative unit “ri.” Since the foundation of the Republic of Korea in 1948, the administrative unit “ri” has combined some of the traditional roles of village organizations as well as administrative and public tasks, with a village leader (“rijang” or head of “ri”) overseeing the administrative duties. As of 2010, the number of “ri” totals 36,000 in Korea.

Other village-level interest groups created after the modernization of the Korean society include the Farming Clubs, the Saemaeul Women’s Clubs, Youth Clubs, Seniors Clubs and diverse “gye” groups.

Farming Clubs and Crop Clubs are the largest village-level economic interest organizations. In the 1960s, Agricultural Improvement Clubs were organized in rural communities with support from the Rural Development Administration to learn and apply new farming techniques. Other village
organizations included Cooperative Groups and Crop Clubs organized by local Agricultural Cooperatives. These two organizations were merged to form Farming Clubs in 1977, making every member of Agricultural Cooperatives members of the new Farming Clubs as well. The Clubs are headed by Saemaeul leaders who are often the village heads as well. Crop Clubs were created by farmers cultivating similar products to achieve higher efficiency and productivity by pooling their production, packaging and shipping resources. There are 19,287 Crop Clubs (479,000 members) in the country as of the end of 2008.

Saemaeul Women’s Clubs were also created by integrating the Living Environment Improvement Clubs, Women’s Education Classes, Family Planning Mothers’ Associations, and the Saemaeul Women’s Association in 1977, becoming a single organization responsible for the activities that had been overseen by numerous similar organizations in the past.

Another important village organization is the “gye,” a social and economic mutual aid association. Gye groups have long existed to provide a host of important services; these include financial assistance in times of need (e.g. around weddings and funerals), regular excursions for friends and families, and organized community-wide events. In one long-term study, time-series data from four selected rural villages tracked a decline in the combined number of social groups, including gye, from 76 in 1986 to 45 in 2002. The number of economically-oriented gye groups offering financial support dropped from 11 to 6. Likewise, the amount of socially-
motivated gye organizations, assisting members with marriages/funerals or providing for gatherings among women shrunk from 55 to 30. Many of the economic functions once handled by the gye groups were replaced by more modern financial institutions, such as banks, while social gye operations have been curtailed by population declines and consequent reductions in collective activity among locals.

As local organizations gradually disintegrate or merge with larger provincial or national social groups, broad community-wide cooperatives, known as Doore, have become increasingly scarce. Poomasi, or local cooperatives limited to just one or two specific tasks (e.g. rice transplanting or harvesting), are now being replaced by machinery or private agricultural businesses offering the same services. Labor shortages and increasing average ages among farmers are also major factors in the rapidly diminishing use of cooperatives.
1.3.2. Expansion of Social Organizations

These various village organizations began to decline as people retired from farming or moved out of rural regions, and they were replaced by larger organizations that represented multiple villages or eup and myeon areas.

In 1990, Farming Association Corporation and Agricultural Corporations were newly established as organization with expertise in farming and management to enhance the efficiency and productivity by expanding the size and scale of farming operations. As of 2008, Farming Association Corporation and Agricultural Corporations numbered 5,075 and 928, respectively.

In the 1960s, the widening income gap between urban and rural regions, and the increased awareness of the relative poverty of rural regions, resulted in the creation of organized farmers’ movements. The Korea Advanced Farmers Association was founded to educate farmers about new techniques and technologies and these associations began to participate in the democratic movement of the 1980s. The Korea Catholic Farmers Association and the Korean Christian Farmers Association were not limited to religious functions’ and began to carry out rural social movements as independent farmers’ organizations. The Korean Advanced Farmers Federation (KAFF, founded in 1987) and the Korean Peasants League (founded in 1990) made up the two political pillars of the farmers’ movement in Korea.

Since the 1990s, organizations were created to resist the liberalization of the agricultural product market, and, in 2000, the rising threat of free trade agreements to rural communities transformed many of these organizations into anti-globalization and anti-market liberalization
movements. As leaders of these movements began to be elected to the national parliament and win key roles in the government, farmers’ organizations became powerful political organizations. These organizations are national entities, with subsidiary organizations in the city, provincial or eup and myeon area levels to coordinate local activities.

Some farmers’ associations have been formed around certain common products, such as fruits or livestock, to allow farmers engaging in similar enterprises to exchange information, carry out political activities, and create joint marketing efforts. These economic interest groups usually transcend the village unit, and operate on the regional or national level. These organizations include the Korea Poultry Association, Korea Swine Association, Korea Dairy Farmers Association, the National Hanwoo Association, Korea Grape Association, and the Korea Floriculture Association.

Another national farmers’ organization is the National Agricultural Cooperative Federation (NACF),” which was initially formed under a three-tiered system for agricultural cooperatives organized at the village, city or county, and national levels. In 1971, the NACF and its member cooperatives were reshaped to become what it is today under a two-tiered system. The NACF operates 16 city and provincial offices and 156 subsidiaries, with a total of 1,181 cooperatives and 2,453,177 members as of 2010. It provides banking and marketing services, the latter of which includes distribution of agricultural products and the supply of farming materials. The organization’s financial support programs for farmers and farming corporations, as well as its other banking services, fall under its financial service arm. It also provides support for the development of information-based rural communities in addition to agricultural consulting, as well as education and training services.
1.4. Changes in Rural Attitudes and Perspectives

Macro-level social changes have significantly influenced rural attitudes and perspectives. Longstanding stereotypes of rural inhabitants include ‘strong devotion to the land,’ ‘great loyalty to family,’ and ‘near blind obedience to traditional customs,’ among others. Consequently, serious concerns were raised by scholars, both during and after the rapid industrialization that took place in the 1970s and 1980s, over ‘pre-modern’ and ‘modern’ worldview distinctions that were assumed to exist among rural people situated under a vortex of change. The rural population did, in fact, extensively adjust their outlook and system of values throughout Korea’s rapid industrialization and urbanization and into the 1970s.

This paradigm shift was not universal however, and the extent to which it took hold was largely based on the socio-economic and physical conditions of each village. A case study of one particular village in close proximity to Seoul (31km away) found an almost total breakdown of traditional rural agrarian order and a highly diversified functional configuration that included farming, manufacturing, and residential living (Moon et al., 1993). Such transformations, in philosophy and lifestyles, are often attributed to the ‘Seoulization Phenomenon’, whereby spatial closeness to Korea’s largest metropolis has a large affect on local culture.

Heo (2001) employs a time-series analysis to estimate mid-term viewpoint changes in four sample villages, which are mountainous, flat, and in-between terrain, as well as suburban ones. In the study, social belief systems are operationally divided into five categories: authoritarianism, collectivism, agrarianism, familism, and folklore. Three data sets were then compiled from surveys administered in 1989, 1994 and 2001, allowing for
a range of comparisons. The study found that both younger and highly educated people tended to be less authoritarian, across villages and years. These same groups were less sympathetic to agrarianism than other segments of society in the 1989 survey but the differences had disappeared by 2001. Family values were universally present and identical among all villages and respondents. Substantial differences did exist though, among remote mountain villages towards collectivism. Older people generally adhered to traditional folk beliefs but these principles are gradually disappearing, even in remote mountain communities, with the disintegration of rural society.

Generally speaking, the ways that the rural residents think or understand about the situations of their family, community, tradition, farming and other things did not change much between the years examined in the study. Heo (2001) attributes this to the fact that many young people were leaving the observed villages and usually not being replaced by new settlers. This one-way migration therefore only left behind aging and aged rural populations that stayed firm in their beliefs and outlooks over the observation period.

The shift in rural residents’ ways of thinking that commenced with the onset of rapid industrialization and lasted through the 1970s and into the 1980s appears to be over and, as long as demographic composition of rural residents do not change substantially, the prevailing values and viewpoints of aging residents will dominate the mindset of rural communities for many years.

However, for some villages, for instance the suburban towns under considerable impacts from big cities and highly-remote rural localities facing total abandonment, further changes will be inevitable following demographic shifts.
1.5. Demographic Diversification

Following the nation’s rapid economic development and industrialization, the formerly traditional rural communities were transformed into aging societies with super-low population densities. A new trend that began in the 1990s is the demographic diversification of rural communities. The rise of international marriages created multicultural households, and people from cities have been returning to rural areas for a wide variety of reasons.

1.5.1. Multicultural Families

As cities began to offer better employment opportunities and living conditions, young people, and especially young women, began to move in large numbers to urban areas. In the late 1980s, the lack of marriage partners in rural areas became a serious social issue, and young male farmers began to marry brides from China, Southeast and Central Asia, and other developing nations. These international marriages have become widespread due to not only the shortage of women in rural communities, but also the changing social attitudes about international marriages. According to a survey titled “Korean Values and Attitudes,” which was conducted by the Public Information Office in 2006, 43.3% of respondents stated that they “will not be against a marriage of their offspring with a foreigner,” while 55.7% of those surveyed said that they “will not be against a marriage of their offspring with a Korean born abroad.”

Comparison of marriages between Korean men and foreign women in cities and rural areas reveals that, in 2009, the total number of international marriages is greater in rural areas (17,846) than in urban areas (6,839). Its ratio to total marriages, however, is bigger in rural areas (12.9%) than in
urban areas (7.2%). Out of 5,640 Korean men who are engaged in the agriculture, forestry and fishing industry and married in 2009, 1,987 men or 35.2% married foreign women. Among Korean men living in rural areas and working in the agriculture, forestry and fishing sector, 38.7% of them married foreign women in 2009 (see Table 5-5). In relation with the nationality of immigrant brides who married Korean farming bachelors in 2009, the Vietnamese occupy the largest portion, followed by Chinese and Cambodian nationalities (See Table 5-6).

### Table 5-5 Marriages between Korean Men and Foreign Women (2009)

<table>
<thead>
<tr>
<th></th>
<th>Number of Marriages (A)</th>
<th>Marriages between Korean Men and Foreign Women</th>
<th>Marriages of Korean Men Engaged in the Agriculture, Forestry and Fishing Industry (C)</th>
<th>Marriages between Korean Men Engaged in the Agriculture, Forestry and Fishing Industry and Foreign Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number(B)</td>
<td>Ratio(B/A)</td>
<td>Number(D)</td>
<td>Ratio(D/C)</td>
</tr>
<tr>
<td>Total*</td>
<td>309,759</td>
<td>25,142</td>
<td>5,640</td>
<td>1,987</td>
</tr>
<tr>
<td>Urban</td>
<td>248,050</td>
<td>17,846</td>
<td>1,295</td>
<td>307</td>
</tr>
<tr>
<td>Rural</td>
<td>52,919</td>
<td>6,839</td>
<td>4,341</td>
<td>1,679</td>
</tr>
</tbody>
</table>

* Marriages made abroad and unknown included.

### Table 5-6 The Number of International Marriages by the Nationality of Foreign Women who Married Korean Men Engaged in the Agriculture, Forestry and Fishery Industry (2009)

<table>
<thead>
<tr>
<th></th>
<th>Vietnam</th>
<th>China</th>
<th>Cambodia</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,987</td>
<td>931(46.9)</td>
<td>523(26.3)</td>
<td>204(10.3)</td>
</tr>
</tbody>
</table>

Multicultural family means a family formed under the marriage between Korean and foreigner. As multicultural families are rapidly increasing in rural villages due to international marriages, their social and cultural adaptation, family stability and inclusion to the Korean society are emerging as social issues. Discrimination and bias against foreign partners and children of multicultural families are highly likely to escalate into a social conflict.

Multicultural families in rural communities are facing conflicts and difficulties in marriage lives, child nursing, family relation and assimilation into their communities due to cultural differences and poor communication. As a result, the number of the families dismantled is rapidly growing. To tackle the problems, the Korean government began to enacted related acts such as Multicultural Families Support Act and take diverse measures.


With regard to multicultural family programs undertaken at the central government level, 7 ministries (Ministry of Health, Welfare and Family Affairs, Ministry of Gender Equality, Ministry of Justice, Ministry of Culture, Sports and Tourism, Ministry of Public Administration and Security, Ministry of Education, Science and Technology, Ministry for
Food, Agriculture, Forestry and Fisheries) executed a total of 22 programs in 2009 (total budget of 44,268 million won). However, the programs led by the central government are disproportionately concentrated in education, significantly lacking activities where marriage migrants play a main role or form social networks. As supporting programs for multicultural families largely focus on adaptation to and inclusion into the Korean society, there is a significant lack of customized policies that take the families’ needs into account. In addition, most of the programs at the central government level target only families with marriage migrants and there are few programs to improve the public awareness about multicultural families. Furthermore, practical measures relevant to the special characteristics of farming and rural communities are significantly insufficient.

Supporting programs undertaken by local governments and private organizations mainly provide Korean language education, the most critical part that female marriage migrants need to learn to adapt to the society. They also cover child nursing and education of Korean culture and living etiquette. Analysis of the programs executed by local governments reveals that, in many cases, local governments apply programs specifically designed for general women or the underprivileged to the supporting programs for marriage migrants, failing to fully grasp their different cultural backgrounds and difficulties that they are confronted in their lives. It also turned out the local governments tend to address the requirements that Korean family members raise, with being ignorant about the issues and demands raised by marriage migrants in relation to the Korean society. In addition, there are few programs that educate female marriage migrants’ husbands, children, other Korean family members and neighbors about their own country’s culture.
1.5.2. Returning to the Farms

Since the 1990s, an increasing number of people are returning to rural areas either to engage in farming or for retirement and residence. These trends are the opposite of the above-mentioned population exodus from rural regions.

Only 7,186 households returned to the countryside between 1990 and 1997, but the foreign exchange crisis of 1997 and the subsequent years of economic restructuring led to a significant flow of people returning to farming. Until 2009, a total of 34,379 households were recorded to have returned to rural regions, including 6,409 households in 1998 alone (see Table 5-7).

While there are many reasons why people move out of urban areas, rural areas have increasingly become retirement destinations. According to the 2000 national census, among those in their 60s and above, 55% of people who moved to rural areas had previously lived in Seoul or other large metropolitan areas, compared to 47% of all age groups. Recently, in addition, people are increasingly choosing to return to rural communities based on their voluntary choice. They are mostly in their 30s~40s and move to rural areas as they value ecological lifestyle.

<table>
<thead>
<tr>
<th>Year</th>
<th>'90~'97</th>
<th>'98</th>
<th>'99</th>
<th>'00</th>
<th>'01</th>
<th>'02</th>
<th>'03</th>
<th>'04</th>
<th>'05</th>
<th>'06</th>
<th>'07</th>
<th>'08</th>
<th>'09</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Household</td>
<td>7,186</td>
<td>6,409</td>
<td>4,118</td>
<td>1,154</td>
<td>880</td>
<td>769</td>
<td>885</td>
<td>1,302</td>
<td>1,240</td>
<td>1,754</td>
<td>2,384</td>
<td>2,218</td>
<td>4,080</td>
</tr>
<tr>
<td>Total</td>
<td>7,186</td>
<td>13,595</td>
<td>17,713</td>
<td>18,867</td>
<td>19,747</td>
<td>20,516</td>
<td>21,401</td>
<td>22,703</td>
<td>23,943</td>
<td>25,697</td>
<td>28,081</td>
<td>30,299</td>
<td>34,379</td>
</tr>
</tbody>
</table>

Source: Kim, Heung-Ju(2010) and General Return Farm Center(2010).
1.6. Outlook and Issues

As the agricultural population falls, the actual rural population is falling at a less alarming rate. Eup areas have been experiencing actual population increases, and the increase in international marriages and the movement of urban residents back to rural areas will continue to apply significant changes to the demographic makeup of rural communities. As the rural population continues to age, the farms which grow into medium-to-large agricultural businesses in the process of agricultural sector restructuring will come to dominate the market. At the same time, small-to-medium farms run by old farmers will remain in the sector for a significant period of time. Accordingly, single or single-generation households comprised of the elderly will increase. As depopulation leads village-level social groups and organizations to disappear, newly emerged social groups and organizations that play multiple roles will continue their roles. In addition, economic interest groups for agriculture cooperation in production, shipping and sales are predicted to become increasingly important as farmers make efforts to boost the rural community and agricultural economy.
Section 2. Regional Development

Subsequent to the end of the Korean War in 1953, Korea was one of the world’s least developed countries for over 10 years. Today, however, the nation is making its way into the group of industrialized countries with its per capita income exceeding $20,000 in 2010. During a short period of time, Korea has undergone a drastic change politically, economically and socially that has been unprecedented anywhere else in the world. From an industrial perspective, it was able to transformed itself from an agrarian society to a leading manufacturing country in the world. In terms of population density, however, urbanization has progressed rapidly to accelerate the concentration of Korea’s population around the metropolitan area. During this process, various problems transpired for the farming industry and rural areas of the country, precipitating a diverse range of rural development policies by the government in its response.

The Korean government has strived to develop rural areas beginning with the local community development movements of the 1960s. The Saemaeul Undong (new village movement), widely cited as the model for rural development in underdeveloped countries, began in the 1970s, and the increased government budget in the 1980s and 1990s enabled the central government to develop the roads, communications, and water resources of rural regions, and to reorganize educational, medical and welfare systems. In the new millennium (the 2000s), the government began to focus on enhancing the amenity functions of local areas, boosting the environmental protection, and emphasizing the agricultural role for the preservation of the national land.

Thanks to these efforts, Korea’s rural regions have experienced
significant reorganization in the past 40 years. Electricity reached every Korean rural village in the late 1980s. In 2000, 29% of all farm houses in Korea were completely modernized, and 25% had renovations of kitchens, bathrooms, and others. Village roads were newly paved, enabling automobiles to reach most remote rural villages. Medical services were improved through a system of public clinics. Special welfare systems for rural residents were established in the late 1990s, with the government supporting national pension payments partially and providing medical insurance support for farmers and fishermen. In this decade, exchanges between rural and urban regions began to increase rapidly, and many rural villages were able to increase their income through the rural tourism based on farms, natural resources and amenities a rural areas.

Despite these policy accomplishments, however, rural populations continue to decline and the overall conditions in rural communities have continued to worsen. Rural areas are expected to decline further due to the pressures of globalization and urbanization.

2.1. Overview of Korea’s Rural Areas

Before determining the development status of Korea’s rural regions, let us first examine the current conditions of Korea’s rural areas. Korea has a high population density, with a population of 50 million people living in only 9,848 ha for a population density of 485 people/km² one of the highest in the world (Korea’s population density is highest among OECD nations). Nearly 70% of the nation is made up of mountains, increasing the population pressure in the little available usable land.

Like many countries around the world, the division between urban and rural areas is not clear in Korea. For the sake of convenience, the
administrative designations of cities and rural areas are used. In the past, cities (Si) were classified as urban areas and counties (Gun) as rural, but the integration of central cities and surrounding rural regions that began in the early 1990s made such designations obsolete. Many areas are included in cities but still exhibit the characteristics of rural regions. Today, “Dong” districts are termed urban areas while “Eup” and “Myeon” districts are classified as rural areas.

Using this system of classification, Korea’s rural population has continued to decline, numbering 8,764,000 in 2005 or 18.5% of the total population. Urban populations have increased to 81.5% of the total population.

In addition to the disparities between urban and rural regions, the gap between rural regions has widened as well, especially between rural regions
near the Seoul metropolitan area and the southeastern industrial belt of the nation, and all other rural regions. This structure is called an “X” structure. While the populations of rural areas near the large cities have increased due to better job opportunities, cities and rural regions distant from the major population and industrial centers have seen their populations steadily decline.

The aging of the rural population is accelerating. In Myeon districts, the population of elders aged 65 or older has already exceeded 20% or the threshold of a post-aging society. Among the 1,208 Myeon districts in the nation in 2005, 991, or 82% of the total, had a population of elders exceeding 20%.

The rural industrial structure is also changing. The number of people with an occupation in the fields of agriculture, forestry or fisheries has declined, while more people are getting “professional” or corporate jobs.

<table>
<thead>
<tr>
<th>Table 5-8</th>
<th>Trend of Rural Population by Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationwide</td>
<td>43,411</td>
</tr>
<tr>
<td>Dong (urban)</td>
<td>32,309</td>
</tr>
<tr>
<td>Eup/Myeon (rural)</td>
<td>11,102</td>
</tr>
<tr>
<td>- Eup</td>
<td>3,604</td>
</tr>
<tr>
<td>- Myeon</td>
<td>7,498</td>
</tr>
<tr>
<td>Percentage of Eup and Myeon population</td>
<td>25.6</td>
</tr>
</tbody>
</table>
Figure 5-5  Eup and Myeon Districts with Increasing Population

Figure 5-6  Eup and Myeon Districts with Post-Aging Population

- Red: Eup & Myeon with increasing population
- Black: Eup & Myeon with over 30% elders (aged 65 or more)
- Dark Red: Eup & Myeon with over 20% elders (aged 65 or more)
Although Korea has traditionally had strong central governments, a system of regional autonomous governments was adopted in 1995. The residents of 15 metropolitan governments, 77 cities (Si) and 88 counties (Gun), and 69 autonomous districts elect the heads of each administrative government and regional parliamentary representatives every four years. Politically, Korea has been transformed from a centralized system into a decentralized system. However, the financial independence of regional governments is low, and the central government controls regional governments through fiscal support. For example, the Ministry for Food, Agriculture, Forestry and Fisheries can steer the policy of regional autonomous governments through agricultural and rural development funds. Thus, the rural regions of Korea are being changed by the central government’s agricultural development policy.

