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70 Years' Achievements and New Challenges of Korean Agriculture and Rural Communities

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◇ Abstract ◇

○ The most remarkable achievement of the Korean agricultural sector since independence is the accomplishment of rice (staple grain) self-sufficiency and the securing of the ability to supply various foods.

- Despite the inevitable contraction of agriculture in the process of rapid economic development, the growth and sacrifice of agriculture and rural communities, including poverty eradication, labor supply, and price stabilization, can be evaluated to have become a foundation for high industrialization and urbanization.
- Economic growth has changed demand for agricultural products and raised labor opportunity costs. Thus, production was converted to agricultural produce with income elasticity and labor's high value-added productivity. This change in production enabled agriculture to grow continuously.

○ Over the past 70 years, rural areas have also experienced dynamic changes. The Saemaul Movement, which is globally considered as a successful rural development strategy, was developed, and diverse policies were implemented, including an increase in non-farm income, the establishment of production infrastructures, the expansion of commercial crops, and rural development for the stabilization of the rural economy and society.

- In the industrialization process, however, young people with high productivity left for cities, which led to the decrease and aging of rural population.
- Recently, the population who returned to farming and rural areas and people with higher education have been on the rise. Although those employed in the primary industry greatly decreased, those in the secondary and tertiary industries increased. Also, rural dwelling conditions have been gradually improved to the level of cities.

○ This edition introduces the changes in agriculture and rural communities that have played a critical role as the foundation for the growth of the Republic of Korea in the 70th anniversary of liberation.

- Quantitative changes were examined with a focus on major macroeconomic indicators, achievements were summarized, and new challenges of Korean agriculture and rural regions were drawn.
- The analysis of major macroeconomic indicators was based on official statistics, including the Population and Housing Census, the Agricultural Census, KOrean Statistical Information Service (KOSIS), e-National Indicators, The Bank of Korea's Economic Statistics System (ECOS), and Major Statistics on Agriculture, Forestry and Food. For data analysis, available statistics from the time of independence to 2015 were utilized.

○ Although limited to quantitative data, this edition was a good opportunity to examine the changes in farm households and rural residents' lives. It is expected that Korean agriculture and rural communities, which had been the foundation for growth in the nation's modernization process will achieve development in a new sense for the next 70 years.

1. Agriculture: The Base of Food Supply for the People

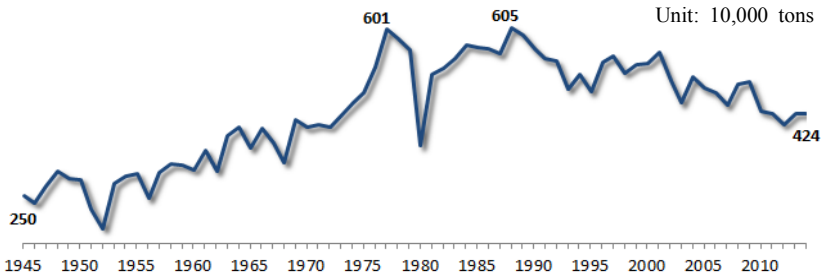
1.1. Food Production Increase and Achievement of Food Self-sufficiency

○ Right after independence, the top priority among agricultural policy tasks of the Republic of Korea was to solve the food shortage. Nevertheless, due to the political chaos, the Korean War, and continued bad years, food production slowly increased until the 1960s.

○ Then, from 1971 when *tongil* rice, resistant to damage by pest, disease, wind and rain, was developed and began to be disseminated to farms, rice production grew greatly.

- *Tongil* rice contributed to achieving the staple grain self-sufficiency by greatly increasing rice production. And the application of high-yield technology raised general rice's yield per unit area, which led to the Green Revolution.
- Rice production increased 70% from 2.5 million tons in 1945 to 4.24 million tons in 2014. This results from a 92% increase of the yield during the same period owing to advanced production technologies despite a continual decrease in paddy acreage.