<table>
<thead>
<tr>
<th>Classification</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislative civil servants, high-ranking executives and managers</td>
<td>1.5</td>
<td>2.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Professionals</td>
<td>2.3</td>
<td>4.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Technicians and semi-professionals</td>
<td>4.7</td>
<td>3.1</td>
<td>4.5</td>
</tr>
<tr>
<td>Office workers</td>
<td>5.6</td>
<td>7.5</td>
<td>8.8</td>
</tr>
<tr>
<td>Service and retail</td>
<td>11.5</td>
<td>14.2</td>
<td>13.9</td>
</tr>
<tr>
<td>Skilled agricultural and fishery workers</td>
<td>53.1</td>
<td>45.9</td>
<td>41.8</td>
</tr>
<tr>
<td>Technical workers</td>
<td>7.7</td>
<td>6.5</td>
<td>7.3</td>
</tr>
<tr>
<td>Machinery, assembly and manufacturing workers</td>
<td>8.4</td>
<td>9.1</td>
<td>10.8</td>
</tr>
<tr>
<td>Simple labors</td>
<td>4.6</td>
<td>6.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Others</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: National Statistics Offices, annual census information.
2.2. Changes in Korea’s Rural Development Policy

2.2.1. Rural Development in Traditional Times and the Occupation Period

In Korean society, rural areas traditionally meant “regions where farmers (or peasants in traditional times) live and engage in agriculture as their primary business.” In this type of society, rural communities determined their own survival strategies and solved problems and issues facing them. Organizations such as the “Daedonggye” managed joint village funds, formed budgets and made reports on closing accounts. The community organization took care of ceremonial tasks, determined wages, established labor pools for the maintenance of village facilities and the construction of new buildings and farming structures, and maintained the waterways and streams vital to agricultural enterprises. Saemaeul Undong was made possible because of the existence of these traditional communal organizations.

The first government-led rural development initiative was the five-year “rural and mountainous region development movement” that began in 1933 under the Japanese occupation of Korea. This movement aimed to increase the food production of farming households, relieve debt burdens, establish balanced cash income, improve living conditions, and establish communal village facilities. A rural development committee was established in the Japanese governor-general’s office under a vertical development system in which subsidiary committees are organized in each one of the Do (province), Gun (county), Eup and Myeon districts to conduct and supervise development operations. This movement was not created according to the wishes of the rural inhabitants but to the ideologies of the colonial rule of Korea by Japan.
2.2.2. Local Community Development Movements of the 1960s and the Saemaeul Undong of the 1970s

Following the turbulent periods of Korea’s liberation from Japanese colonial rule, the creation of a new republic, and the destructive Korean War, Korean society began to stabilize and made rural development initiatives. The community development movement that began in the late 1950s and continued into the next decade was an example of how the rural development models created by the United Nations and the International Cooperation Administration (ICA) were applied to foster the growth of rural regions in developing countries. In 1955, the Korea-U.S. Joint Economic Committee proposed the establishment of local community development projects to rebuild rural regions devastated by the Korean War. These proposals were transformed into national projects in 1958. In these movements, the central government provided the funding and technology for the development projects created by local communities and leaders. The local initiatives were divided into self-funded projects established by the community and its leaders, and outside-funded projects. The community development movements of the 1960s provided a strategic model for the Saemaeul Undong of the 1970s.
The five-year economic development plan that began in 1962 was focused on the growth of the industrial and manufacturing sector, which exacerbated the already significant disparities between urban and rural regions. Rural populations began to decline after 1968, and dissatisfaction among rural dwellers became a political issue. In urban centers, the inflow of people from rural regions placed severe strains on the housing, sewage and education infrastructure. The government needed to create a program to enable rural residents to engage in agriculture and to remain in rural regions. The important issues being faced by policy-makers during this period included the enhancement of rural incomes, reorganization of deficient roads, housing, sewage and water supply, green roads, farmland, streams and production infrastructure, and the preparation of sufficient social overhead capital for rural regions.

In addition, the economic development policies focusing on building manufacturing industries and expanding exports were severely hampered by the worldwide recession that began in the late 1960s, and the government saw the need to increase domestic demand and promote public investment to boost the economy. Saemaeul Undong was created to address this need for increased public investment by the government.

Saemaeul Undong can be characterized as a rural development strategy that is built upon traditional village cooperative organizations to apply the experiences gained from the local development projects of the 1960s, combining the strong leadership of the central government (top-down strategy) with traditional independent development initiatives of village organizations (bottom-up strategy). Saemaeul Undong was a large-scale general development project that aimed to reorganize village roads, bridges and pathways, introduce cash crops, develop Saemaeul factories and other
income-generating projects, and enhance the awareness and education of village residents. Successful villages received additional support as an incentive for other villages to learn from the achievements of model villages.

According to the reports published by the Ministry of Interior (currently the Ministry of Public Administration and Security) that oversaw Saemaeul Undong, a total of 5,258 billion won was invested in Saemaeul Undong from 1971 to 1982. The government provided 51% of these funds, while local residents contributed 49%, mainly in the form of labor, land and other assets. The fact that local residents bore half of development costs indicates the levels of local participation and leadership in Saemaeul Undong.

Saemaeul Undong transformed the rural villages greatly. Thatched roofs, which had long been the characteristic of Korean villages, were transformed into slate roofs. Bridges were built over village streams, and roads were expanded and paved with cement. The narrow roads in villages that even a handcart was unable to pass were expanded. Every village in the nation constructed a Saemaeul village hall. Within ten years, the Korean rural villages became almost unrecognizable.

2.2.3. Rural Development Led by the Central Government (1980-1990s)

The importance of the agricultural industry in the national economy began to fade in the 1980s. The production share of agricultural, forestry and fishery industries, which accounted for 13.5% of the nation’s total production in 1980, fell to 7.6% in 1990. The proportion of workers in the industries fell from 32.3% in 1980 to 17.1% in 1990. The number of people engaged in agriculture likewise fell from 10,827,000 (28.4%) in 1980 to 6,661,000 (15.5%) in 1990. Farm income also worsened. Agricultural
product prices began to fall as the government began to abolish purchasing programs, thereby reducing the farm income levels. Low-interest loans for farmers disappeared with the effect of increasing their debt burdens. The statistics compiled between 1980 and 1986 show that while farm income rose by 220%, spending rose by 230% and debts by a whopping 660%.

On the other hand, government tax receipts grew significantly during the 1960s and 70s due to the nation’s rapid economic development. The national budget rose from 8.6 billion won in 1970 to over 10 trillion won in 1980 and to 38 trillion won in 1990.

As the people began to demand the government to fix the ills of the rural regions, and as the government began to increase its revenues dramatically, the Korean government prepared a number of measures for the agricultural industry and rural regions, including the Rural and Fishing Village Development Plan of 1986, the Debt Relief Plan for Farming and Fishing Households of 1987, the Special Debt Relief Plan of 1989, and the Rural Community Development Plan of 1989. Farm policy became an increasingly important part of the government’s agenda. However, few results materialized from these programs despite considerable investments by the central government. As a result, the government began to allocate more resources and formulated a variety of different plans and projects for rural development.

The major goals of the government’s rural development projects during this era were to improve the living conditions in rural regions through the physical reorganization of rural infrastructure and to increase the rural income through the creation of off-farm and non-farm activities. The improvement of living conditions in rural regions was focused on improving the rural infrastructure, such as roads, communication networks,
and waterways, and creating new facilities for education and medical services. Rural Industrial Complexes were created and factories were moved to rural areas to provide new jobs and additional non-farm income to rural residents, expand food processing businesses, and develop unique local products.

Several new programs were developed to reach these policy goals. Special Tax Law for Rural Area created a fund of 15 trillion won for rural development, providing a stable financial base. A variety of development laws and regulations like Special Law for Agriculture and Rural Development provided the legal framework for development. In the process of implementing the rural development projects, however, there were many instances where several central agencies often competed with each other for similar projects. For example, the Ministry of Interior (currently the Ministry of Public Administration and Security) created Rural Village Improvement Project (for the reorganization of existing villages), Small Town Development Project, Stream Improvement Project, and Island Development Project, while the Ministry for Food, Agriculture, Forestry and Fisheries began to pursue similar projects such as the New Village Construction Project, Myeon District Improvement Project, Rural Living Condition Improvement Project, and Green Road Paving Program.

All in all, such efforts by the central government led to significant improvements in the living conditions of rural villages. Electricity reached every rural village by the late 1980s, and 29% of rural houses were completely renovated by 2000 while 25% had their kitchens and bathrooms modernized. Around 27% of rural roads have been paved, and most villages were linked by paved roads to enable automobiles to reach almost every village in Korea.
Water supply service reached 40% of all households, and the garbage is processed mostly by the local authorities. Community centers and “elders’ halls” were constructed in every village in the nation.

Rural medical services were greatly improved. Public health facilities in the form of clinics (one per regional self-government), clinic branches (one per Eup or Myeon) and clinic outposts were established. Outdated medical equipment was replaced with modern appliances. Doctors for traditional Eastern medicine, as well as dentists, were assigned to clinics to expand the scope of medical services. Home visits were organized for the disabled or seniors living alone.

The special welfare system for rural residents began to get its shape since the late 1990s. The government provided a partial support for the national pension payments of rural residents (2,200 won per month in 1997), and national health insurance costs were reduced for residents in farming and fishing villages (15% in 1998).

Rural Industrial Complexes, which first appeared in 1984, expanded to 295 locations in 2000, with approximately 4,700 factories providing 86,000 new jobs in rural areas. With 24% of these jobs held by members of farming households, the Rural Industrial Complexes significantly increased the non-farm income of rural households.

The government’s rural development policies, which have been pursued in earnest since the 1980s, produced significant achievements; however, there were a number of problems as well. First, as rural projects began to increasingly fall under the oversight of government administrators and less under the control of local residents, top-down programs began to foster distrust of the government among local residents. Second, the use of public funds for every project resulted in lower returns compared to the
amounts invested. For example, during the Saemaeul Undong the government provided cement and steel while the villages provided the labor and land, resulting in significant results with the use of minimal resources. However, the development projects entirely funded by the government turned out to be less efficient. Lastly, the government programs eradicated much of the individual characteristics of farming villages, creating uniform rural towns with same types of roads, facilities and houses, without taking into account the uniqueness of each village and region during the development process.

2.2.4. Expansion of Rural Development Policies after 2000

The role of the agricultural, forestry and fishery industries became even less significant in the national economy in the new millennium. The production of the industries fell from 7.6% of total production in 1990 to 4.6% in 2000 and 2.9% in 2005. The percentage of jobs in the industries fell from 17.1% of national total employment in 1990 to 10.9% in 2000 and 7.9% in 2005. The farming population fell from 15.5% in 1990 to 8.5% in 2000 and 7.1% in 2005.

This resulted in a vicious cycle as problems in rural regions developed unchecked. As pointed out above, rural populations continue to decline and become older. The falling population in rural regions left public facilities unused and rural centers dysfunctional. Elementary schools in rural regions began to be closed, or were merged together due to the lack of students. While each Myeon had approximately three elementary schools in 1960, most Myeon districts in 2000 had a single elementary school. The fall in rural population also made private medical facilities in rural regions less viable, and over 90% of the nation’s medical facilities are concentrated in
urban centers today.

The direction of rural policy began to change in this decade. While restructuring of the agricultural industry still remains the paramount goal of agricultural policy, consumer safety, product quality enhancement, and the expansion of environmentally-friendly agricultural products and their distribution have become important policy goals today. In addition, the income and welfare of rural residents, as well as regional development policies, began to be emphasized. The top-down programs operated by the central government were replaced with mutually-cooperative projects involving producers, local residents, consumers and local governments, which led to changing strategies and methods for government agricultural policies.

The most significant feature of rural development policy after 2000 is the inclusion of a number of policies aimed at enhancing the public functions of agriculture and rural areas. As the awareness of environmental issues becomes more widespread, these new policies were developed to preserve the amenity functions of rural regions, protect the natural environment, and emphasize the role of agriculture in the preservation of the national land. The policies that had concentrated on increasing convenience have shifted to ensuring the protection of the environment. For example, the government provides direct payments to protect scenic areas from development.

New policies have also begun to include not only rural residents but also urban residents in their scope as well. Since limiting policies to rural residents makes the vision and goal of these policies less clear, efforts are being made to find the future of Korea’s rural regions in their relationships with urban residents. For example, residents outside the local areas where
the government-funded “cultural village” construction projects were underway were largely prohibited from participating in the projects. However, such restrictions were lifted in 2000. Moreover, other programs have aimed to increase exchanges between urban and rural residents, create garden villages, and provide tax incentives and farming permits to urban residents wishing to create weekend homes and farms.

Another significant change is the involvement of local residents in the formulation of new policies. Policy makers began to realize the futility of pouring funds into regions with little development potential and the benefits of selection and concentration for more effective use of funds. This awareness, thus, replaced the top-down and arbitrary selection of development targets by the central government with a selection process involving an accurate study and evaluation of regions with high degrees of development potential and local residents’ participation. Since 2004, Comprehensive Rural Village Development Project, Green and Rural Village Experience Project, Small Town Development Project, Myeon-district Improvement Project, and Revitalization Project were created through the use of these open policy formulation methods.

The central government also began to take a step back in the operation of development projects, providing block grants to local authorities who then could concentrate on running the programs by themselves. In 2003, the administration of President Roh Moo-hyun emphasized the need for balanced national development and the decentralization of power, and strengthened the efforts towards more rural autonomy in agricultural development projects.

The new agricultural development projects established after 2000 include village-level tourism development projects, urban and rural
exchange campaigns (one company-one village and one school-one village sisterhood campaigns), local asset development project, and the resettlement of urban residents in rural areas. Several new programs were created to improve the welfare of rural residents, which include scholarships and financial aid for the children of rural residents, special entrance standards for rural students, and student loan programs for university students hailing from rural regions. Medical facilities and clinics received new and improved equipment, and health management programs for rural residents were created to address their medical needs. Other welfare programs provided support for the national pension payments of agricultural and rural workers, created new pensions for seniors, reduced national health insurance payments, and established welfare aid payment programs for low-income families. Special programs were created to serve the needs of women and elders in rural regions as well.

The “Special Act on the Improvement of the Quality of Life of Rural Residence and the Promotion of Rural Regional Development” was created in 2004 to provide the outline of projects and methods to be employed by the government in the four key policy areas of “rural welfare foundation,” “improvement of education environment,” “acceleration of regional development,” and “revitalization of complex industries.” This new law
prepared the framework for future rural development projects, and a long-term plan for the development of the agricultural industry and rural areas, as well as investment plans, for the next decade, were established in 2004 to enable the continuation of government development projects.

With the incoming of the new administration in 2007, two major changes were made in the government’s rural policy. One was the emphasis on green growth strategy in line with the new government’s policy framework. An example is the promotion of use of new renewable energy in residential land redevelopments. The other major change in the government’s rural policy was the strengthened power of local governments in the process of conducting rural policies. Such change was manifested through the block grant system, which integrated diverse rural development projects that were previously pursued by the central government in the past into a small number of block grant programs. Under the new system, the central government’s role was limited to providing block grants, while decisions regarding detailed programs were handed over to local governments.

2.3. Changes and Outlook for Korea’s Rural Regions

Since the 1960s, the Korean government has pursued a variety of policies to promote rural development. While it is undeniable that these policies have improved the living conditions of rural areas and enhanced the welfare of rural residents, rural living conditions in Korea have on the whole worsened compare to urban living conditions. The continuing fall in the rural population attests to this fact. This is not due to the results of a failed policy, but the negative effects of industrialization, globalization and urbanization on rural areas. These trends, moreover, are expected to continue.
However, most observers agree that the decline of rural areas in Korea is not a limited problem of rural areas and residents, but an issue that affects the national development negatively as a whole. The government will continue to provide policy support for rural development. Future policies, however, will take on a different flavor.

Korea has developed at a pace unprecedented in the history of modern industrialization. Korea’s information technology leads the world. The nation’s society is rapidly aging. The new high-speed transportation infrastructure has made the small country be more closely connected. Korea may slowly turn into a city-state around the megapolis of Seoul.

The decline of agriculture and the concentration of the national population in the Seoul metropolitan region will continue to threaten the development of rural regions. However, the advancement of the information society, increasing retirement of a new generation of seniors free from family obligations, and the creation of new transportation infrastructure will bring new opportunities to the rural regions of Korea. Amidst these new changes, Korea’s rural areas will transform into prime residential areas as well as retirement and leisure destinations. Rural communities will become increasingly diversified, as people move into the countryside to escape the housing pressures of the city, return to farming, or spend their weekends in the country.

Korea’s future rural policy will have to focus on utilizing information and communication technologies to improve the lives of rural residents, enable rural resources to create new sources of income, and allow the increasingly diversifying rural populations to feel pride in the strengths of their communities. These efforts are still in their early stages, and additional policy efforts will be required to achieve these goals.
Chapter 6
Agricultural Policy

1. Overview of Korea’s Agricultural Policy
2. Agricultural Budget, Investments and Loans
Chapter 6. Agricultural Policy

Section 1. Overview of Korea’s Agricultural Policy

The end of the Second World War released Korea from the colonial rule of Japan. However, a conflict of ideology created two separate governments, in the north and the south. Three years of a destructive war propelled Korea to the forefront of the global Cold War. Since then, North and South Korea began to follow separate political, economic and social paths, and the division of the country became entrenched. The following section will provide an overview of the agricultural policy of the Republic of Korea.

Korea’s agricultural policy has faced significant changes over the course of the nation’s modern history. The nation was a largely agrarian economy prior to industrialization (from the creation of the republic to the 1950s). Agriculture had to provide food and jobs to the population, but weak production capabilities resulted in food aid from the United States. During the industrialization period (up to the mid-1980s), the agricultural sector provided inexpensive labor for the development of the manufacturing industry, and began to achieve self-sufficiency in the national food supply through the Green Revolution. The Saemaeul Undong also focused on the development of rural regions.

The period after the mid-1980s is characterized as the era of globalization. The Korean economy became increasingly integrated into the international trend of market liberalization, and the agricultural sector had to adapt to the international standards. The government has initiated a number of agricultural policy reforms, reorganizing laws and policies for
the market orientation of the agriculture.

1.1. Agricultural Policy Before Industrialization (1950s)

1.1.1. Creation of Owner Farming Through Land Reform

After the end of the Japanese occupation in 1945, the Korean economy was centered on agriculture. Any industrialization that took place during the colonial period collapsed with the fall of the Japanese empire, and any remaining industrial infrastructure was laid in the north. Korea was a typical agrarian society, with over 80% of the total population engaged in farming.

At the time of independence, the agricultural industry was comprised of small farms that leased plots from large landowners. Nearly two-thirds of South Korean farmland were tenancies. Around a half of all farm households owned no land of their own, and 85% of total farm households farmed small or large plots of land leased from landowners. The majority of these plots were less than 1 hectare in area, and low productivity and high rent prevented these farmers from growing enough to even feed their own families.

Thus, one of the most pressing issues of the newly established government was land reform, which could provide stability to the nation’s largest demographic group and enhance the productivity of agriculture.

The revised constitution of Korea included the clause “distribution of land to farmers,” finalizing the government’s decision to start land reform. The Land Reform Act was promulgated in June of 1949, and land reform began in the spring of 1950. Lands exceeding three hectares per household or plots uncultivated by the owner were subjected to distribution, and the government compulsorily purchased these plots and distributed them at cost to small farms and agricultural laborers.
A total of 585,000 hectares of land were distributed through the land reform, amounting to 40% of total distributed farmland. Over 60% of South Korea’s farmland, which included the 713,000 hectares of land sold by landowners before and after the start of the land reform, was transferred to farmers.

The land reform created an independent owner farming system, which provided the minimum safety net for the rural economy. The children of farmers were capable of receiving a public education, and the labor supply thus created became the backbone for the development of the Korean economy. The eradication of the landowning class also removed a barrier preventing the proper development of capitalism in Korea.

1.1.2. Food Shortages and the Aid through PL 480

The productivity of Korean agriculture in the 1950s was extremely low. The production of food crops was one-fourth to one-third level of today, and rice, the highest-yielding crop, only produced around 1.6 tons per hectare. The low productivity was the result of insufficient technology, lack of infrastructure, and shortages of fertilizers, pesticides and farm equipment.

The Korean War lasted for three years and exacerbated the food supply problem. Thus, the focus of national agricultural policy during this period was the creation of national grain stores and addressing the food shortage. The government created a grain purchasing system and food production expansion programs, and turned to the United States for food aid. Between 1956 and 1964, a large amount of food aid flowed into Korea under the United States PL (Public Law) 480 and the Mutual Security Act (MSA), accounting for 5% to 23% of total national grain production.
The aid from the United States helped to solve the severe food shortage in Korea. However, this aid also had the negative effect of depressing grain prices and reducing farm income, and is sometimes considered to have damaged the long-term grain production of Korea. Wheat crops, which had little price competitiveness, disappeared gradually, and Korea had to rely on imports when the American aid ended.

1.2. Agricultural Policy During the Industrialization Period

1.2.1. Expansion of Grain Production

The coup d'état in 1961 established a military dictatorship in Korea. The government attempted to acquire the support of the people and justify its seizure of power through economic development. However, more immediate issues of the people’s welfare had to be addressed first. In 1961, the government utilized public funds to remove part of the high-interest loan system that had plagued farmers with interest rates of over 50%, and created the “Act of the Agricultural Product Price Maintenance” to guarantee the coverage of the production cost of agricultural products.

A national agricultural cooperative organization was created in August of 1961 by merging the Agricultural Bank and agricultural cooperatives. While this merger boosted the activities of agricultural cooperatives and created new financial services, some experts point out that agricultural cooperatives became just another agency controlled by the central government. Moreover, the temporary legislation in 1962 enabled the government to appoint every leader of the cooperative organization, from local heads to the chairman of the national federation. Farmers began to consider the agricultural cooperatives as a government agency rather than a
volunteer cooperative organization made up of individual farmers. The Rural Development Administration was founded in 1962, and provincial, city and county organizations were reorganized to create a system for agricultural education and lifestyle improvement.

The “First 5-Year Economic Development Plan,” which began in 1962, was the first comprehensive economic development plan in the history of the nation. This program and subsequent initiatives enabled Korea to achieve rapid economic growth during the next 30 years and modernize the nation.

The main agricultural goal of the “First 5-Year Economic Development Plan” was food self-sufficiency through the expansion of agricultural production. Specific plans included land reclamation and re-cultivation projects, land planning and improvement of irrigation systems, and research and training programs for increasing agricultural productivity.

In the “Second 5-Year Economic Development Plan” that began in 1967, “boosting of the farmer’s income” and “the parallel development of agriculture and other industries for the modernization of rural regions” were added to the goals of national agricultural policy. Comprehensive large-scale development projects were begun to increase food production, while the high price policy for rice and the dual price system for barley were created to keep prices stable. The parallel development of agricultural and other industrial foundations was an attempt to process agricultural products at the place of origin and supply them to markets in Korea and abroad, but did not produce sufficient results.

The national economy grew by an average of 10% through the duration of the two 5-year plans. However, uneven development that focused on industrialization left deep gaps between agriculture and other
industries, and rural and urban regions. People began to stream out of rural areas, and the population of rural regions began to fall from a height of 16 million (53% of total population) in 1967.

### 1.2.2. Green Revolution and Saemaeul Undong

Rapid economic development and the deepening rift between urban and rural regions shifted the focus of economic development programs to more equal and stable development. A variety of policies were created to shift some of the economic power created by rapid industrialization into the agricultural and fishery sector to achieve more balanced development, but expanding food production was still the main policy goal. The government began several comprehensive large-scale agricultural development projects, and developed and supplied the “Tongil Rice,” an improved variety of rice with high yields, pushed the mechanization of farm work and adopted the price support policy.

The “Tongil (reunification) Rice” was developed through a partnership with the International Rice Research Institute (IRRI) in 1971, and greatly expanded rice production in the country. New farming technologies, including protected nurseries, early-planting culture, and strong pest control greatly contributed to the expansion of rice production, which increased from 3.5 million tons in 1960 to over 5 million tons in the late 1970s. Korea was able to achieve rice self-sufficiency, and the Green Revolution was a success.

The Saemaeul Undong (New Village Development Movement), which was begun in 1970 by President Park Chung-Hee, greatly influenced rural communities. The Saemaeul Undong emphasized diligence, self-reliance and cooperation, and began with programs to improve the village
Agriculture in Korea

The government provided cement and steel bars to villages, and farmers in turn provided labor free of charge. In this way, they paved access roads to their villages, expanded in-village roads, changed grass roofs to slate or tile roofs, built village centers, and maintained small streams.

The Saemaeul Undong stimulated the rural population’s desire to better their lives, and resulted in improving the external features of farming villages as well as rural income. However, as the government continued to exert control over the program, some observers began to criticize the heavy-handed program that emphasized results more than the wishes of the local people. However, the program nevertheless won the participation of rural villages, and has become a model for rural reforms. Developing nations continue to show interest in the Saemaeul Undong even to this day.

1.2.3. Expanding Nonfarm Income

Rapid growth in the non-agriculture sector continued in the 1980s, and the gap between the agricultural sector and the rest of the economy increased further. While the entire economy grew by an annual average of 8.4% from 1977 to 1988, growth in the agricultural sector remained at around 1.0%. Agriculture’s share of GDP fell from 24.8% to 10.5% during the same period. The focus of national economic policy began to shift from rapid growth to steady growth, and from government-led market protectionism to market liberalization led by the private sector.

Agricultural policy also began to shift away from grain self-sufficiency. Policies for increasing the agricultural income through increased production and price support structures were shifted towards the promotion of cash crops and non-agricultural income. Industrial complexes
began to appear in rural areas, and the production of vegetables and livestock products began to increase.

The government’s price stability policies kept agricultural prices low. The price of rice, which had increased significantly during the 1970s, remained stagnant or rose by very small amounts in the 1980s. The dual price system also kept the price of rice low, thus increasing the government’s deficit. The Korean government was forced to lower purchasing prices and increase release prices in order to relieve the financial burden on the dual price system.

The government’s price stability policies led to rising imports of agricultural products. The government or its agents controlled food imports until the late 1980s based on domestic demand. Major imports included beef, the demand for which in the domestic market was rising, and chili peppers, garlic, onions and sesame seeds, whose production had plummeted following a poor harvest.

As agricultural product prices were artificially depressed and imports began to rise, the farm economy began to suffer. The government recognized that boosting farm income through agricultural income alone was insufficient, and began to create small industrial complexes in agricultural regions to increase non-farm income. A total of 122 agro-industrial complexes were formed from 1984 to 1988, but failed to produce any meaningful results.

Economic conditions in rural regions began to worsen and farm debt began to pile up, which became a major social issue in the late 1980s. The government had to create a number of debt-relief policies to address this problem.

These policies included measures to expand the agricultural and non-
agricultural income of farm households, provisions for debt relief, and programs to improve the living conditions in rural regions. While these measures were the first development plans that tried to address the lagging development of the agricultural sector, they were limited by a focus on debt relief and non-agricultural sources of income, rather than the fundamental improvement of agricultural competitiveness.

1.3. Agricultural Policy in the Age of Globalization

1.3.1. Liberalization of Agricultural Imports

As the Uruguay Round of trade talks that began in 1986 took a hard line, there was increasing pressure from food exporters, including the United States, for Korea to open its doors to food imports. Thus, Korea announced the “Three-year Plan for the Import Liberalization of Agricultural and Fishery Products” in 1989. This plan created provisions to liberalize the import of 243 food items between 1989 and 1991, increasing the market’s liberalization rate to 88.5%.

Korea also graduated from Section 18, clause (b), the BOP clause, of the GATT that had allowed the country to protect its market from imports to maintain the trade balance, which in turn made the nation unable to limit the import of agricultural products. However, Korea received a grace period of eight years to gradually open its doors to 273 products. In 1991, a
total of 131 items were selected for import liberalization during 1992-1994.

In 1989, the United States, Australia and New Zealand brought suit under the GATT to open Korea’s beef imports that had ceased in 1984 following a beef price slump. The GATT panel advised bilateral negotiations on lifting import restrictions and determining the amount of imports. After a series of bilateral negotiations with each of the three countries in 1990, Korea announced that the beef import quota will be increased gradually.

The period from the late 1980s to the early 1990s was a period of increasing liberalization of the Korean agricultural market. As a result, agricultural policy was tailored to address new issues created by these developments.

1.3.2. Agricultural Restructuring Policies

As agricultural product imports began to increase, the government announced a series of agricultural policies in response, including the “Agricultural and Rural Structure Improvement Measures” announced in July of 1991. This policy created the framework for a total of 42 trillion won in investments for 10 years, from 1992 to 2001, to improve living conditions in rural areas and increase agricultural competitiveness.

However, restructuring did not begin in earnest until the conclusion of the Uruguay Round Agreement on Agriculture in 1994. The tariffification
without exception clause was eventually passed, and the agreement opened
the nation’s doors to every agricultural product with the exception of rice.
The main crop of Korean agriculture was protected from imports for ten
years, and Korea was able to receive some reprieve from total liberalization
by receiving the status of a developing country.

In February of 1994, the government established the “Agricultural and
Rural Development Committee,” composed of 30 civilian experts, to
respond to the changes brought on by the UR Agreement. This committee
submitted a report to the president in May of the same year, which the
government drew upon to create a development plan that included the
rearrangement of production infrastructure, modernization of production
and distribution facilities, fostering of farm successors, expansion of
specialized farms, improvements in rural living environment, and the
expansion of welfare infrastructure. A new “Special Rural Development
Tax” was established in 1994, enabling the investment of 1.5 trillion won
each year for 10 years to achieve these goals. The special tax was extended
for a second 10-year period in 2004.

The major feature of Korea’s agricultural policy during this period
was the creation of government policies for a wide array of issues
including production, agricultural development and welfare. The focus of
agricultural policy was the expansion of farms to increase competitiveness
and the fostering of highly capable human resources. These policies
injected a stupendous amount of capital into the agricultural industry, but
produced few results. Agricultural growth, which had remained in the
negatives in the late 1980s, increased to 1~3% in the 1990s. Despite this
growth, food self-sufficiency continued to fall, from 43.1% in 1990 to
26.7% in 1996.
1.3.3. New Restructuring Policies - Direct Payment Systems and the Growth of Environmentally Friendly Agriculture

The financial crisis that befell Korea in 1997 placed the nation under the bailout support of the International Monetary Fund (IMF). Foreign exchange, interest rates and a wide range of other economic factors were placed under the control of the IMF. The economy collapsed, resulting in negative growth in 1998. The U.S. dollar rate, which had previously remained around 900 won, rocketed to 2,000 won. Fuel and other raw material prices rose rapidly, and consumer prices began to shoot up as well. The interest rate, previously around 10 to 13%, rose as high as 30%. Numerous companies folded up, and labor cuts increased unemployment from around 500,000~600,000 to a high of two million for a while.

The agricultural sector could not escape the storm of the financial crisis. The rising exchange rate rapidly increased the price of imported feed, and beef prices plummeted as demand fell. The price of a calf fell from one million won to 100,000~150,000 won per head. Orchards and horticultural operations were also hit hard by rising oil prices. Farms with debt were dealt a double blow because of high interest rates and low demand. Farm management became extremely unstable, and agricultural policy during this period focused on stabilization and continuation of agricultural production.

Major policies included the development of environmentally friendly agriculture, direct payment systems, and disaster insurance. Attempts to stabilize farm management and provide support to small and medium-sized farms characterized the agricultural policies of the late 1990s and the early 2000s.
If structural policies before this period focused on large farms, environmentally friendly agriculture was a policy suited for the development of small and medium-sized farms. The government created the “Environmentally Friendly Agriculture Promotion Act” in 1997 to boost the growth of this industry, designating 1998 as the “first year” of environmentally friendly agriculture. The “Environmentally Friendly Agriculture Direct Payment System” was created in 1999 to provide direct support to farms in protected areas desiring to switch to eco-friendly and organic farming methods.

The direct payment system was an income preservation plan created to counter the effects of the WTO regime, and first appeared for realistic consideration in the mid-1990s. A limited direct payment system was created in 1997 to promote the early retirement of aged farmers, and the comprehensive income support system was first applied to rice fields in 2001. This paddy land direct payment system was aimed at farms that had suspended production in the past (1998~2000) to prevent an increase in rice production. The payments totaled 250,000 won per hectare during the first year and were limited to 2 hectares. The payments rose in the next several years to 600,000 won per hectare in 2004 and 700,000 won in 2005. In addition to this, there are other direct payment programs. These include “direct payment for environment-friendly agriculture,” “direct payment for regions with unfavorable conditions,” “direct payment for environment-friendly livestock farming,” and “direct payment for rural landscape conservation,” but these programs are comparatively small in scale and funding.

In 1999, the “General Agriculture and Rural Act” was enacted to lay the basis for all agriculture-related laws. This law redefined agriculture,
farmers, and agricultural regions to suit today’s changing conditions and offered a future direction of Korea’s farming industry, farmers and rural communities. This law also provided provisions for future investments and loan plans.

### 1.3.4. Rice Tariffication Negotiations and Changes in Related Policies

Korea received special treatment regarding rice imports in the Uruguay Round Agreement on Agriculture of 1994. While the rice market was permitted to receive protection for ten years from 1995 to 2004, imports of 1-4% were mandated as minimum market access (MMA).

According to appendix 5(B) of the WTO Agriculture Agreement (that any negotiations on the extension of special treatment must begin and end in 2004), Korea began negotiating with other countries regarding tariffication deferment. Nine countries, including the United States, China, Australia, Thailand, Canada, Argentina, India, Pakistan and Egypt, agreed to enter into the negotiations, and final agreements were hammered out in December of the same year.

According to the negotiations, the special treatment on rice (deferment of tariffication) was extended for another ten years. In return, MMA imports were to be increased from the previous amount of 4% to 7.96%. MMA imports of staple rice were to be extended from the previous amount of 10% to 30% by 2010.

While Korea was able to receive tariffication deferment through these negotiations, future imports are expected to place a significant strain on the Korean rice crop. A total of 225,575 tons of rice entered the country in 2005. In 2014, imports will expand to 408,700 tons. Taking into account
the continued drop in domestic rice consumption, rice imports in 2014 will account for over 10% of total domestic consumption.

In response to these negotiations, Korea’s rice policy and its framework for purchase and direct payment programs underwent fundamental changes. The government’s rice purchase policy, which had lasted for nearly 50 years since the creation of the republic, was finally abolished, replaced by a stockpile system to ensure food security. Direct payment programs were strengthened to compensate for the smaller role of the government in the market and falling rice prices. In addition to the fixed direct payments of 700,000 won per hectare, a flexible direct payment system that compensated for a part of the difference between target and market prices (at 85% of price difference) was introduced. The target price is determined by three average rice prices of previous five years, with the high and low prices excluded. The target price between 2005 and 2007 was set at 170,083 won per 80kg. If the sum of the market price and the fixed direct payment exceeds the target payment, flexible direct payments are not issued. This system is similar to the counter-cyclical payment (CCP) system of the United States.

Fixed direct payments are not linked to production or prices and thus are included in the “green box” (permitted subsidies) under the WTO, but flexible direct payments are classified as “amber box” subsidies due to its link with market prices and payment to farms that cultivated rice in that year.

1.3.5. FTA in the Agricultural Sector

With the beginning of 2000, negotiations for free trade agreement (FTA) started to make progress amid a global wave of trade liberalization.
Although Korea was passive about FTA initially, the country saw a turning point with the conclusion of an FTA with Chile in 2002. From the following year, Korea has actively taken part in the negotiations. As of 2010, the number of countries with which Korea has signed free trade agreements that went into effect stands at 16. These include 10 ASEAN countries, 4 EFTA countries, and Chile and Singapore. If the countries that have either signed or concluded negotiations with Korea are included (that is, US, 27 EU countries, and Peru), the number rises to 45. Negotiations are also underway with 12 countries, which include Canada, Mexico, Australia and Turkey.

Of these, the free trade agreements with Chile and the US will be explained briefly with an outline of policy changes.

Korea signed its first FTA with Chile. The negotiations were completed in October of 2002, but fierce resistance from fruit growers and the agricultural industry prevented the parliament from authorizing the agreement until February of 2004. The agreement entered into effect in April of that year.

As the first FTA signed by Korea, the agreement with Chile brought significant fear to farms. Already having experienced the difficulties created after the URAA in the mid-1990s, farmers have extreme distrust of free trade agreements of any kind. Farm households began to resist liberalization as a whole, and violent demonstrations took place all over the nation.

In order to assuage these fears, the government created compensation
programs, as well as plans to enhance the competitiveness of the domestic industry. A special act to support farmers and fishermen in response to FTAs was created and a decision was made to raise a 1.2 trillion won fund over a seven-year period (2004~2010) to assist farmers who will be negatively affected by FTAs in the future. In the fruit industry, where negative effects of the FTA were going to be most felt, various compensation schemes were created to maintain the revenues of orchards.

Negotiations for an FTA with the United States began in February of 2006. There were many industry areas with conflicting interests between the two countries, not only in the agricultural field, but also in manufacturing fields. There was significant domestic opposition as well, from farmers and a variety of other groups that considered an FTA with the United States considerably different from the agreement with Chile. While only a few agricultural products, including grapes, kiwis and pork, were imported from Chile, nearly every agricultural product could be imported from the United States, and the effects were expected to be significant. Farmers voiced intense opposition to an FTA with the United States.

Although the Korean government stated during the early part of the negotiations that rice will be excluded from the FTA, the United States demanded that all items be included. Eventually, rice was excluded from the negotiations.

However, the negotiation over beef was not so easy. Imports of American beef had been suspended following the outbreak of mad cow disease (BSE) in 2004. The U.S. government wanted to resume beef exports to Korea through the FTA. The issue of beef was in fact a matter to be dealt by quarantine and food safety agencies, not as part of the FTA. However, this issue was resolved when the president of Korea announced
that the country will cooperate with the United States to resume beef imports as soon as possible.

The Korea-U.S. FTA finally reached agreement in April of 2007 after nearly ten negotiation sessions in Korea and the United States, 15 months after the negotiations began. Considering that the FTA with Chile took over three years, the agreement with the U.S. had been relatively quick.

1.3.6. North Korea Trade and Aid Programs

The aid for North Korea can be divided into government aid and private aid. The government aid of food, medicine and fertilizer is given directly to North Korea in times of floods and other natural disasters or through the WFP (World Food Program), WHO (World Health Organization), UNICEF (United Nations International Children’s Emergency Fund) and other international organizations. If previous forms of aid consisted mostly of emergency supplies, recent aid has focused on development support including the recovery of agriculture and healthcare systems.

While the government provides the bulk of aid to North Korea, private aid is increasing. Prior to 1995, there was no means for private groups to send aid items to North Korea. The items collected by the Korean National Red Cross were sent to North Korea by the International Federation of Red Cross, but the amounts were not significant. However, the system was changed to allow direct transfer of aid through the National Red Cross, and private organizations were permitted to send aid from 1999, which rose from $20 million in 1999 to $70 million in 2006.

Economic exchange between North and South Korea is increasing rapidly as well. While trade between the two Koreas amounted to less than
$100 million in the early 1990s, it increased to over $1 billion in 2005. The recent expansion of trade between North and South Korea is partially attributed to the establishment of the Gaeseong Industrial Complex, which began construction in 2003 and produced its first marketable goods in 2004. The Gaeseong Industrial Complex is expected to continue increasing economic exchanges between North and South Korea. In the free trade agreements with Singapore, EFTA and ASEAN, the government won the approval of the counterparts that the Gaeseong Industrial Complex products will be recognized as South Korean-made products.

Exchanges with North Korea were greatly revitalized with the signing of the June 15th North-South Korea Joint Declaration for peace and cooperation in the Korean Peninsula. In the agricultural sector, the South Korean government provided rice, as an humanitarian aid, to North Korea which had been suffering from chronic food shortage. Various exchanges and cooperation projects were undertaken in the private sector, too, to help the north restore its agricultural production capacity. However, exchanges at the government level, as well as at the private level, came to a standstill with the worsening of the bilateral relations since 2008.
Section 2. Agricultural Budget, Investments and Loans

2.1. Agricultural Budget System

Government budget can be divided into budget and fund by the way it is managed. And there are two ways of financing a project: investment or lending. Government budget is divided into central government budget and local government budget, each of which can be subdivided into general account and special account. Since government budget in general refers to central government budget, our discussion here will center around central government budget.

A special account does not follow the principle of prohibiting the use of a budget for a specific purpose. It is a separate budget used to manage the operation of special policy programs. There are five special accounts in the agricultural sector. These include the Special Account for Agriculture and Farm Village Restructuring and the Special Account for Grain Management.

Public funds are linked even more strongly with specific programs and are managed separately by the agency responsible for the program. There are seven funds operated by the Ministry for Food, Agriculture, Forestry and Fisheries. Included among them are the farmland management fund, the price stability fund for agricultural products, and the variable direct payment for rice income compensation.

For project expenditures other than the expenses incurred directly by the government, agricultural budgets are either utilized as direct investments by the government or related agencies or provided as loans to farmers. The loans for farmers are usually provided through agriculture-
related special accounts or funds, and are called policy loans. These funds are drawn from the national budget or commercial banks. The government sometimes only uses the method of compensating the interest rate gap between the interest rate of policy loan and the interest rate of commercial loan. This type of system places less burden on the government budget while providing low-interest loans to a large number of users, and it softens the competitive relationship between policy loans and commercial loans.

Project expenditure is compiled and executed according to a mid- and long-term investment and lending plan. Currently, a comprehensive agricultural and rural plan is being implemented for a period of ten years from 2004 to 2013. This mid- and long-term plan for investment and lending is the third of its kind designed exclusively for the agricultural sector since 1992.