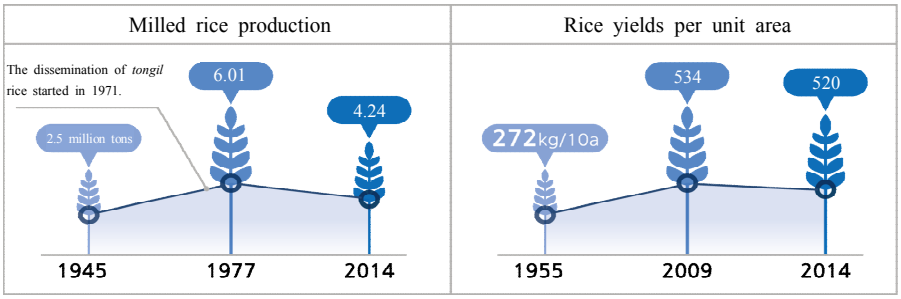
Figure 1. Milled Rice Production



Note: Based on the milled/brown rice ratio of 92.9%.

Source: KOSIS; in the case of statistics before 1965, Hwang Sucheol et al. (2003: 229). Korea Rural Economic Institute (KREI).

Figure 2. Milled Rice Production and Rice Yields per Unit Area



1.2. Diversification of Production and Consumption of Agricultural and Livestock Products

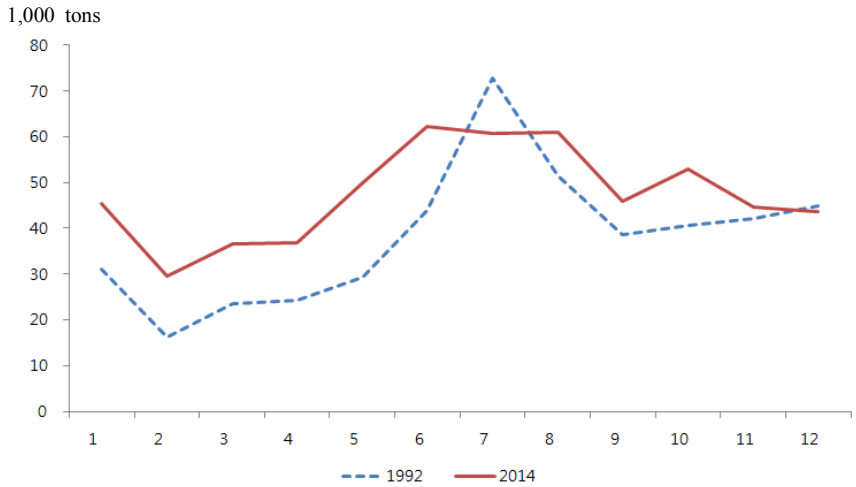
○ After the late 1970s when staple grain self-sufficiency was achieved, the people's diet improved and the production of fruits, vegetables, and livestock products increased as demand for them grew rapidly, and farm income started to increase.

- As vinyl house cultivation that began in the 1980s expanded, the White Revolution in the late 1990s enabled the year-round supply and consumption of crops including fruit-vegetables cultivated in facilities.
- The animal improvement project and the specialization and scaling up of livestock farms in the 1980s led to the growth of systemized livestock enterprises in the 1990s. And the government has maintained the foundation for livestock self-sufficiency by gradually introducing the livestock development fund, registration and license systems, the grading system, the country-of-origin labeling system, the livestock self-help fund, the traceability system, and HACCP in response to the full-scale import opening of livestock products.

○ Over the past 70 years, the focus of Korean agricultural production has been diversified from food crops to livestock products, vegetables, and fruits.