Korea’s agricultural policy covers agriculture and forestry, and the Ministry for Food, Agriculture, Forestry and Fisheries operates two affiliated organizations: the Rural Development Administration and the Korea Forest Service. The Rural Development Administration oversees research and development (R&D) activities, training, and distribution of technologies in the agricultural sector, while the Korea Forest Service oversees administrative and R&D aspects of the forestry industry. The ministry and the two affiliated organizations are all allotted separate budgets, which are often referred to jointly as the “agricultural and forestry budget.” Agricultural budget sometimes refers only to the budget of the ministry since it is uncommon for studies to analyze the data of all three agencies with a same set of criteria.

Agricultural and forestry investments and loans come from financial resources of the agricultural and forestry budget and long-term project
related agricultural funds. Thus the investments and loans are larger than the agricultural and forestry budget described above.

Agricultural and forestry investment and loan projects adopt a bottom-up approach in formulating the budget by allocating necessary funds for development projects proposed by the project initiator through normal administrative channels. The project review board in each city, county and province examines each proposal and requests a fund from the ministry or related agencies. The ministry or an agency then will submit this request to the Ministry of Strategy and Finance for approval by the National Assembly (Figure 6-2). Every year, the ministry publishes a detailed guidebook on investment and lending for agricultural and forestry projects to ensure transparency of the entire process.

2.2. Size and Composition of Agricultural Budget

The agricultural budget for 2010 was 14.6738 trillion won, an increase of 0.3% from the previous year to account for 5.0% of the total national budget. The budget for the Ministry for Food, Agriculture, Forestry and Fisheries took up 79.2% of the budget, with 7.5% of the rest going to the Rural Development Administration and 13.3% going to the Korea Forest Service.

The composition of the agricultural budget is shown in Table 1. Project expenses account for about 97% of the total budget. Out of the total, the fund for ‘grain management and crop supply’ accounted the largest share of the budget with 22.1%, followed by 17.0% for ‘farm income and business stability,’ 16.1% for ‘agricultural production infrastructure’ and 16% for ‘structural improvement of the agricultural industry.’

As for the budget for ‘rural development and welfare,’ it accounts for only 11.6% of the total budget, the smallest of five budget categories.
However, it is a big increase from the past, and this shows that the importance placed on rural policy is gradually rising. Compared to 2007, the budget for ‘farm income and business stability’ decreased from 30.5% to 17%, whereas the money spent for ‘structural improvement of the industry’ surged from 9.8% to 16%. The budgets for ‘grain management and crop supply’ and ‘rural development and welfare’ generally showed a similar trend. Compared to the previous year, the budget for ‘farm income and business stability’ was reduced the most by 6.9%, followed by ‘structural industry improvement’ (5.9%) and ‘rural development and welfare’ (2.9%). However, the budget for agricultural production infrastructure increased 9.1%. In the meantime, the agricultural budget for 2009 was increased to 14.6363 trillion won from 14.5161 trillion as a result of budget restructuring for rural development.
The directions for improving the efficiency in the agricultural, forestry, fisheries, and food sector outlined by the ministry are as follows: First, the direction is to expand the growth capacity of the agricultural industry so that it becomes strong despite being small. In other words, the direction is to improve the industry structure, to promote the food industry and low-carbon green growth, to stabilize business, and to improve the quality of life of farmers and fishermen. Second, the direction is to increase the efficiency and flexibility of financial management through expenditure restructuring including subsidiary reform and merger of similar projects.

### 2.3. Changes in Agricultural Budget System and Mid- and Long-Term Investment and Lending Plans

Changes in the agricultural budget system are closely linked to the opening of the agricultural product market. Prior to the Uruguay Round
Agreements Act, agricultural development plans were created every five years as part of the government’s economic development plans. Rice was at the center of farm policy during this period which focused on expanding food production and providing stable supplies. The budget was dominated by farmland reform, irrigation improvement, mechanization, fertilizer assistance and other programs for rice production.

The government secured financial resources for policy funds from the national budget. Until the 1970s, when the government budget was insufficient, short-term loans formed the major part of policy loans. But beginning in the late 1970s, when the financial situation slowly improved, the government began to increase the supply of mid- and long-term funds, such as the fund for agricultural facilities. The government made the National Agricultural Cooperative Federation (Nonghyup) the sole supplier of policy funds, and this measure contributed to the growth of Nonghyup as a successful banking institution in rural areas.

The government practice of drawing up an agricultural budget based on a separate, mid- and long-term investment and lending plan was established in the early 1990s. The project period of a mid- and long-term investment plan for agriculture is usually set at 10 years, but it could be adjusted in consideration of the situation at the time of the planning. Currently, the government is in the midst of implementing a comprehensive agricultural plan that requires a financial input of 119 trillion won for a 10-year period from 2004 to 2013.

The government has been steadily increasing the agricultural budget in response to the liberalization of the domestic market. Although the Korean economy continued to grow at a fast pace, as did the agricultural industry which grew relatively quickly, the Korean agriculture still remains small, as
can be seen in the size of farm households’ cultivation area that measures only 1.45 ha (2009) on average. A full liberalization of the domestic agricultural market will destroy the industry completely. Opening the market to imports was unthinkable until the mid-1980s. In fact, Korea was a net importer until 1985, and the country was able to regulate agricultural imports under Article 18 of GATT, which provided special and differential treatment to developing countries.

Korea turned into a net exporter in 1986 and began to face pressures to open up its doors to agricultural imports. The government announced a series of import schedules in advance to allow the industry to prepare, but vowed to limit the imports of rice and other crucial products.

However, the government had to abandon this stance as the Uruguay Round negotiations began under the slogan of “free trade without exception.” The government redoubled its effort to strengthen the competitiveness of the agricultural industry to compensate for these pressures, resulting in long-term investment and loan plans. The Kim Young-Sam administration (1993~1998) announced plans to inject 42 trillion won into rural regions for 10 years starting in 1992, but the plan was scaled back by three years. As it became inevitable that the rice market should be opened, the government announced additional plans to provide 15 trillion won to the agricultural industry from 1994 to 2004.

As a follow-up measure to the 42 trillion-won plan, the Kim Dae-Jung government (1998~2003) created a plan to inject 45 trillion won for restructuring the agricultural industry during a six-year period from 1999 to 2004. The Roh Moo-Hyun administration (2003~2008) prepared an expanded agricultural support to respond to further market opening resulting from the Doha Development Agenda (DDA) of the WTO and
FTAs. With the beginning of the current administration in 2009, some 470 billion won was newly allocated to the food industry to increase the growth potential of agriculture and to improve the quality of life in rural areas.

In sum, the long-term plan can be divided into three periods: the first period from 1992 to 1998, the second period from 1999 to 2003, and the third period from 2004 to 2013. A total of 5.2 trillion won was injected during the first period, followed by 6.5254 trillion won in the second period and 11.9 trillion won in the third period. If the first period is set at an index of 100.0, the second and third periods equate to 126.0 and 230.4, respectively.

Agriculture’s share of the national budget did not exceed 6% until the mid-1980s. However, the increasing market pressures since the 1980s led to an expansion of the budget for agriculture, fisheries, forestry and the food industry. The share of the agricultural budget climbed to 14.8% in 1995 when the restructuring of the agricultural industry was at its peak during the Kim Young-Sam administration.

However, as the budget expanded, capital use efficiency fell, and there were charges of budget misappropriation. The agricultural budget continued to drop since the peak year of 1995 and the financial crisis of late 1997 led to drastic cuts in the budget, falling to 6~7% in the beginning of 2000s and staying at that level with little change in the decade. While investments and loans increased, their actual percentages fell as total government budget increased during the same period.

The government investments and loans in the agricultural and forestry sector in the 1990s were largely distributed for hardware, including modernization of facilities and mechanization of agriculture. In the first long-term investment and loan period of 1992-1998, 41.9% of the
agricultural budget was spent to establish the production base including agricultural mechanization and facility modernization, and 9.6% was allocated to improve living conditions and support rural welfare projects. For environment-friendly agriculture, only 0.8% of the budget was assigned. In the second period from 1999 to 2003, the facility and mechanization investment ratio fell to 39.6%, but it still took up the largest portion of the budget. And more budget was spent to improve distribution (8.4%) and support environment-friendly agriculture (11.6%).

The expansion of financial investments and loans to raise the competitiveness of the agricultural industry inspired farmers and created active investment in agriculture in the first half of the 1990s. Investment increased and new technologies were adopted by utilizing government subsidies and low-interest policy funds. As a result, productivity rose and production expanded, but the lack of new demand after 1996 and the
financial crisis in the following year cut prices and lowered farmers’ earnings. The government announced a series of policy measures easing support conditions every year from 1998 to 2003 to relieve farms from their debts and interest payments. However, farm loans and debts still remain as a pending issue to be resolved to this day.

These changing conditions led to increased budget allocation for software rather than hardware, towards stabilizing farm income, development of rural regions, and expansion of welfare programs. The comprehensive agricultural development plan launched in 2004 increased the budget to such projects and cut the funds for production facility-related initiatives. While 20.6% of the budget was earmarked to stabilize the farming business and farm income in 2003, it was planned to be increased to 30% in 2013 when the development plan ends. The budget for rural welfare and regional development will also rise from 8.7% in 2003 to 17.2% in 2013. On the other hand, the budget share for production base readjustment is forecast to fall from 32.6% in 2004 to 8.9% in 2013.

An important characteristic of the current plan’s budget allocation is the expansion of the direct payment for rice farmers. The projected fall in the demand for rice and the growing likelihood of tariffication being introduced in 2015 are putting great pressure on the industry because if the tariffication is realized, it will have most impact on Korean agriculture. The government abolished the rice procurement policy and created a direct payment to compensate the loss of rice income. This new program required vast sums of financial resources to stabilize the farming business and farmer’s income. The direct payment for rice which began in 2005 is divided into flexible direct payment and fixed direct payment. Flexible direct payment is a government compensation program in which the
government compensates 85% of the gap between target price and national average price of rice when the average price falls below target price (about 170,000 won). The fixed direct payment provides a direct payment of 700,000 won per 1ha of rice paddy.

Another major change is the change in funding method. In 1999, the government adopted a new loan program called combined agricultural fund to allow lending agencies to give loans to farms on an individual basis. While the main goal of the program was to reduce inefficiency in strategic financing, it aimed to improve efficiency in utilizing the budget. Although the program is currently limited to certain uses, such as facility improvement, it is being expanded to eventually replace policy loans. The operation of the program had formerly been limited to the NACF, but the

Table 6-2 Investment and Loans by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>2008(%)</th>
<th>2008 (%)</th>
<th>2013 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing agriculture conditions, increasing competitive capabilities</td>
<td>311</td>
<td>(28.5)</td>
<td>479</td>
</tr>
<tr>
<td>Stable farm revenues and business capabilities (Direct payments)</td>
<td>28.5</td>
<td>(247)</td>
<td>(26.2)</td>
</tr>
<tr>
<td>Rural welfare and regional development</td>
<td>66</td>
<td>(8.6)</td>
<td>157</td>
</tr>
<tr>
<td>Improvements and regional development</td>
<td>52</td>
<td>(6.7)</td>
<td>102</td>
</tr>
<tr>
<td>Development of forestry resources</td>
<td>50</td>
<td>(6.5)</td>
<td>66</td>
</tr>
<tr>
<td>Reorganization of agricultural production foundations</td>
<td>251</td>
<td>(32.6)</td>
<td>171</td>
</tr>
<tr>
<td>Total</td>
<td>841</td>
<td>(100.0)</td>
<td>1339</td>
</tr>
</tbody>
</table>

government recently allowed commercial banks to participate in the program as lenders as well.

The Korea-U.S. FTA will accelerate the opening of the domestic agricultural market more than previously planned and necessitate changes in the budget. The key policy targets for the government thus far have been classified broadly into “agriculture,” “farm income,” and “rural development.” However, this classification has been changed to include “food” in place of “farm income,” and farm income compensation programs are being planned.

2.4. Issues

The assistance that has been provided to farms and rural communities since the late 1990s has meaning in its own way, but it is also true that inefficient elements were accumulated over the years due to continued assistance. In some aspects, the current expenditure is not totally free from the influence of past policies. To accumulate future growth potential, it is necessary to make efforts to adjust the assistance policy and to lay down a foundation to raise the efficiency of financial investment. To realize the current government’s vision of making agriculture as a future engine of growth in the market economy, the government needs to globalize agriculture, reshape its policy on welfare and pensions, integrate special taxes and funds, and improve the flexibility of budget management.

The agricultural budget is under increasing criticism with respect to its size, lack of transparency, rigidity, and inefficiency in allocation. First, there is the issue of whether the agricultural assistance is sufficient enough to cope with market liberalization. The agricultural industry believes that while liberalization is inevitable, the government needs to dedicate more
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resource to bolster the industry. On the other hand, observers outside the industry circles contend that the current agricultural budget is sufficient as long as it is used efficiently, and any further expansion of the budget will be detrimental to the nation as a whole.

Second, while the public’s interest in the size and use of the agricultural budget was raised after the agricultural restructuring in the 1990s, the government is often criticized for the lack of transparency in the budget, which even industry experts have trouble fully understanding it. This confusion arises because government budget reports are not prepared from the perspective of the general public. While the government constantly publicizes that the budget has been significantly expanded, actual conditions of the industry frontline often make such claims hard to accept.

Third, large portions of the budget are fixed expenses linked to previous policies and cannot respond quickly to new budgetary needs. Purchase and storage of the national grain stock, the fund to sell and manage the grain, the fund to provide debt relief, and the fertilizer compensation fund are set for long repayment periods, thus laying a burden on the rest of the budget. At one point, these fixed expenses accounted for almost half of the entire budget of the Ministry for Food, Agriculture, Forestry and Fisheries.

Fourth, there is the criticism that the budget is not allocated based on the importance and effect of each policy. Since the agricultural budget is closely linked with the issues of the industry as a whole, the task of finding effective means of addressing the issue cannot be achieved by improving the budgetary system alone. A considerable time is required before the structural problems and issues of the agricultural industry can be addressed
and overcome. While lower protection of the domestic industry has led to reduced income for farmers, the government lacks the fund to compensate for the deficiency. Also, there are too many farm households compared to the arable land, and many farmers are too old to find other sources of income. The rural population has continued to fall, and the lagging industrial development makes finding non-agricultural income even more difficult. Large farms, too, are often plagued with high debts and interest burdens.

The government is trying to increase policy effectiveness by providing different types of support to different farming enterprises. Also, the agricultural budget will be tailored to suit the changing environment. In order to achieve sound allocation of the budget, however, accurate collection and management of farm data is needed, along with social consensus on policies that provide different levels of support to different groups. The agricultural budget will be at the center of this discussion, and the shortcut to finding eventual solutions to the problems Korean agriculture faces today are appropriate budget size, transparency in budget allocation and usage, reduction of unwieldy fixed expenses that prevent timely responses to the changing environment, budget allocation based on accurate assessment and information, and social consensus.
Chapter 7

International Agricultural Development & Cooperation

1. Overseas Agricultural Development
2. International Development and Cooperation for Agricultural and Rural Development
Chapter 7. **International Agricultural Development & Cooperation**

Section 1. Overseas Agricultural Development

1.1. Current Situation

After the global food crisis that took place in 2007 and 2008, food importing countries around the world actively took part in discussions on food security, and the competition to secure food resources is becoming more intense around the world. Since 2008, China, Japan and GCC (Gulf Cooperation Council) countries have been competing against one another to secure overseas farmlands. Those countries are, in particular, looking to farmlands in Africa and Southeast Asia and are in the process of securing numerous overseas farmlands. Already they have secured more than 100 overseas farmlands in 2008 alone.

Korea, for its part, has been introducing and implementing overseas agricultural development polices to increase food self-sufficiency rate for food security. As part of overseas agricultural development policy, Korea established a 10-year plan for overseas agricultural development in June 2008 and has been carrying out overseas agricultural development projects since 2009. Although Korea established the plan to support overseas agricultural development at the policy level, the country needs to establish an effective operating system for overseas agricultural development projects given that Korea’s entry into this field is relatively new and the competition over overseas agricultural development is getting intense around the world. Specifically, it needs to review and evaluate the implementation of overseas agricultural development projects that have
been carried out according to the 10-year plan, establish necessary backup measures, and improve relevant institutions.

Implementation of overseas agricultural development projects has achieved much progress after the establishment of the 10-year plan, but what is needed at this stage is to establish strategies that were not taken into consideration at the time of establishment of the plan and come up with a measure to effectively implement overseas agricultural development projects for each task and challenge.

The policy that the government put the biggest emphasis on when establishing the 10-year plan for overseas agricultural development is as follows. First, the government provides support, including funding and provision of information, while the projects are practically carried out by private companies centering around end users. Second, amid controversy over negative side effects of overseas agricultural development including Land Grab stemming from the global competition to secure overseas farmlands, Korea pursues a development model that enables it to achieve a win-win situation with the international community by implementing the project in a mutually beneficial way that serves the interests of the recipient country. Third, the government establishes and implements appropriate strategies for each type, region and item since overseas agricultural development can be pursued in various forms depending on the type, region and the item of the development project. Fourth and last, the government provides the funding that is needed in the initial stage, or conduct an investment environment survey aimed at helping overseas agricultural development achieve a desired goal, thereby establishing an infrastructure for various factors that are needed to enter into overseas farmlands, including provision of necessary information on the region.
concerned.

The size of support for overseas agricultural development and the eligibility for support as of 2010 are as follows. The total amount of loan that went toward companies that enter into overseas farmlands stands at 21 billion KRW, with the eligibility for support being repayment in 7 years with a three-year grace period at an interest rate of 2%. In the meantime, an investment environment survey for companies penetrating into overseas farmlands is carried out as a backup project, with the size of funding being 3 billion KRW. (refer to Table 7-1.)

The overseas agricultural development projects that the government has funded in 2009 are summed up in (Table 7-2). As the table shows, the overseas agricultural development support projects include overseas agricultural environment surveys, development of specialized human

<table>
<thead>
<tr>
<th>Classification</th>
<th>Budget (1,000 million KRW)</th>
<th>Eligibility</th>
<th>Project Operator (Implementation Agency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseas agricultural development project (loan)</td>
<td>210</td>
<td>- less than 70% of required budget for the project</td>
<td>Operator: Korea Rural Community Corporation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- repayment in 7 years with a three-year grace period at an annual interest rate of 2%</td>
<td>Support beneficiary: corporations that advance into overseas farmlands</td>
</tr>
<tr>
<td>Overseas Agricultural Development Assistance (subsidy)</td>
<td>30</td>
<td>- 100% subsidy 70% of overseas farmlands environment survey is subsidized, with 30% to be paid on its own</td>
<td>Operator: Korea Rural Community Corporation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support beneficiary: corporations that advance into overseas farmlands</td>
</tr>
</tbody>
</table>

Note: Overseas agricultural development projects are divided into production-type (10-year grace period) and marketing-type (5-year grace period).
resources, creation of websites, and conducting of studies and workshops.

Companies that penetrated into overseas farmlands on the back of funding for overseas agricultural development projects include 18 private companies as of October 2010, which entered into 7 countries including Yunhaju of Russia, and those companies are operating overseas farmlands of two different types: production type and marketing type.

There are different types of projects that the government provides funds to domestic companies seeking to secure overseas farmlands and resources, including energy or mineral resources. Those projects fall into the category of overseas resource development projects, which include projects for development of energy, mineral resources, fishery resources, and forestry resources and projects for agricultural development.

<table>
<thead>
<tr>
<th>Support projects</th>
<th>Support contents</th>
</tr>
</thead>
</table>
| Overseas agricultural environment survey | - Tailored end user survey: 11 companies in 7 countries (Russia, the Philippine, Cambodia, Vietnam, Laos, New Zealand and Kyrgyzstan)  
- Survey of policy (led by Korea Rural Corporation): 5 countries (Uzbekistan, Brazil, Vietnam, Cambodia and Indonesia) |
| Education to foster professional workforce | - Domestic: Chungnam University (44 people, on 12th)  
- Overseas: Cambodia (22 people on 14th), Yunhaju of Russia (22 people on 13th) |
| Creation of websites                  | - Serve as a hub for information on overseas agricultural development              |
| Conduct study                         | - Feasibility study on creation of overseas agricultural development fund (From May to September, 2009) |
| Workshop                              | - Overseas agricultural development workshop in the first and second half of the year (May, December 2009) |
Table 7-3  Current Status of Companies that Advanced into Overseas Farmlands

<table>
<thead>
<tr>
<th>Type</th>
<th>Country</th>
<th>Name of Company</th>
<th>Crops</th>
<th>Total Amount</th>
<th>2010 plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>18 companies</td>
<td></td>
<td></td>
<td>395,000 tons</td>
<td>110,000 tons</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14 companies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>Arro Primorie</td>
<td>wheat, bean, corn</td>
<td>3,700ha</td>
<td>3,100ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Namyang</td>
<td>bean</td>
<td>200ha</td>
<td>200ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seoul Feed</td>
<td>bean, corn and oat, etc</td>
<td>3,000ha</td>
<td>3,000ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Baridream</td>
<td>wheat, bean, oat, barley</td>
<td>1,000ha</td>
<td>867ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Korea Trade</td>
<td>bean, corn</td>
<td>1,100ha</td>
<td>500ha</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>Doalnara Trade</td>
<td>wheat, bean, corn</td>
<td>4,000ha</td>
<td>500ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GRoot</td>
<td>bean</td>
<td>3,000ha</td>
<td>3,000ha</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Komer-CN</td>
<td>bean, corn</td>
<td>474ha</td>
<td>474ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sungmoon</td>
<td>cassava</td>
<td>1,200ha</td>
<td>30ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MH Ethanol</td>
<td>cassava</td>
<td>3,900ha</td>
<td>500ha</td>
<td></td>
</tr>
<tr>
<td>Laos</td>
<td>Eco Prime</td>
<td>bean</td>
<td>1,000ha</td>
<td>350ha</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Samyang</td>
<td>corn, cassava</td>
<td>302ha</td>
<td>302ha</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>Seohae</td>
<td>corn</td>
<td>240ha</td>
<td>240ha</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>K-Max Intl.</td>
<td>corn</td>
<td>140ha</td>
<td>140ha</td>
<td></td>
</tr>
<tr>
<td>Distributors</td>
<td>4 companies</td>
<td></td>
<td></td>
<td>75,000 tons</td>
<td>57,000 tons</td>
</tr>
<tr>
<td>Russia</td>
<td>Celltrion</td>
<td>wheat</td>
<td>1,000 tons</td>
<td>1,000 tons</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>FARMSCO</td>
<td>corn</td>
<td>9,000 tons</td>
<td>9,000 tons</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>KOGID</td>
<td>corn, tapioca</td>
<td>47,000 tons</td>
<td>37,000 tons</td>
<td></td>
</tr>
<tr>
<td>Laos</td>
<td>Kolao Energy</td>
<td>corn</td>
<td>18,000 tons</td>
<td>10,000 tons</td>
<td></td>
</tr>
</tbody>
</table>

Note 1) the number of companies that entered into overseas farmlands on the back of MIAFF’s overseas agricultural development loan (2009 and 2010),
Note 2) in terms of production area,
Note 3) not including 1 company that repaid the loan in 2009 (657 million KRW).
Of these overseas projects, agricultural development projects are the latest of its kind. Comparing those overseas resource development and agricultural development projects will allow us to better understand the characteristics of overseas agricultural development projects. (Table 7-4) briefly outlines government ministries responsible for overseas resource development projects, project goals and objectives, major target countries, enforcement institutions, ground rules for implementation of projects, and support types. As the table shows, overseas agricultural development projects, like any other resource development projects, aim to secure a stable supply of food that is in short supply in a nation. Resource development projects for securing energy and mineral resources are being implemented by many nations entering into overseas markets, and the fund size is much larger than that of overseas agricultural development projects.
### Table 7-4 Current Status of Overseas Resource Development Support Project

<table>
<thead>
<tr>
<th>Classification</th>
<th>Overseas energy development</th>
<th>Overseas mineral resource development</th>
<th>Overseas agricultural development</th>
<th>Overseas fishery resource development</th>
<th>Overseas forestry resource development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry in charge</td>
<td>Ministry of Knowledge Economy</td>
<td>Ministry of Knowledge Economy</td>
<td>Ministry for Food, Agriculture, Forestry and Fisheries</td>
<td>Ministry for Food, Agriculture, Forestry and Fisheries</td>
<td>Forest Service</td>
</tr>
<tr>
<td>Goal</td>
<td>Securing long-term stable supply of energy resources</td>
<td>Securing long-term stable supply of mineral resources</td>
<td>Securing long-term stable supply of food resources</td>
<td>Securing long-term stable supply of fishery resources</td>
<td>Securing long-term stable supply of forest resources</td>
</tr>
<tr>
<td>Objective</td>
<td>Self-development ratio of 40% by 2030</td>
<td>Self-development ratio of 50% by 2030</td>
<td>Secure 1.38 million tons by 2018</td>
<td>13 projects by 2013</td>
<td>1 million ha by 2050</td>
</tr>
<tr>
<td>Countries for advancement</td>
<td>86 companies in 37 countries (exploration, development, production)</td>
<td>companies in 30 countries (exploration, development, production)</td>
<td>28 companies in 10 countries (production and distribution)</td>
<td>1 company in country (farming, processing, distribution)</td>
<td>18 companies in 11 countries (reforestation, silviculture)</td>
</tr>
<tr>
<td>Execution institution</td>
<td>Korea national Oil Corporation</td>
<td>Korea Resources Corporations</td>
<td>Korea Rural Corporations</td>
<td>Korea Overseas Fisheries Corporations</td>
<td>Forest Service, National Forestry Cooperatives Federation</td>
</tr>
<tr>
<td>Support type</td>
<td>finance, loan and subsidy</td>
<td>finance and loan</td>
<td>loan and subsidy</td>
<td>loan and subsidy</td>
<td>loan and subsidy</td>
</tr>
</tbody>
</table>
1.2. The Characteristics of Korea’s Overseas Agricultural Development

The characteristics of Korea's overseas agricultural development can be summed up as follows.

First, the countries that Korea advanced into are transition economies except the Philippines and Brazil. In terms of total number of companies in overseas projects, secured cultivated areas, and actual cultivated areas, Yunhaju of Russia represents the highest portion, with other countries that companies entered into being either transition economies or socialistic economies.

What those transition economies have in common is that their agricultural production sharply decreased in the process of their transition to market economies. Most of the transition economies do not have a properly functioning market economy, and in particular their agricultural infrastructure has been collapsed during the process where they were making a transition from a collective farm system into a family farm system, and they have not recovered the previous agricultural productivity level.

Consequently, those countries are making active efforts to attract overseas agricultural investment, through which they hope to re-establish their agricultural production base and improve agricultural productivity. However, those transition economies do not have well-established laws and institutions related to investment, and they suffer from a high-risk country standing that prohibits foreign investment in their own countries. There is also a need to re-establish the relations between the federal and local governments, root out the corruption of public servants, improve the process of re-organizing national infrastructure, and properly enforce grain
export restrictions in the event of a global food crisis.

Second, most of the domestic companies that embarked on an overseas farmland project choose to make unilateral investment in the country concerned rather than teaming up with local companies for joint venture. The preference for unilateral investment is attributable, of course, to the difficulty in finding a proper partner for joint venture, but the reason for not opting to create a joint venture is that it entails many difficulties in managing domestic investment companies. Although unilateral investment by domestic companies is easy to control, it is an unviable option due to difficulty in rapidly overcoming local challenges.

Third, the proportion of the production-type investment of directly producing agricultural commodities at the local level is much higher than the marketing-type investment of securing products that are already produced at the local level. What makes the production-type difficult to operate is that it is very difficult to secure marketing channels in regions where the companies advanced into in the initial stage of business and, furthermore, their efforts will be in vain if they fail to secure a market after succeeding in production. There is a tendency among many domestic companies that enter into overseas farmlands to believe that once they secure farmlands they can at least profit from rising price of farmlands.

The aforementioned characteristics (that is, entering into a transition economy, unilateral investment by domestic companies, higher proportion of the production-type investment than the marketing-type investment) show that overseas agricultural development projects that are underway today are being undertaken in a highly risky way and thus require policy improvement.
1.3. Code of Conduct for Korea’s Overseas Agricultural Development

Amid increasing discussion about food security among food-importing countries after the 2007 and 2008 global food crisis and the rapid increase in international agricultural investment to secure overseas farmlands, there exist two opposing views on securing overseas farmlands: the negative view that securing overseas farmlands equals neo-imperialism or land grab and the positive view that it is a new opportunity for agricultural development or the win-win strategy for countries.

Despite the positive effects of international agricultural investment to secure overseas farmlands (such as transfer of advanced technology, improved quality of agricultural produce, job creation resulting from increased employment of local workforce, development of upstream and downstream industries, and increasing food production and export of agricultural commodities), international organizations are highlighting the need to establish an international code of conduct for overseas agricultural investment due to its negative effects such as failure to take enough care over local residents, laws and rights, increasing corruption, destruction of local environment and abuse of local resources.

So far, there have been discussions on establishing an international code of conduct among international organizations, such as World Bank, FAO and IFAD, and countries interested in overseas agricultural investment. For example, international organizations have been making sustained efforts to reach a consensus on the principles for responsible international agricultural investment at round-table discussions including the international conference titled “Promoting Responsible International Investment in Agriculture” (Sept. 2009) and the roundtable discussions
The principles for responsible agricultural investment recommended by the World Bank are as follows: respecting land and resource rights; ensuring food security; ensuring transparency, good governance, and a proper enabling environment; consultation and participation; responsible agro-enterprise investing; social sustainability; and environmental sustainability.

In the meantime, FAO has proposed a similar code of conduct: transparency and accountability; economic, social and environmental sustainability; involvement of local stakeholders and recognition of their rights and interests; concerns for domestic food security; and rural development.

The international guidelines for overseas agricultural development proposed by Japan include sustainability of agriculture in a recipient country, transparency, compliance with the domestic law of a recipient country, proper respect for farmers and local residents in a recipient country, preservation of the environment in a recipient country and respect for food security in a recipient country.

As such, the investment for overseas agricultural development should be managed in a sustainable manner for global food security and it is critical to respect the local region that is under a development project, including recognition of local residents’ rights to land, participation by local residents and environmental preservation. However, the reality is that there is no consensus on international norms for overseas agricultural investment and there are only limited cases where the principles for international agricultural investment have actually been applied.

Therefore, to facilitate investment for responsible overseas agricultural investment...
development, appropriate international principles should be established to bring about win-win results where both investing and recipient countries benefit.

To make overseas agricultural investment more viable, negative factors, such as land grab, should be removed, while more efforts are made to reach an agreement on international principles in a way not restricting overseas agricultural development investment.

Nations agreed on the necessity to establish the international norms, but failed to reach an agreement on specifics due to differing opinions of each nation.

Consequently, for more active investment for overseas agricultural development, it is necessary to make sure that the investment from the private sector does not shrink, and to this end, regulations should not restrict investment excessively. Guidelines should be feasible, and recipient countries should make active efforts to create an enabling environment to apply international norms such as good governance and prevention of corruption.

In order to facilitate responsible international agricultural investment, Korea needs to do way with negative factors, such as land grab, and publicize the nation’s active participation in establishing international guidelines that aim to prevent excessive regulation of international agricultural investment. Korea is expanding overseas direct investment which the nation is lagging behind and is stressing a win-win strategy that benefits both the investing and recipient countries, while trying to reach an agreement among domestic and foreign stakeholders and secure an appropriate level of transparency and responsibility. One important goal for establishing international standards for overseas agricultural investment is
to maintain a sense of flexibility in applying those principles. Guidelines as a standard for investment should especially be feasible to prevent the private sector from losing the willingness to invest.

Korea has already established guidelines to facilitate responsible overseas investment for agricultural development. The guidelines include respecting the rights to land and resources, contribution to food security, consultation and participation, environmental preservation, transparency, feasibility, responsible investment, and compliance with international regulations.

1.4. Policy Issues

1.4.1. Creation of Comprehensive Support Measures for Companies Entering into Overseas Market

The overseas agricultural development of Korea is conducted through participation of both private companies that directly implement overseas agricultural investment projects and the government that provides indirect support. The most important role of the government here is to establish a comprehensive support measure for agro-food companies that wish to take part in overseas farmland development projects or companies that have already made inroads into overseas farmlands. The support measures for companies that wish to enter into overseas markets can include all the factors that affect the management environment of the companies, but can vary depending on the specific circumstance of the company and the kind of support it needs.

OECD has identified 12 areas of project-related activities in which the support measures can help companies investing in overseas farmlands: marketing; provision of information; informatization and e-biz; tax related
matters, support fund; payment and credit guarantee; education and training; technical support, consultation on legal and management issues; administrative support; improvement of policies, laws, and regulations; and linkage between bilateral and multilateral cooperation systems.

The support activities can be categorized broadly into four areas: market access, financial support, improvement of corporate capability, and provision of support regarding managerial environment. Kim Young-Tak categorized more narrowly the support activities needed for overseas agricultural development into six areas in 2008: ① financial and tax support (tax exemption, financial assistance, and guarantee) ② provision of information, informatization and e-biz ③ human resource development ④ technical support ⑤ consulting (management, laws, administration, improvement of policy, laws, regulations, and marketing) ⑥ international cooperation (linkage between bilateral and multilateral cooperation systems)

Those 6 services areas were designed to be orchestrated by the Center for Overseas Agricultural Cooperation Development at Korea Rural Community Corporation, but in actuality, the center is engaged in loan projects, investment environment survey projects, consulting projects as a groundwork for overseas agricultural development, education to foster experts in overseas agricultural development, operation of websites and relevant projects. Those support projects are still in their infant stage and more information and expertise are needed to provide more specialized assistance tailored to each region, item and type of a project.

1.4.2. Securing Specialized Workforce and Support

What is urgently needed to perform overseas agricultural development
projects more effectively is to secure professional human resources related to overseas agricultural development. As many companies that have entered into overseas markets suffer from lack of professionals capable of providing effective consulting services for them, it is urgently needed to establish a system to secure specialized workforce in a short period of time.

Surely, it is necessary to systematically foster professional workforce at universities from a mid- and long-term perspective first so that they can engage in future overseas agricultural development projects, but what is urgently needed is to reinforce the professional workforce immediately. To improve and educate the professional workforce, it is necessary to install a system to classify the professional workforce into several categories of positions according to their level of profession.

It is necessary to classify the professional workforce into four broad categories (technical cooperation experts of technology transfer type and management adjustment type, overseas agricultural development experts, special part-time workers, and plan inspectors) and employ them on a contract basis. For timely procurement of technical cooperation experts, it is necessary to secure retired experts from agriculture-related organizations and provide them with a short-term training for overseas dispatch as experts. The retired experts possess rich career experience and knowledge by having participated in socio-economic development projects at home and abroad, and thus they are more competitive in overseas projects than current experts. Also, there is a need to operate internship programs for undergraduate and graduate students.

1.4.3. Technological Support

Overseas agricultural development projects are implemented mainly in
the form of large-scale corporate farms, not in the form of small-scale family farms. Therefore, its production, related technology and marketing process are completely different from those of domestic agriculture. Ensuring high productivity and establishing a sustainable agricultural system requires an effective technology support local agriculture demands. For this purpose, it is necessary to prepare a technology road map for overseas agricultural development, analyze the technological conditions for each item and region, and come up with a strategy to provide technology support. And priorities should be followed in the choice of technological development and support.

Also, it is necessary to establish a cooperation agreement with the organization in charge of agricultural technology development in the recipient country, arrange research seminars and regular sessions for consultation, and find out what prevents technology development in the recipient country. And it is desirable to hold technology development sessions regularly between technology experts of Korea and local research institutions. Also, companies entering into overseas markets need to provide technological support to address local issues based on a close relationship between companies and academic institutions.

1.4.4. Laying the Groundwork for Providing Information on Overseas Agricultural Development

With respect to overseas agricultural development, it is important to develop an information system linking several institutions in an effective manner. To this end, “Overseas Agricultural Development Information System (tentative name)” can be established as a comprehensive information system for overseas agricultural development. Currently,
institutions that provide information to the companies that advanced into overseas markets include KOTRA, Export-Import Bank, Ministry of Knowledge Economy, Small & Medium Business Administration, Small & Medium Business Corporation, Korea Export Insurance Co., Korea Industrial Technical Foundation. The institutions providing information on overseas resource development include Korea National Oil Corporation, Korea Resources Corporation, KOTRA, Korea Institute of Geoscience and Mineral and Korea Energy Economics Institute. The institutions that provide overseas agricultural information include the overseas agricultural development center at Korea Rural Community Corporation, the database of Korea Agro-Fisheries Trade Corp., the database of agricultural outlook system and overseas agricultural information at Korea Rural Economic Institute, and the overseas agricultural information service at MIFAFF and Rural Development Administration. Those information and database need to be managed and operated in a comprehensive manner, thus requiring a comprehensive information system playing its role as a portal that provides specialized information on overseas agricultural development.

It is important to define unique roles of the government, the overseas agricultural development cooperation group, related public corporations, and government-funded research institutions to improve the function of collecting and comprehensively analyzing information related to overseas agricultural development. For example, it is desirable that the Ministry for Food, Agriculture, Forestry and Fisheries and the Ministry of Foreign Affairs and Trade provide information on major trends and countries that are engaged in overseas agricultural development projects. The Overseas Agricultural Development Center should provide private companies with comprehensive information on overseas agricultural development, whereas
the Korea Agro-Fisheries Trade Corp. should collect information on major trends of overseas agricultural development and food supply, with Korea Rural Economic Institute processing information on overseas food supply and providing information on overseas agriculture and the food supply outlook at home and abroad.

In addition, it is necessary to provide consulting services for overseas agricultural investment, hold forums, regular workshops and international seminars, and publish information papers for those companies engaged in overseas agricultural development. It is also necessary to regularly publish research papers on related consulting projects and provide information on overseas agricultural development of each nation by holding overseas agricultural development forums led by the private sector.

1.4.5. Diplomacy and Other Support

Agricultural infrastructures related to production or marketing, such as irrigation and storage facilities and trade ports, need private investment, and those are difficult issues to address. Therefore, these issues need to be discussed with the recipient country to find necessary solutions.

In addition, support should be provided in the form of consular protection of domestic agro-food companies that entered into overseas markets, and their employees and related staff. Finding solutions to field difficulties needs consultation with the recipient government. For example, the problems that emerged during carriage of materials, importation of agricultural machinery and construction of agricultural facilities should be addressed through either diplomatic channels or cooperation from the government concerned.

As shown in the last global food crisis, we should keep a close eye on
diplomatic responses to restrictions on agricultural exports imposed by countries that domestic companies entered into. It is necessary to establish a legal basis to protect domestic corporate investors and bring produced agricultural products into the nation. For example, there is a need to sign an investment agreement with the government of the recipient country and help remove barriers that exist in the process of bringing overseas agricultural products into the country. Diplomatic consultation is also needed between the countries concerned with respect to liberalize export quota and lower tariffs, secure advantageous conditions for land lease, prevent excessive restrictions on labor and guarantee free exchange of currencies.

1.4.6. Establishment of Comprehensive Package-Type Advancement Strategy

Most of the countries that actively attract foreign investment for agricultural development are either developing countries or transition economies. Those countries saw their agricultural infrastructure collapse despite abundant energy and mineral resources while transforming from communism to a market economy, and suffered a serious food shortage due to rapidly declining agricultural productivity. As a result, those countries strongly wish that other countries can provide assistance to their agricultural development even at the cost of selling their energy and mineral resources.

Consequently, to meet their needs, it is necessary to develop master plans that open the door for energy and resource cooperation in addition to agricultural cooperation. To this end, there is a need to analyze the demand for agricultural development in the recipient country, form an agricultural
cooperation committee jointly with the recipient country, and seek out opportunities to enter into agricultural market as well as energy and resource market.

In order to implement package-type projects, independent government agencies, including the Prime Minister’s Office, are better positioned than any government ministry to take the lead and comprehensively coordinate the projects as they can coordinate various government ministries.

1.4.7. Methods to Secure Stable Supply of Fund

The size of fund to support companies that advanced into overseas agricultural markets stands at 24 billion KRW in total, a small portion compared to the fund size for energy or mineral resources. Furthermore, the companies that have applied for funding are predominantly small and medium-sized companies. Given the fact that overseas agricultural development projects are risky and require a long period before they can make profits, investment needs to be made in agricultural development projects of a certain size. Accordingly, a large portion of funds needs to go to companies of a certain size with managerial capability. Government fund alone is not sufficient, and the best ways to get funding from the private sector should be actively explored. For example, project financing and overseas agricultural development funds need to be created to attract funding from the private sector.
Section 2. International Development and Cooperation for Agricultural and Rural Development

2.1. Background of Korea’s International Agricultural Cooperation

The world population of the poor struggling with hunger and poverty is not declining due to the surge in world grain prices in the mid-2000s. More than one billion people around the world still sustain life with an income of less than one dollar per day, and 2.5 billion people are living on less than two dollar. In Africa, the malnourished poor people account for about one fourth of the total 250 million people, and the situation has not improved over the past 20 years. (African Statistical Yearbook, 2009)

Under such circumstances on the global stage, international cooperation in the fields of agriculture, forestry and fishery plays a very important role for poverty eradication and agricultural development in developing countries. Agriculture is the backbone industry of these countries and two thirds of the poor population are employed in the industry. In addition, three quarters of the poor population live in rural villages. As this is the case, it is clear that poverty eradication and economic growth can be achieved only when agriculture and rural villages develop. The first of the Millennium Development Goals (MDGs) of the UN is made under the premise that the reduction of the number of people struggling with famine by half before 2015 can be achieved through productivity improvement and rural development in underdeveloped countries.

South Korea is the only country in the world that has seen its status change from an aid recipient to a donor country after World War II. From
1945 to 1990, Korea received a total of 12.7 billion dollars of international aid. But in 2000, South Korea was taken away from the OECD’s list of aid-receiving countries and became the 24th signatory to the Development Assistance Committee (DAC), thus earning a position in the ranks of advanced countries. Understandably, the high economic growth Korea achieved since the late 1960s has become a model for many developing countries, and many developing or underdeveloped countries are asking how it was possible for Korea to make such a progress in so short period of time.

In the agricultural sector, too, Korea has achieved the “Green Revolution” of self-supplying rice, the staple crop, in 1975, and in the 1980s it achieved the “White Revolution” which made it possible to supply fresh vegetables all year round using greenhouses. Under such a background, agriculture is now seeking to become a high value-added, high-tech industry rather than a traditional declining industry.

Furthermore, the Saemaeul Movement, a new village movement which began in the 1970s under the slogan of diligence, self-help, and cooperation and which effectively utilized the traditional social ties of Korean villages, is already well known among many developing countries. Such a dazzling achievement in agriculture and rural development has now become a valuable base and an asset that can be transferred to the developing world.

<table>
<thead>
<tr>
<th>Table 7-5</th>
<th>Productivity Increase in Korean Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1970</td>
</tr>
<tr>
<td>Land Productivity (1990=100)</td>
<td>4</td>
</tr>
<tr>
<td>Rice Productivity (kg) per 10a</td>
<td>330</td>
</tr>
<tr>
<td>Corn Productivity (kg) per 10a</td>
<td>145</td>
</tr>
</tbody>
</table>
2.2. Progress

Korea is an emerging donor country and its budget for Official Development Assistance (ODA) projects is still minute compared to other OECD countries. In particular, the agricultural budget of the ODA fund takes up only a small portion of the total ODA fund. The ODA budget of 797 million dollars in (2008) ranked only 19th among OECD members. Of the total grants provided by Korea International Cooperation Agency (KOICA), which is responsible for Korea's free grants overseas, the share of agricultural grants accounted for about only 6% of the total grants in 2007, and the share of loans provided by the Korea Export-Import Bank in the form of Economic Development Cooperation Fund (EDCF) in the fields of agriculture, forestry, and fishery was 13.3% of total in 2008.

As Korea is the world’s 15th largest economy and an OECD member, there is a growing call on Korea from the international community to

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Regional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>251,086 (100.0)</td>
<td>15,083 (6.0)</td>
</tr>
<tr>
<td>Cumulative Total ('91~'07)</td>
<td>1,539,839 (100.0)</td>
<td>90,351 (5.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Agriculture, Forestry, Fishery</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>237,136 (100.0)</td>
<td>31,547 (13.3)</td>
</tr>
<tr>
<td>Cumulative Total ('89~'08)</td>
<td>2,008,720 (100.0)</td>
<td>95,604 (4.8)</td>
</tr>
</tbody>
</table>
provide more assistance and contribute to solving the problem of hunger and poverty in underdeveloped countries. To meet such expectations, the Korean government has decided to increase its share of ODA fund from 0.1% of gross national income (GNI) to 0.25% by 2015. Also, it increased free grants so that it can keep up with international standards.

At the Korea-ASEAN Summit (June 2009), Korea decided to double its ODA contribution to ASEAN from 200 million dollars in 2008 to 400 million dollars by 2015. In the joint communique on food security announced at the G8 Summit in L’Aquila (July 2009), Korea promised to contribute a total of 100 million dollars for three years to countries in food crisis and expand aid for improvement of agricultural infrastructure and technology. As part of this effort, Korea decided in April 2010 to contribute 50 million dollars to the Global Agriculture and Food Security Program (GAFSP), a multi-donor trust fund newly launched for global food security, and its decision won high praise from around the world.

In the meantime, the international cooperation projects that are headed by the Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF) and related agencies have also expanded in number and budgets since 2006, and to perform the projects more systematically, Korea Rural Economic Institute was designated as the executive body to manage the projects.

The MIFAFF’s budget for international agricultural cooperation increased from 822 million won (about 715 thousand USD) in 2006 to 4,561 million won (about 3,966 thousand USD) in 2010. Since 2010, this budget has been implemented by the Center for International Agricultural Development Cooperation at Korea Rural Economic Institute, and the agencies that carry out the projects are selected by the Center.
Although the budget size has grown over time, the budget provided for each project is small and focuses on one-time events such as foreign personnel training and seminars. Therefore, there arises a need to design specially planned long-term projects, and the average budget per project was increased from 56 million won in 2006 to 84 million won in 2007, 118 million won in 2008 and 141 million won in 2009.

The table below is a list of projects undertaken from 2006 to 2009 for international cooperation in agricultural sector.

<table>
<thead>
<tr>
<th>Table 7-8</th>
<th>International Agricultural Cooperation Projects, 2006~2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>Projects</td>
<td>Recipient Country</td>
</tr>
<tr>
<td>FAO aid for sericulture</td>
<td></td>
</tr>
<tr>
<td>FAO workshop on production and consumption of fresh fruits and vegetables</td>
<td></td>
</tr>
<tr>
<td>FAO/APPPC workshop on international standards development for plant quarantine</td>
<td></td>
</tr>
<tr>
<td>Training of ASEAN plant quarantine experts</td>
<td></td>
</tr>
<tr>
<td>Training on food security information system in ASEAN</td>
<td></td>
</tr>
<tr>
<td>ASEAN agricultural machinery fair and workshop</td>
<td></td>
</tr>
<tr>
<td>Korea-Japan technology committee for agriculture, forestry and fisheries</td>
<td></td>
</tr>
<tr>
<td>Purchase and supply of AI diagnosis kits for ASEAN</td>
<td></td>
</tr>
<tr>
<td>Purchase and supply of AI diagnosis kits</td>
<td>Cambodia</td>
</tr>
<tr>
<td>Technology development and cooperation for livestock hygiene (quality management improvement of processed dairy products)</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Consulting on construction of prototype village for rural development</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Post-harvest management technology transfer</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Greenhouse cultivation technology transfer for ethnic Koreans in CIS</td>
<td></td>
</tr>
<tr>
<td>Post-harvest management technology transfer</td>
<td>Azerbaijan</td>
</tr>
</tbody>
</table>
### 2007

<table>
<thead>
<tr>
<th>Projects</th>
<th>Recipient Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAO/APPPC workshop on international standards development for plant quarantine</td>
<td></td>
</tr>
<tr>
<td>Training on AI diagnosis technology for ASEAN</td>
<td></td>
</tr>
<tr>
<td>Training of ASEAN plant quarantine experts</td>
<td></td>
</tr>
<tr>
<td>ASEAN food safety information system training</td>
<td></td>
</tr>
<tr>
<td>Technology development and cooperation for livestock hygiene (quality management improvement of raw milk)</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Technology assistance training for agricultural development</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Post-harvest management technology assistance</td>
<td>Cambodia, Myanmar</td>
</tr>
<tr>
<td>Rural development consulting</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Rural development consulting</td>
<td>China</td>
</tr>
<tr>
<td>Agricultural technology assistance for ethnic Koreans in CIS</td>
<td></td>
</tr>
<tr>
<td>Post-harvest management technology training</td>
<td>Azerbaijan</td>
</tr>
<tr>
<td>Irrigation technology training</td>
<td>Azerbaijan</td>
</tr>
<tr>
<td>Agricultural/rural development assistance</td>
<td>Cambodia</td>
</tr>
</tbody>
</table>

### 2008

<table>
<thead>
<tr>
<th>Projects</th>
<th>Recipient Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of ASEAN plant quarantine experts</td>
<td></td>
</tr>
<tr>
<td>FAO/APPPC international standards development workshop for plant quarantine in Asia-Pacific</td>
<td></td>
</tr>
<tr>
<td>Seminar on ASEAN livestock safety network</td>
<td></td>
</tr>
<tr>
<td>Cooperation with developing countries in the field of seed industry</td>
<td></td>
</tr>
<tr>
<td>Consulting on pilot project for rural development</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Post-harvest management technology training</td>
<td>Azerbaijan</td>
</tr>
<tr>
<td>Assistance for livestock hygiene management system</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Assistance for ethnic Koreans settling in in CIS</td>
<td></td>
</tr>
<tr>
<td>Rural development cooperation</td>
<td>China</td>
</tr>
</tbody>
</table>
### Agriculture in Korea

<table>
<thead>
<tr>
<th>Projects</th>
<th>Recipient Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEARCA rural development cooperation</td>
<td>Cambodia, Laos, Myanmar, Vietnam</td>
</tr>
<tr>
<td>Bio-energy development cooperation</td>
<td>Indonesia</td>
</tr>
<tr>
<td>Construction assistance for prototype ecotourism village</td>
<td>Nepal</td>
</tr>
<tr>
<td>Facility and technology assistance for production of potatoes for use at</td>
<td>Vietnam</td>
</tr>
<tr>
<td>processing factories</td>
<td></td>
</tr>
<tr>
<td>Technology training for cultivation and processing of tea</td>
<td>Bhutan</td>
</tr>
<tr>
<td>1st follow-up project to 2008 Korea-Mongolia cooperation agreement in</td>
<td>Mongolia</td>
</tr>
<tr>
<td>agriculture (technology assistance in the fields of livestock, feed</td>
<td></td>
</tr>
<tr>
<td>crops, food sanitation)</td>
<td></td>
</tr>
<tr>
<td>2nd follow-up project to 2008 Korea-Mongolia cooperation agreement in</td>
<td>Mongolia</td>
</tr>
<tr>
<td>agriculture (technology assistance in the fields of livestock, food</td>
<td></td>
</tr>
<tr>
<td>sanitation, and agro co-op management)</td>
<td></td>
</tr>
<tr>
<td>Strategy consulting for international cooperation in agriculture</td>
<td></td>
</tr>
</tbody>
</table>

#### 2009

<table>
<thead>
<tr>
<th>Projects</th>
<th>Recipient Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of ASEAN plant quarantine experts</td>
<td></td>
</tr>
<tr>
<td>International standards development workshop for plant quarantine in</td>
<td></td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td></td>
</tr>
<tr>
<td>Seminar on construction of safe livestock network in Asia</td>
<td></td>
</tr>
<tr>
<td>Assistance project on epidemiology of major animals and disease control</td>
<td>Cambodia</td>
</tr>
<tr>
<td>technology</td>
<td></td>
</tr>
<tr>
<td>Cooperation with developing countries in the field of seed industry</td>
<td></td>
</tr>
<tr>
<td>Pilot project to assist farming villages through microloan financing</td>
<td>Cambodia</td>
</tr>
<tr>
<td>3rd Korea-Mongolia agricultural cooperation (technology assistance in</td>
<td>Mongolia</td>
</tr>
<tr>
<td>the field of livestock and feed crops)</td>
<td></td>
</tr>
<tr>
<td>Agricultural technology assistance for ethnic Koreans in CIS</td>
<td>Ukraine, Russia</td>
</tr>
<tr>
<td>Follow-up project of Korea-Mongolia agricultural cooperation committee</td>
<td>Mongolia</td>
</tr>
<tr>
<td>(construction assistance for a safety management system on meat and</td>
<td></td>
</tr>
<tr>
<td>dairy products)</td>
<td></td>
</tr>
<tr>
<td>Facility and technology assistance for production of potatoes for use at</td>
<td>Vietnam</td>
</tr>
<tr>
<td>processing factories</td>
<td></td>
</tr>
</tbody>
</table>
### 2.3. Method of International Agricultural Cooperation

The Center for International Agricultural Development Cooperation at Korea Rural Economic Institute was given the task of managing international agricultural cooperation projects for 2010. For 2010, the international cooperation projects are being carried out under the goal of efficiently conducting agricultural and rural development assistance projects in developing countries.

International agricultural cooperation projects are carried out in three categories: “general projects,” “specially planned projects,” and “joint global projects.”

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Country(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-village construction assistance for rural development</td>
<td>Papua New Guinea</td>
</tr>
<tr>
<td>Facility and technology assistance for production of horticulture and cash crops</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Artificial insemination and embryo transfer for development of the dairy industry</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Regional development consulting for constructing “happy” farming villages</td>
<td>Bhutan</td>
</tr>
<tr>
<td>SEARCA rural development cooperation</td>
<td>Cambodia, Laos, Myanmar, Vietnam</td>
</tr>
<tr>
<td>Forest basin development cooperation</td>
<td>Indonesia</td>
</tr>
<tr>
<td>Korea-China rural development cooperation</td>
<td>China</td>
</tr>
<tr>
<td>Agriculture/rural development cooperation</td>
<td>Vietnam</td>
</tr>
<tr>
<td>Pilot project consulting for rural development</td>
<td>Laos</td>
</tr>
<tr>
<td>Pilot project on the construction of agricultural technology supply system</td>
<td>Mozambique</td>
</tr>
<tr>
<td>Evaluation of international agricultural cooperation projects</td>
<td></td>
</tr>
</tbody>
</table>
General projects are projects that are picked not by the project supervisor but by related organizations, universities and private research institutes. These projects are selected as international agricultural cooperation projects after internal consultation is made about implementing a project with the ministry or an agency in charge of the project in the host country. Unlike specially planned projects, general projects are small in scale with project expenditure not surpassing 500 million won, and in principle are short-term projects that will end within a year. Even if a general project is carried out together with detailed sub-projects, there is a core project such as technology cooperation, and the rest sub-projects are carried out in the form of side projects directly linked with the main project.

A specially planned project is a project that project supervisor picks the host country and project items, and selects the project conductor. It is a mid-and long-term project that takes about three years and combines physical
activities, such as facility construction and supply of agricultural materials, with human resource development activities such as technology transfer, consulting and education and training.

Joint global projects with the international community are cooperative projects that deal with issues that are of interest to the international community, such as attainment of MDGs for food security, green growth and poverty eradication. The objective is to increase synergic effects by combining Korea's
practical experience with the information and capital of the international society for detailed project activities such as provision of facilities and equipment, technology cooperation, consulting and capacity enhancement. By doing so, Korea's international capacity can be enhanced and manifested in the international community.

As of 2010, there are 16 projects that are currently underway or being prepared. These include 11 general projects, 4 specially planned projects, and one joint project with the international community.

### 2.4. Prospects and Tasks

#### 2.4.1. Prospects

The government is in the process of drastically increasing the ODA fund and, as a result, it is expected that the agricultural ODA fund, too, will increase. If the ODA ratio to gross nation income increases to 0.25%, the ODA fund will rise to about 4 trillion won, and the agricultural budget of the Ministry for Food, Agriculture, Forestry, and Fisheries for international cooperation next year will increase to over 10 billion won (based on the budget asked for 2011).

In comparison to other donor countries, Korea holds unique strengths in relation to aid recipient countries. First, Korea is the only country that has freed itself from poverty in a short period of time and became a donor country. Accordingly, Korea possesses a variety of development experiences and extensive technology of its own, and most of all it is still possible to mobilize abundant human resources who have experienced the industrialization and “Green Revolution” of the past three to four decades. Moreover, having experienced the colonial rule and a war similar to the ones underdeveloped countries went through, it may be easy for Korea to
form a psychological bond and trust with them. To put it simply, “The widower knows the widow best.”

However, as an emerging donor country, Korea has some weaknesses too. That is, even though Korea has plenty experiences in industrial development, it lacks the experience of carrying out cooperation projects. Accordingly, there is a short supply of experts who are well versed in a specific field in a host country. In terms of region, too, Southwest Asia, Africa, and Central and South America are relatively new regions for cooperation since Korea has focused mainly on cooperative relations with Northeast Asia, such as Mongolia and China, and Southeast Asia. And above all, Korea's ODA fund is small; ODA fund per capita is about only 16.5 dollars as of 2008.

2.4.2. Tasks

In order to carry out future cooperation projects more efficiently and effectively, the following tasks are suggested for improvement.

A. Division of Role Among Related Agencies

The scope of project organizers that are responsible for implementing international agricultural cooperation projects are being expanded and diversified. Now they include not only non-agricultural external organizations such as KOICA but also the Ministry for Food, Agriculture, Forestry, and Fisheries, its affiliated agencies, and related organizations in the public and private sectors. Basically it is desirable for the ministry to take up the responsibility of coordinating the international cooperation projects that are implemented by the ministry and affiliated agencies. Since there already exists a consultation body for global cooperation projects in the field of agriculture, forestry and fisheries headed by vice minister of
Agriculture Council for Global Cooperation Promotion in Agriculture, Forestry and Fisheries, it is recommended that the council’s functions are reinforced. In addition, an organization should be newly established to assume the role of planning, managing, promoting, and evaluating cooperation projects. In order to support this organization institutionally, it is necessary to enact or revise related laws.

B. Selection of major recipient country and project fields for extensive assistance

In order to efficiently provide assistance with a small budget, it is necessary to take up the “select and focus” approach in choosing countries that will receive assistance. The Development Assistance Committee has already made this point in its review of Korea's assistance projects, and to do so, recipient countries should be selected in consideration of regional and country characteristics and Country Assistance Strategy (CAS).

Table 7-10 Tentative Country Selection Criteria for Intensive Agricultural Cooperation

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
</table>
| Needs for cooperation                   | - General needs
                                              | - Agricultural and rural development needs                              |
| Policy environment, carrying capacity   | - Policy capacity or governance                                          |
                                              | - Carrying capacity or level of agricultural development                |
| Bilateral relations                     | - Bilateral economic, diplomatic relations                               |
                                              | - Bilateral agricultural cooperation (MOU, cooperation in other fields, agricultural trade relations) |
| Policy coherence with the government's ODA objective |                                                           |
| Other qualitative considerations       |                                                                          |
The selection is made in two country categories: “strategic cooperation countries” and “general cooperation countries.” First, strategic cooperation countries are selected based on various factors, such as natural resources, status of bilateral economic relations in the private sector, the potential for future development, and political and diplomatic importance. Second, general cooperation countries are selected among countries that are not strategic cooperation countries. Specific criteria are used to select general cooperation countries. These include the demand for cooperation, the policy environment that can accommodate cooperation projects, bilateral relations, and the conformity to Korea’s ODA policy. In the case of general cooperation countries, it is desirable to select five to ten countries for each region and reexamine their eligibility once every two or three years based on the criteria in view of changed circumstances.

In addition to this, there is a need to determine project target fields where intensive cooperation will be needed. To this end, it is necessary to classify project fields in detail for future implementation. Detailed project fields can include, in addition to humanitarian assistance such as supply of basic household goods and food: supply of basic production materials, agricultural
productivity improvement, agricultural production infrastructure development, distribution equipment and facilities, research and dissemination of production technologies, development of non-farm income source, comprehensive development of rural villages, capacity building, and assistance in designing the implementation system of agricultural development.

Appropriate assistance projects can be selected among these projects after considering the need and development level of prospective countries for cooperation.

C. Systemization of Project Management

Projects for transferring experience should also be carried out in addition to the existing project types of specially planned projects, general projects, and joint global projects. What this aims is to provide, in accordance with the level of recipient country’s economic and agricultural development, skills and experience that were developed and acquired in the process of developing agriculture and rural villages in Korea. It would be desirable to carry out experience transfer projects at home and overseas: that is, one at home by inviting trainees and the other at overseas by dispatching experts for consulting under the project name “Experience Transfer for Agricultural and Rural Development (ETARD).” In the case of experience transfer at home, training should be performed in two ways: policy training for high-ranking officers and on-the-job training for working-level officers.

What is more important is systemization of project finding. Basically project items should be found based on recipient country’s needs. To do so, it is necessary to conduct a survey in the forms of a written survey and a survey on follow-up projects of existing projects. In the case of a requested project, need assessment should be performed to examine the nature and
need for the project and review the project environment in Korea as well as the availability and capability of the project implementation agency.

D. Method of Securing the Budget and Organizational Reform

The reason behind the emerging need to change the way the budget is secured is that, although the budget for the projects is rapidly growing, there is no legal basis to provide subsidies for the projects. Currently, there is a clause on international agricultural cooperation in the “Basic Law on Rural Food Industry,” but there is no administrative rule that backs it up.

Therefore, it is necessary to prepare a legal basis to pay for the projects by adopting rules and ordinances in the forms of revised laws and guidelines or administrative orders of related ministries.

Also, it would be desirable to change the budget into contribution base for stable supply of necessary funds and efficient management of the project. Since the budget size of subsidized projects under the current scheme can vary each year, it is difficult to select and perform mid- and long-term projects and assure continuity and stability of the projects.

The organization that manages the cooperation projects, too, needs to be efficiently expanded and restructured. The installation and management of 2 or 3 teams in charge of strategy planning, evaluation, management, and promotion of projects under the Center for International Agricultural Development Cooperation at Korea Rural Economic Institute can cause difficulty in handling the projects due to rapidly rising project cost and increasing diversification of project types. So, ultimately, it is desirable to establish a separate government-funded organization, tentatively named “Global Cooperation Center for Agriculture, Forestry and Fisheries,” under the Ministry for Food, Agriculture, Forestry, and Fisheries.
Chapter 8

The Prospects and Visions for Korean Agriculture

1. Korean Agriculture and Agricultural Policy in the Global Era
2. The Role and Vision of Korean Agriculture
3. Policy Tasks for the Future of Agriculture and Rural Communities
Chapter 8. The Prospects and Visions for Korean Agriculture

Korea’s agriculture has developed rapidly over the last half century. Despite having suffered from severe food shortages up to the 1960s, Korea has become self-sufficient in rice since the end of the 1970s, and, subsequently, productivity of rice has been greatly enhanced with improvements in the agricultural production base and technology innovation. In addition, the agricultural sector has greatly contributed to the development of the Korean economy by providing land, labor and capital to the secondary and tertiary industries, as well as to the preservation of land resources and the environment.

Although the roles and functions of agriculture have greatly expanded, it cannot be denied that the agricultural structure was still very weak, and was not properly prepare to compete with foreign countries. As a result, the globalization and liberalization that started in the late 1980s was a big shock to the agricultural sector, and such changes provided momentum for agricultural policy reforms and structural adjustment in the 1990s.

It is anticipated that the domestic and international environment surrounding korean agriculture will change even faster than ever before. The changes in the surrounding environment, such as shift towards high-quality and diversified food consumption patterns, expansion in the scope of agriculture into new sectors such as life industry and its upstream and downstream businesses, changes in marketing channels, emergence of consumer-oriented society that places importance on healthy, safe, reliable and environment-friendly products, emergence of low carbon green industries, deepening of international competition, and stabilization of local
autonomous governance will require modifications in the direction and means in implementing agricultural policies.

In particular, aging farm households and inflow of new farming population through the return of baby boomers back to farms will accelerate generation change in farming labor force. On the other hand, the shortage of workers to grow and harvest agricultural products is expected to undermine the pursuit of advanced farming.

Accordingly, seeking new paradigms and strategies in agriculture and rural development is very important in continuing agricultural policy reform.

Section 1. Korean Agriculture and Agricultural Policy in the Global Era

1.1. Trends in World Agriculture and Policies

The trends of world agriculture and agricultural policies during the past half century can be classified into three phases in general. The first phase from 1960 to 1980, was a period during which the focus of agricultural policy was changed from on production and price to on structural adjustment. Until the middle of the 20th century, most developed countries devoted themselves to increasing agricultural production through price supports such as setting minimum prices, as in agriculture-based countries. Although, the price policies were effective for food production, they created other problems, such as inefficiencies in agricultural production and the distortion of production structure. Moreover, the price policy had numerous limitations in solving income problems.
Entering the 1970s, the European Community (EC) became aware that structural policies were fundamentally essential to solve agricultural problems. European countries began introducing agricultural structure policies for the self-reliant management of family farms. As a successful example, the former West Germany implemented a powerful structural policy and increased its farm size more than double during a 10-year period up to the early 1980s.

Despite such achievements, the structural policies of European countries were confronted with common problems such as the following. Firstly, the number of large-size farms was not increased to the extent that was expected, and there appeared a certain range of limitations to increase farming scale through farmland mobilization.

Secondly, a rapid decline in agricultural population due to the out-migration policy caused farm village hollowing, deterioration of natural resources and landscape, and poor management of national territory. Therefore, criticisms and doubts about structural policies arose. Thirdly, as agricultural production was specialized in mono-cropping, and more intensive through large-scale farming, a series of shortcomings, such as the destruction of eco-systems and environmental pollution gradually became serious problems. Fourthly, despite implementing structural policies, the income problems of small farmers could not be resolved.

The second phase was from 1980 until 1995. In this period, the limitations of the efficiency-based agriculture gave birth to regional policies that also supported small farmers. From the mid-1980s, European countries began to implement both regional policies and expansion policies. Such changes were the result of an awareness of external effects of agriculture in addition to the industrial benefits of producing agricultural commodities.
They strongly reflected the conviction that both farmers, i.e. key producers, and rural areas, i.e. space for production must be maintained for the sustainable development of agriculture.

Although there are various policies for sustainable development of regional agriculture, the most widely accepted policy is the so-called “special consideration for less-favored areas.” The direct payment system, which began in Great Britain in the 1980s for less-favored areas, spread out to the entire European continent. It increased farmers’ income, and was
utilized as a useful means for regional development.

Although price support and export assistance contributed to agricultural productivity, over-supply of agricultural products triggered the commencement of the Uruguay Round (UR) negotiations. The UR negotiations on agriculture began in 1986 and reached consensus in December 1993 after long and controversial discussions and debates. Based on this agreement, the World Trade Organization (WTO) was established in 1995, and agricultural globalization proceeded quickly from that point onward.

The third phase is from 1995 to the present. New attempts are being pursued for the sustainable development of agriculture. The major focuses of agricultural policies in the 1990s in many developed countries are environmental protection and national territory maintenance, rather than agricultural production itself. It is widely thought that agriculture’s intrinsic function of preserving natural resources is no less important than producing food. Although traditional agriculture has been developed in the direction of intensifying efficiency, and contributed greatly to the overcoming of food shortages, there is much criticism that intensified agriculture has caused serious external diseconomies, such as the deterioration of ecosystems, soil erosion and contamination, water and air pollution, etc.

Under these circumstances, sustainable agriculture, in particular, has been emerging as an alternative way to cope with such agricultural problems. Firstly, it contributes to not only reducing production but also preserving the environment by adopting extensive and low-input farming. Secondly, it ensures food safety. The high-input technology which has been used in recent decades for petroleum-based industrial farming has increased
yields, but threatens food safety by continuously increasing the use of agricultural chemicals. Nowadays, consumers are more concerned about food quality than quantity, and therefore, food safety has become an important criterion in purchasing food. Thirdly, people are concerned about the exhaustion of resources and the destruction of the environment, such as the pollution of soil, water and air, soil erosion, etc. The UN Framework Convention on Climate Change, which has been founded to prevent global warming, has had considerable effect on the agricultural sector, too.

1.2. Prospects on Changes in International Environment

The changes in external environment surrounding Korea’s agriculture in the 21st century are anticipated to be as follows:

Firstly, due to worldwide trade liberalization, the opening of domestic markets will be further accelerated. In accordance with the country schedule of the Uruguay Round (UR) negotiations, Korea has already been opened fully for most agricultural products except rice. In the ongoing WTO and DDA negotiations, it is anticipated that discussions will focus on lowering trade barriers, such as high-tariffs and state-managed international trade, and non-tariff measures including quarantine are also expected to be standardized according to global standards. In addition, negotiations are underway to reach free trade agreements (FTAs) with Japan, Mexico, Australia, New Zealand, India and Canada following the conclusion of FTAs with Chile, Singapore, European Free Trade Association (EFTA), Association of Southeast Asian Nations (ASEAN), the United States and European Union (EU). Accordingly, market liberalization is expected to expand even further in the future. Meanwhile, despite the delay in the DDA negotiations launched in Doha, Qatar in 2001 due to differences in the
positions of member states including that of the U.S, China and India, the possibility of its conclusion has been heightened as leaders agreed on international efforts to conclude the negotiations by 2011 at the G20 Summit and APEC Summit in November 2010.

Another important variable is the emergence of a new agricultural trade order in line with the enhanced economic power of Asian countries that has expanded from Japan, Korea, Taiwan and Hong Kong to include China, India and ASEAN. The newly industrialized economies of China and India, as well as other BRIC countries, are expected to grow continuously at a high rate, acting as a crucial engine in expanding the global economy. Oppositely, industrialized economies of OECD countries including the U.S., which currently dominates the global economy, are expected to enter into a low growth trajectory at an annual average in the 2% level up until 2020.

Accordingly, industrialized countries are likely to make outright demands for growing Asian countries to open their markets with the agricultural sector being a key target of liberalization. Among Asian countries, Korea is expected to be targeted as a key export market, resulting in increased demands for market liberalization from neighboring countries to the level that befits its economic size. In the case of China’s market, potential demand of agricultural products is expected to be so large that it will emerge as a major agricultural import country in the near future.

Secondly, the need for food security will be increased because the world grain market has become unstable. Abnormal weather changes in recent years have led to predictions that instability of the world’s grain markets will continue, and that the necessity of national food security will be increased accordingly. It is anticipated that developing countries
including China, in particular, will be converted from grain exporting countries to importing countries due to their industry-centered growth strategies and increased consumption. There is also a possibility that the lowering of agricultural protection under the WTO will reduce the food supply on the world level. In reality, food exports of the EU are decreasing due to agricultural reforms, and it is difficult for even such traditional exporting countries as the United States, Australia, and Canada to increase production capacities. In accordance with the instability of supply and the reduction of national stockpiles, it is foreseeable that the concept of food security will change from the past’s ideological focus to an economic one that is based on actual profits.

Thirdly, population will become a key factor affecting the future global economic environment. World population is expected to increase at an annual average rate of 1.1%, reaching 7.6 billion by 2020 and 9.0 billion by 2050.

<table>
<thead>
<tr>
<th>Table 8-2</th>
<th>Annual Average Growth Rate of World Population</th>
<th>unit: % (annual average)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1988 ~ 2007</td>
<td>2008 ~ 2020</td>
</tr>
<tr>
<td>World</td>
<td>1.23</td>
<td>1.07</td>
</tr>
<tr>
<td>Africa</td>
<td>2.37</td>
<td>2.16</td>
</tr>
<tr>
<td>Latin America</td>
<td>1.28</td>
<td>0.96</td>
</tr>
<tr>
<td>North America</td>
<td>1.01</td>
<td>0.88</td>
</tr>
<tr>
<td>Europe</td>
<td>0.30</td>
<td>0.01</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>1.27</td>
<td>1.00</td>
</tr>
<tr>
<td>Oceania</td>
<td>1.18</td>
<td>1.20</td>
</tr>
</tbody>
</table>

Global demand for agricultural products and high value-added foods is rising as world and aging populations increases. In particular, food demand is also on the rise in BRIC nations as poverty declines in line with their high economic growth. By 2030, global demand for food is expected to increase by approximately 50% (World Bank).

Fourth, global warming will worsen and resources will become more scarce. Global warming and climate change are being accelerated due to industrialization, urbanization and increased use of fossil fuel. In addition, continued rise in demand for energy and resources is increasing the problem of resource depletion. Over the past 100 years, global temperature has increased by 0.74°C, while oil reserves are estimated to be 136.3 billion tons, lasting for 40 years.

Environment pollution and resource shortages are greatly threatening the sustainable development of humankind. Approximately 800,000 deaths every year in major growing cities are related to air pollution. On the Korean peninsula, the rate of the rise in temperature exceeds the world average by 2 times, which is expected to bring about a serious change in the long run. During the past 100 years, the temperature in Korea has risen by 1.5°C, pushing farming lands upward to the north.

International oil prices are expected to remain high for a significant period of time going forward due to geopolitical instability and limited supply. While some anticipate that oil prices will fall in the long term as high prices will decrease oil demand, prices are expected to remain strong as geopolitical tensions linger in the Middle East and oil supply falls short of effective demand due to inelastic oil production and refining capacity.

As urbanization is expected to accelerate throughout the world with global population forecasted to increase by approximately 1.2 billion by
2030, water shortages will emerge as a serious problem as stably securing water resources becomes more difficult. Experts estimate that 600 million people in 21 countries currently suffer from shortage of farmland or water.

Global warming is already affecting the technical aspects of agriculture today. Policy-wise, the reduction of greenhouse gases has become an important policy priority of each government, while regulations on the negative effects of agriculture on the quality of soil and water are also being strengthened. Furthermore, high oil prices are apparently in a rising trend, creating a competitive relationship between the production of food and energy crops in the use of farmlands.

1.3. Prospects on Changes in Domestic Environment

It is anticipated that the domestic environment will be changed as follows: First, the initiative of the agricultural commodity market will be shifted from producers to consumers. It is anticipated that the product differentiation will accelerate due to the diversified consumption of agricultural products in a high-income era, and the food service industry will grow rapidly. As the food market grows, the roles of storage and processing sector will expand, and the combined industrialization of the food sector through vertical integration will make advances. In addition, large-size retailers, such as discount stores and specialty stores, will dominate the agricultural market along with the specialization and diversification of marketing channels. Quick changes are expected to take place in marketing at the production and wholesale levels in step with changes in the retail sector.

Secondly, competition in domestic agricultural market will become severe. As almost agricultural products have to compete in the open
market, only those products with high quality will be chosen by consumers, meaning that the market will shrink unless domestic products are differentiated from foreign products through quality, production cost reduction, and productivity improvement. Ultimately, only those agricultural firms and products that are on the levels suitable for export will be able to produce continuously in the domestic market.

Thirdly, the multifunctionality of agriculture is predicted to increase as Korea becomes an even more advanced country. Environment-friendly agriculture, which aims to supply safe food and preserve the environment while maintaining productivity, is an international trend. Agriculture has played many roles on the national level, such as food security, conservation of the national territory and the environment, as well as many social functions, including the maintenance of farm villages, prevention city congestion, providing employment in the agricultural industry, and support of aged populations. Therefore, the improvement of welfare and living conditions for diverse farm households, including specialized self-reliant farms, will be an important task for not only vitalizing the regional society, but also for restructuring the agricultural industry.

Fourthly, the government’s policy responses to preparation for an improved relationship between South and North Korea and the reunification of the two countries will be important. Especially, preparation for reunification with North Korea, which is in a chronic state of food shortage, realistic responses are necessary on the part of South Korea. Moreover, it is also important to prepare not only short-term measures, such as providing technology and agricultural inputs, but also ways to solve the fundamental problems of agriculture, including structural reforms.
Section 2. The Role and Vision of Korean Agriculture

2.1. Anticipated Roles of Agriculture and Rural Region

The Korea Rural Economic Institute conducted a survey of 1,500 urban residents, 816 farmers and 64 experts during October~November 2010, asking their opinion on the role of agriculture and rural regions. The results showed that they had a positive view overall. Particularly, on the question of the importance of agriculture in the national economy, the ratio of respondents who said that agriculture will continue to be important in the future accounted for 88.4% of urban residents and 72.1% of farmers, revealing that more urban residents than farmers perceived agriculture to be an important industry.

On the question of anticipated roles of agriculture and rural regions, urban residents, farmers and experts alike picked “stable supply of safe foods” as the most important role with such perception being the highest in the order of experts, urban residents and farmers. The second most important role of agriculture and rural regions perceived by the respondents was preservation of natural environment and balanced development of national territory.

As was revealed in the survey, Korean agriculture is expected to perform multiple roles: a key industry creating added values and employment, an environmentally sound industry preserving ecosystems, well as a food supply for the country.

Firstly, Korean agriculture is required to play the role of a life industry to supply safe, stable, cheap and high-quality food to the people. If food, a source of life, cannot be provided with independent capacity, it would be
difficult to maintain the foundation of a nation, and if the bedrock of agriculture collapses, it must spend numerous costs and effort to recover the crumbled agricultural foundation.

The second role of Korean agriculture is the preservation of esthetically attractive landscapes, which are safe and healthful for the enjoyment of people. As can be seen from the global trend, the Korean people became aware of such agricultural roles as controlling floods, preserving the land, fostering water resources, and purifying the air. In addition, the importance of agriculture as an environment-friendly industry will be increase with worldwide efforts to preserve the global environment. Therefore, in the 21st century, it is very important for Korean agriculture to produce positive external functions as much as possible while minimizing the negative impacts on the environment.

### Table 8-3 Perception on the Present and Future Role of Agriculture and Rural Region (2010)

<table>
<thead>
<tr>
<th>Classification</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban residents</td>
</tr>
<tr>
<td></td>
<td>Present</td>
</tr>
<tr>
<td>Stable supply of safe food</td>
<td>42.4</td>
</tr>
<tr>
<td>Preservation of natural environment</td>
<td>23.0</td>
</tr>
<tr>
<td>Balanced development of national territory</td>
<td>15.7</td>
</tr>
<tr>
<td>Succession of tradition</td>
<td>8.4</td>
</tr>
<tr>
<td>Place for tourism and leisure</td>
<td>3.7</td>
</tr>
<tr>
<td>Space for rural life</td>
<td>6.6</td>
</tr>
<tr>
<td>Others</td>
<td>0.1</td>
</tr>
<tr>
<td>No response</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

unit: %
Thirdly, Korean agriculture should contribute to the growth and stability of the national economy. Agriculture is one of the key industries that create jobs and added values from natural resources. It is also widely understood that agriculture is the basis for traditional and regional culture, as well as political and social stability. For instance, it costs three times more to support the livelihood of urban people than to do the same for rural residents, and the rapid exodus from the agricultural areas may increase urban problems such as housing shortage, traffic congestion, and poverty.

Moreover, agritourism is emerging as a new income source since rural...
regions are the root of rural amenities, such as traditional and cultural heritage, scenic views, etc.

2.2. Potential and Vision of Korean Agriculture

Korean agriculture has the potential to grow in many respects. Therefore, it is necessary to analyze the surrounding factors of Korean agriculture into strengths, weaknesses, opportunities and threats (SWOT analysis), and then reduce weaknesses and risks and make the best use of strengths and opportunities.

Firstly, the agricultural and food market in Korea is continuously growing together with the growth of consumers’ purchasing power. The Korean agricultural market is much larger than that of the agriculturally advanced countries, such as the Netherlands or Demark, and the growth of the domestic market makes opportunities to enter international markets easily. The Asian agricultural markets including Japan, Taiwan and Singapore are expanding, while China has an extremely large potential for importing high-quality agricultural products. Moreover, as consumers’ awareness of quality and safety rises, non-price competition, such as quality differentiation and marketing strategy, has become important.

Secondly, new farming units that would lead future agricultural production are emerging such as specialized large farms. Young farm-successors are increasingly choosing agriculture as a lifetime job. Despite being small in number so far, these farms apply advanced technologies to enhance the values of agricultural products, and act as leaders of regional agriculture. Some of them have established agri-business by integrating production, processing and marketing vertically, and have created non-farm income sources. Furthermore, there are successful examples that the
domestically gained experience and venture spirit have helped agricultural ventures overseas.

Thirdly, it is possible to realize high value-added agriculture by utilizing technology, knowledge, information, natural conditions. Agriculture is an applied science which can be fusing nature with advanced technologies, and therefore, it is possible to raise value and productivity by applying the most advanced scientific technology, such as bio technology (BT) and information technology (IT), into the farming industry. Accordingly, investment for research and development is a crucial task for creating a growth engine for future agriculture.

Lastly, new values of agriculture, including its multifunctionality, are becoming more prominent. The ‘multifunctionality’ of agriculture is a concept that has a character of a public good and refers to all external values of agriculture that are gained in connection with agricultural production. In the future, the values of agriculture and rural community as environmental and ecological space, as well as cultural space, will gain further importance in step with the transformation of society from highly industrialized to a post-industrialized.

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Competent man-power and venture spirit</td>
<td>- Small arable land and weak structure</td>
</tr>
<tr>
<td>- High technology and capability for R&amp;D</td>
<td>- High-cost structure: high rent, wages, etc.</td>
</tr>
<tr>
<td>- Government’s investment in agriculture</td>
<td>- Inefficient logistics and marketing system</td>
</tr>
<tr>
<td><strong>Opportunity</strong></td>
<td><strong>Threat</strong></td>
</tr>
<tr>
<td>- High purchasing power (domestic and neighbor countries)</td>
<td>- Increase in agricultural imports due to market opening</td>
</tr>
<tr>
<td>- Development of high technology and possibility of agricultural utilization</td>
<td>- Competition with China in Japanese market</td>
</tr>
<tr>
<td>- Formation of specialized and scaled-up agro-firms</td>
<td>- WTO’s mandates to lower trade barrier</td>
</tr>
</tbody>
</table>
2.3. Future Image of Agriculture and Rural Community

First, agriculture as a life industry will develop into a new growth sector of Korea’s economy. In order to achieve this, it takes efforts of the new growth industrialization to expand the scope of the current agriculture industry to cover sectors that create value-added for the benefit of humankind. A life industry creates life resources such as animals, plants and micro-organisms, as well as relevant high value-added products and services.

In order to foster Korea’s agriculture into a high quality, high value-added competitive industry, agriculture must be transformed into a growth industry by expanding its scope to cover new sectors such as life industry, seeds, industrial micor-organisms, insects, pet animals, decorative plants, natural materials and aroma industry.

The production costs of Korea’s agriculture are high due to the relatively low competitiveness of related upstream industries, which in turn adversely affect the incomes of farm households. Accordingly, such upstream industries of agriculture, forestry and fisheries such as seeds, breeding, agricultural materials (fertilizers, materials, pesticides) and farming machines must be expanded and even grown into export sectors.

In addition to new growth industrialization of agriculture, traditional farming needs to be converted into a small selective number of specialized industries by various managing bodies. Upstream and downstream industries related to agricultural production should also be linked by region to form a cluster in order to increase the income source of farmers and rural residents.
Figure 8-2  Agro-Food Industry’s Expansion to Other Industries

Figure 8-3  Future Landscape of New Growth Industrialization

- **Value-added of Agricultural & Fishing Industry**
  - 2008: W 2.3 trillion
  - 2020: W 3.5 trillion
  - 1.5 times

- **Value-added of Food**
  - 2008: W 3.4 trillion
  - 2020: W 5.8 trillion
  - 1.7 times

- **Value-added of Agricultural & Related Upstream & Downstream Industries**
  - 2008: W 3.8 trillion
  - 2020: W 5.9 trillion
  - 1.6 times

- **Agricultural & Fisheries Exports**
  - 2008: W 4.4 billion
  - 2020: W 30.0 billion
  - 6.3 times

- **Animal & Plant Market**
  - 2008: W 1.6 trillion
  - 2020: W 8.0 trillion
  - 5 times

- **Specialized Farming Households**
  - 2008: 340,000 households
  - 2020: 340,000 households
  - 1.4 times

- **Farming Household Income**
  - 2008: W 30.52 million
  - 2020: W 50 million
  - 1.6 times
Second, agriculture and forestry industry will play the role of supplying safe agricultural foods to consumers and amenity to rural communities. Recently, the ratio of fresh produce in Korea’s food consumption is declining, while processed foods and dining are increasing. As a result, concerns over imported agricultural products and food, including Chinese, have increased among Koreans. In addition, Korean consumers are gradually placing a greater importance on safety rather than price, which is expected to become even more so as income level rises.

Securing a safe food system is not only a national concern of the Korean people, but also holds an important meaning in terms of revitalizing Korea’s agriculture and rural regions. Accordingly, a high standard of safe and reliable agricultural food supply system needs to be put into place through the full implementation of such systems as product tracking, HACCP, country-of-origin labelling and certification. Furthermore, domestic organic agricultural products should also be supplied to institutional meal services for schools and the military, generating increased

Note: Figures subsequent to 2010 represent forecasts.
domestic supply and also relieving national concerns.

Considering the structural change in the global food supply and demand paradigm recently, it is highly likely that the current food self-sufficiency ratio (overall self-sufficiency ratio: 28%, food grain self-sufficiency ratio: 51%) will create problems related to food safety and its stable supply (volume and price). As such, food self-sufficiency ratio should be set as a national goal at an adequate level and production base such as farmland should also be secured to achieve such goal.

Amenity of rural community resources and environment needs to be utilized as leisure space and tourist resource. Developing rural communities into places that enable national environment conservation and sustainable rural society development is aimed at maximizing the multifunctionality of agriculture and rural communities.

Third, rural communities will be transformed into places that provide a rich cultural life and welfare services. The future landscape of rural region policy will focus on agriculture and rural communities exploiting their multifunctionality to the maximum extent by developing rural communities into places that enable national environment conservation and sustainable rural society development. In this respect, strengthening the social welfare
system and establishing the foundations for a rich cultural life, which improves the quality of life of rural residents, are needed to attract the inflow and stop the outflow of rural population.

In order to increase the efficiency of policy investments, basic settlement area of collective farming and non-farming communities must be established around major towns away from extended rural regions so as to integrate underpopulated towns. Accordingly, the desirable picture would be for the majority of rural residents to live around major towns by encouraging remote farming (greenhouse horticulture, livestock production) and commuter farming. With regard to rice farming, joint use of farming machines on a paddy field basis should be encouraged, while also establishing the foundations for farmer organizations to increase the scale of farming.

As welfare, cultural activities and medical services are centered around major towns, goals should also be set to implement onsite welfare services for communities located in the outskirts of rural regions. An example would be to operate a rural social welfare worker program to reinforce welfare and medical systems.
Fourth, agricultural production and rural living will transform into low carbon emission production and living. Transformation into environment-friendly agriculture and rural communities is not only important to agriculture and rural communities alone, but also to the sustainable development of the national economy. The balance between growth, wealth distribution and environment of agriculture and rural community serves as important factors to the sustainable development of the national economy in that agriculture and rural communities in most countries lag behind other industries or urban regions in terms of both growth and distribution of wealth, and in that agriculture is the most vast user of the natural environment within the economic activities.
Particularly, under the current circumstances in which crisis in the economy, wealth distribution and environment has accumulated, agriculture and rural communities around the world must inevitably aim towards sustainable agriculture and rural communities. The recent global trends surrounding agriculture and rural communities further supports such possibility. In this respect, foundations for production facilities such as advanced horticulture facilities, plant factories and livestock facilities need to be improved to conserve and utilize environmental and cultural resources. In addition, plans to utilize alternative and renewable (geothermal, solar and wind) energies for heating rural households need to be devised. Accordingly, greenhouse gases generated by the agricultural sector is expected to continuously decline, greatly contributing to the management of greenhouse gases at the national level.

Recently, interest in low input sustainable agriculture and organic farming with regard to environmental pollution and food safety has grown significantly, leading to explosive growth in related markets. In this respect, fertilizers and pesticides need to be controlled at an adequate level, while the use of manure customized for each region should be expanded. In addition, the use of crop-livestock circulation systems must be expanded through the recycling of livestock manure.
Section 3. Policy Tasks for the Future of Agriculture and Rural Communities

3.1. Paradigm Shift of Agriculture and Agricultural Policy

<table>
<thead>
<tr>
<th>Table 8-5</th>
<th>Future Landscape of Agricultural Production and Rural Community Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geothermal Heating Facility</td>
<td>2009 2020</td>
</tr>
<tr>
<td>Livestock Manure Recycling</td>
<td>2009 2020</td>
</tr>
<tr>
<td>Marine Afforestation</td>
<td>2009 2020</td>
</tr>
</tbody>
</table>

The Policy direction in setting forth visions for agriculture and rural communities needs to be reestablished to align policy means to international standards to prepare for the accelerated market liberalization stemming from possible conclusion of FTA and DDA negotiations that are in progress.

The focus of agricultural policy going forward should be shifted to i) reflect new values, ii) incorporate collective approach to agriculture and rural development, and iii) concentrate on technology innovation policies.

First of all, a framework for innovating agricultural policy that covers diverse viewpoints such as agriculture, rural communities, food, environment and energy need to be established to reflect the various values required by the new era of the 21st century. As such, the utmost priority of policy must be placed on food safety and environmental conservation. Accordingly, agricultural policy must be shifted towards sustainability that embodies environment, safety, efficiency and balance.
With respect to sustainable development of agriculture and rural community, regional industries need to be considered to take into account the value chain of food and other industry sectors as opposed to agriculture. In addition, an integrated approach to industry that emphasizes employment is also desirable. Furthermore, a unified perspective in terms of landscape, environment and national land usage must also be crucial to the sustainable development of agriculture and rural community.

In order to respond to the new challenges facing agricultural policy such as food safety, quality improvement, environmental conservation and problems related to food, energy and resources, technology innovation policy that emphasize the role of knowledge, technology creation and dissemination must be stressed. This is also important for enhancing agricultural innovation and ability to generate value-added.

Policy target setting need to be approached from i) the context of placing importance on public sentiments and ii) the coverage of agricultural policy. Future agricultural policy should take into account public interest to include producers, consumers and even future generations. In addition, the coverage of agricultural policy should expand beyond the production-oriented approach of the past to encompass food system and related upstream and downstream industries of agriculture (agribusiness).

In implementing agricultural policies, emphasis should be placed on promoting innovation and collaboration, establishing a new governance structure, and securing consistency and efficiency.

First, the stance on promoting innovation and collaboration needs to be clearly established. The government must become a facilitator that focuses on establishing a system, which encourages market innovation as opposed to constructivistic market intervention. In particular, the government must
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Table 8-6  Direction for Shift in Agricultural Policy Paradigm

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>① New Value</td>
<td>Short-term efficiency, restructuring</td>
<td>Sustainability (=agriculture + safety + balance + efficiency)</td>
</tr>
<tr>
<td>② Integrated Approach</td>
<td>Agriculture-oriented</td>
<td>· Value chain-centered industry integration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Landscape, environment-oriented spatial integration</td>
</tr>
<tr>
<td>③ Technological Innovation</td>
<td>Increase in production and productivity</td>
<td>· Response to new challenges such as safety, quality improvement and environment issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Improvement of value-added generation capability</td>
</tr>
</tbody>
</table>

Second, a new governance structure needs to be established to reflect the values, interests of various economic subjects and civil society in the process of policy decision-making. In particular, a system of adequately dividing the roles between the government and private sector, and between the central and local governments is needed (so-called shift of implementation system from government to governance). As future

focus on creating and disseminating new knowledge and technologies to allow for the constituents of food system to build up their capacities to actively and flexibly respond to the rapidly changing domestic and international environment. Important tasks to this end include providing support for innovation towards knowledge-based agriculture, promoting collaboration and integration among industries, stakeholders, and establishing an efficient R&D system. Furthermore, future agricultural policy must focus on improving the linkage and coherence among policies, rather than pouring out a variety of sectoral policies.
agricultural policy needs to allow for the public interest of agriculture and rural communities to be exhibited to its maximum extent, the responsibility must be rationally shared among related parties based on a broad social consensus that includes not only farmers and policymakers, but also consumers and taxpayers.

Third, institutional arrangements need to be put in place in order to guarantee the consistency and efficiency of policy. In particular, a system in which mid-term plans are formed and implemented based on fundamental laws, and policy being subsequently adjusted according to changes in conditions must be established. In this respect, the introduction of a 5~10 year periodic policy review system as conducted on the United States’ agriculture laws, EU’s periodic CAP reform, and Japan’s food, agriculture and rural community basic plans is needed.

An important reform task with regard to policy means is to establish a direct payment-centered fiscal burden-type policy system and innovate the subsidy support system. First, direct payment must go beyond being a simple means of income compensation and social security to be used as a means to shift the paradigm. The current aggregate measured direct payment system such as rice direct payments has an adverse effect of instigating the gap between agriculture, consumers and market. Accordingly, such system must be converted into a fixed direct payment system(production-neutral) to strengthen the market responsiveness of agriculture. Furthermore, the direct payment system must be restructured towards strengthening environmental direct payments in order to reduce the gap between environmental conservation and agriculture.

Second, various investment and loan support must not simply be a subsidy, but rather should focus on improving its ability to create value
that meets the needs of consumers, market and the public. This should be based on the perception that the definite foundations of agricultural development lie in consumers and market confidence, not subsidies or facilities support.

3.2. Major Policy Tasks and Direction

Future agricultural policy vision needs to be set as “securing the sustainability of agriculture and rural communities.” Sustainable environment-friendly agriculture system should be established from the perspective of emphasizing environment and safety, which are the challenges facing the entire world in the 21st century. At the same time, such vision aims to provide a stable supply of reliable food to the public. It also allows for agriculture and rural communities to fully manifest its multiple values by transforming rural communities into rich places for living. Furthermore, the vision seeks to build a system in which producers are compensated in the market for their supply of high quality, safe agricultural products, while being compensated by the government for other multiple functions that are not valued by the market. The key words in incorporating such a vision for renewed growth are food safety and environmental conservation in the sense that agriculture, rural communities provide new opportunities and energy.

The basic principle that constitute such vision is sustainability as an extended concept that includes not only efficiency, equality and environment, but also safety. Efficiency refers to agriculture being restructured into a market-oriented industry. Equality refers to the alleviation of the income gaps between farmers and urban-dweller, and structural gaps between urban and rural regions. Environment refers to the
restructuring of agricultural production system into an environment-friendly system, while safety refers to the supply of safe foods to the public.

The fundamental goal of agricultural policy must be set to i) provide a stable supply of reliable food to the public, ii) maximize the value creation capacities of agriculture based on sustainable environment-friendly agriculture system, and iii) allow for agriculture and rural communities to fully manifest their multiple roles by developing rural communities into places for national environment conservation and sustainable social development.

In order to efficiently pursue the basic goals of agricultural policies, policy areas must be divided into the 3 categories of agricultural policy, rural community policy and food policy to establish the framework for a public agricultural policy that closely inter-links the three policies under the
integrated principle of sustainability.

Key policy goals and challenges according to each area are as follows:

In terms of agricultural policy, where past policies focused on efficiency and market principles, future policies need to be restructured to emphasize the environment and safety, as well as efficiency and equality. In other words, an agricultural system that enhances food safety and environmental conservation required by consumers and market, while at the same time allows for growth in the agriculture industry and incomes of farmers is needed.

Particularly, it calls for the innovation of the agricultural system into high quality, safe, reliable, low-input, environment-friendly, resource cycling agriculture that reflects the needs of consumers and the market. Based on such innovation, a virtuous cycle of agricultural industry growth, income increase and environmental conservation must be established by securing various opportunities to create high value-added. In this respect, future agricultural policy goal can be set as “improvement of value creation capacities based on sustainable agricultural system.”

In order to achieve such policy goals, such key issues as improving value competitiveness, establishing managing bodies of farm operations and strengthening their capacities, and creating environmental values based on environmental agriculture and bio-resources need to be addressed.

For continuous development of the agricultural industry, its competitiveness must be strengthened. However, the concept of competitiveness needs to be extended from cost-centered price competitiveness to value competitiveness, which incorporates both the concept of product function and cost. The function of agricultural products can enhanced through quality innovation and creation of new demand. In this respect, strategies to reinforce
marketing capabilities need to be devised. In addition, innovative activities create ① agricultural incomes through quality innovations (functional improvement) that meet the demands of consumers and the market, which prefer safe and high quality products and ② new markets and demands through the development of new demands (functional expansion) that combine food, environment, resource and culture.

In order to strengthen the marketing capabilities for quality innovation and new demand creation, networking between region areas and agriculture must be reinforced through vertical and horizontal integration. In particular, horizontal integration through the consolidation of regional agriculture and vertical integration through the formation of marketing boards by item should be promoted. During the process, systematic improvement (cooperative reform) must be pursued to allow for a smooth progress.

Meanwhile, cost reduction needs to be pursued according to a new strategy of organization and reduction. Farm operations must go beyond increasing the size of individual farm operations to increase its efficiency through the organization of farm operations based on regions. At the same time, efficiency and environmental conformity must also be secured by reducing such inputs as chemical materials in the production process, and also food miles and distribution stages in the marketing process.

The biggest challenge facing agriculture in Korea is the establishment of managing bodies of farm operations. Forming such managing bodies cannot be achieved by simply designating succeeding and new start-up farmers or establishing farmlands and facility bases. Rather, education, training and consulting for fostering human capital, along with R&D system establishment and investment, need to be increased significantly. In addition, foundations for utilizing the knowhow of other industries must
also be actively instituted to accumulate the management capacities lacking within the agricultural industry.

In going beyond creating managing bodies to guarantee its stable growth, it must also be backed by measure to stabilize its income and management. Under the circumstance where incomes and business instability of farm households are deteriorating, a system of providing direct payments for income compensation needs to be secured as a risk management system in response to price risks and uncertainties in order to relieve farm households of any anxiety so that they may concentrate on farm operations. However, thorough review and analysis of the direct payment system restructuring should be conducted to allow for the system to be utilized as a major means to stimulate a paradigm shift away from its current simple function of providing compensation for income and market liberalization.

To establish an agricultural system that emphasizes environmental conservation and food safety, continued expansion of environmental agriculture is needed. In this respect, policy issues must be focused on the following three aspects.

First, resource-innovating agriculture must be pursued to respond to environmental pollution and rising prices of agricultural materials. Innovation in the input of agricultural production, which simultaneously promotes environmental conservation and quality innovation, needs to be pursued as food safety and environmental conservation is fundamentally...
impossible without it. Resource innovation can be pursued in two directions. An example of the first is low input agriculture or precision farming, which reduces the input of energy and agri-chemical materials. The other is detoxification, which converts the properties of agricultural input materials into ecological characteristics. Examples of such include organic and ecological farming. In order to promote innovation in inputs, environmental direct payments must be expanded as a social compensation for the external economy created by environmental agriculture.

Second, resource cycling agriculture that utilizes regional resources must be expanded. By establishing a resource cycling agricultural system that makes use of regional resources as opposed to agricultural material (feeds, agri-chemical materials, fossil fuel) imports that lead to overseas outflow of farming income, innovation that enhances food safety, environmental conservation and farming business stabilization should be pursued. Combing sowing and livestock farming promotes environmental conservation and greenhouse gas reduction, while securing feed crops at the regional level conserves energy and stimulates the use of idle farmland not being used in the region. Furthermore, the use of energy sources that can be obtained in the rural regions will reduce both costs and greenhouse gases.

Third, reliability and stable demand for environment-friendly agricultural products must be enhanced. Accordingly, labeling systems to enhance reliability in the distribution process and increased direct transaction relationships based on credibility need to be increased, while also expanding stable demand programs such as institutional, public and food stamp meal services.

Domestic agricultural, forestry and marine resources should also be industrialized for the preservation of the environment and creation of new
industries and jobs. In order to promote the biomass industry in response to climate change and energy problems, resources of key concerns currently such as thinned timbers and livestock manure should be actively utilized in the short-to-mid-term. At the same time, refuse derived fuel should also be used considering the limitations of compost and liquidated livestock manure and cogeneration.

The goal of rural community policy should be set to reinforce capacities and maximize multiple values of regional areas. Keys tasks for achieving such goals include creating engines for development through capacity-building of rural regions, improving the quality of life of rural residents, conserving the resources of rural regions and maximizing their multiple values.

The engines for development of rural communities in the past lied in the attraction of conglomerates or support from policy programs. However, rather than contributing to the sustainable development of rural society and economy, such methods have deepened their reliance on external factors. As such, the need for regional capacity building is arising so as to enhance their own internal ability to find the engines for growth. In this respect, policy focus need to be placed on capacity development of individual rural communities to discover and solve their problems on their own.

While there are a diverse range of methods and means to build capacities, policy support should focus on the following activities: support for start-ups and operation of rural businesses, support for job-creating businesses, promotion of rural social enterprises and supporting functions, promotion of rural community functions, formulation and implementation of private-led business plans, etc.

In particular, institutional mechanisms for maintaining and preserving
various types of rural resources need to be devised. The first step is implementing environmental direct payment system with a strengthened cross-compliance. Second is creating and implementing a spatial plan for not only farmlands, but also zone lands, rivers, forests and residential districts by introducing a rural community planning system. Third is reviewing the introduction of a contractual land use system other than regulatory zoning and planning permissions as an institutional mechanism for preserving the value of rural region resources.

The goal of food policy must be set as the stable supply of safe foods as required by the public. The target area(sectoral policy) for materializing such goal can be categorized into food safety and reliability policy, food security policy, food industry policy and food nutrition policy. Key policy tasks include securing food safety and reliability, attaining food self-sufficiency, strengthening the sound development of the food industry and its linkage with agriculture, and improving the diet and nutrition of the public.

Priority tasks for securing food safety and reliability include separating risk assessment from risk management based on risk analysis, restructuring the system to integrate and streamline each function, and expanding and reinforcing risk communication. In particular, the autonomy of the risk assessment institution that will be responsible for disclosing scientific and
independent assessment reports to the public is crucial in order to gain consumer confidence.

At the same time, by encouraging the use of advanced safety management techniques from farms to consumers, food safety and consumer confidence will be enhanced. In addition, a support system that combines cross-compliance needs to be devised in order to encourage the expansion of such programs as GAP, Traceability and HACCP. With respect to safety and reliability policy, establishing an active mechanism to induce corporate social responsibility of food companies is important as food safety and reliability cannot be achieved through institutional regulations alone.

In order to secure food security for emergency situations, policy should be directed towards establishing and maintaining a certain level of domestic grain production capacity, while simultaneously diversifying import sources and operating an efficient reserve system. Like Japan, a legal base needs to be constructed to establish a food security manual to quickly respond to emergency states (e.g. emergency food plan).

The most important preparation to make for food security during normal times is securing agricultural resources required for food production in its usable state. Agricultural resources refers to farmland, water for agricultural use, and labor force with agricultural technology. However, securing farmland is the most important factor among the three resources. As such, the current system of converting small pieces of lots into farmland needs to be restructured into a planned and collective zoning system.

Securing domestic production potential must be approached from the perspective of fully restructuring the cropping system to cover not only rice, but also beans, wheat, corn, barley and other feed crops. Its goals...
should be aimed at establishing a sustainable agricultural production system in terms of resource cycling agriculture that include crops and livestock.

Food industry policy can be categorized into policies that target sound development of food industry sectors such as food production, food distribution and dining, and policies that aim to strengthen the linkage between the food industry and other sectors, especially agriculture. The key tasks of the former include infrastructure-building (including R&D support), streamlining and increasing the efficiency of marketing, and enhancing the environmental soundness of the food system. Infrastructure-building should be centered around software businesses such as statistical information database, consulting and R&D support, while hardware should be limited to support for facilities maintenance in order to enhance food safety. In order to streamline and increase the efficiency of marketing, the key tasks lie in reducing costs in marketing stages, forming multiple marketing channels, establishing information networks, and instituting safety measures related to food safety and consumer confidence. With respect to enhancing the environmental soundness of the food system, reducing and recycling wastes including food losses in the food industry sector, lowering toxic substance emissions, cutting down on energy use, and shortening transportation distances are needed.

In principle, the linkage between the food industry and agriculture should be reinforced in connection to rural region policies. Creating and expanding new markets, employment and job opportunities are important in this context and should be pursued by establishing a cluster-type linkage system to develop and provide new high value-added products and services based on local agricultural products.
Development and operation of a diverse range of programs for providing adequate and balanced high quality foods to the public are needed. This includes healthy diet campaigns, food and nutrition support programs for the elderly and children of low-income households, food procurement policy for the public sector and school meal service programs. In particular, nutrition programs similar to the food stamp program in the U.S. that target low income groups need to be actively created as such programs stimulate consumption and contribute to the development of regional economies.

Programs for improving diets and promoting nutrition are currently being pursued sporadically at the welfare, agriculture and education ministries. In this respect, ways to collectively operate such programs need to be devised. Accordingly, the operation of the National Dietary Education Committee (legal basis on the Dietary Education Support Act) needs to be expanded, while establishing a system to implement national dietary policies should be reviewed.
The Korea Rural Economic Institute (KREI) is a government-funded research organization. In 1978, KREI was established by the Korean government to play an important role of developing sound policies in the fields of agriculture and forestry for the balanced development of urban and rural areas. Our research covers agricultural economics in general, agricultural product marketing, rural development, agricultural outlook and international agricultural trade negotiations. About 100 experts are working to provide new visions for agriculture.