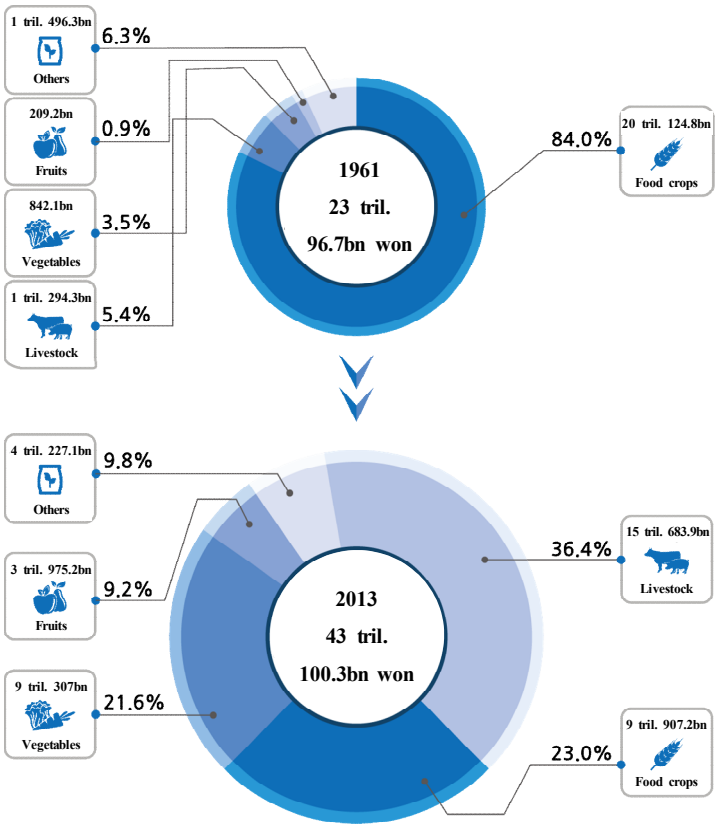
- The proportion of the production value of food crops, which was the level of 80% of the total agricultural production value in the early 1960s, fell to the level of 50% in the 1970s, the level of 40% in the 1980s, the level of 30% in the 1990s, and the level of 20% recently.
- On the contrary, the proportion of livestock products grew from about 5% to about 40%, that of vegetables from approximately 4% to the level of 20%, and that of fruits from about 1% to the level of 10% during the same period.

Figure 3. Changes in Monthly Trading Volumes of Fruits and Fruit-vegetables of Garak Market, Seoul



Source: Seoul Agro-Fisheries & Food Corporation. *Agricultural and Fishery Products Trade Yearbook*. Each year.

Figure 4. Proportion of Production Value by Category of Agricultural and Livestock Products

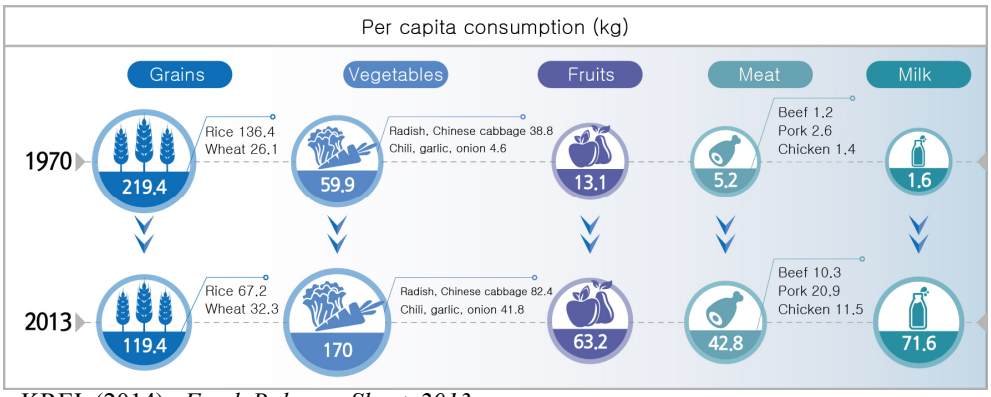


Source: Ministry of Agriculture, Food and Rural Affairs (MAFRA). *Major Statistics on Agriculture, Forestry and Food*. Each year.

○ As for per capita consumption of major agricultural and livestock products, the current consumption of grains nearly halved from 1970. However, that of vegetables increased 2.8 times, that of fruits 4.8 times, and that of meat 8.2 times.

- As food has been diversified over the last 45 years, per capita consumption of rice, the Koreans' staple food, has halved.

Figure 5. Changes in Per Capita Consumption by Category of Agricultural and Livestock Products



Source: KREI (2014). *Food Balance Sheet 2013*.

1.3. An Increase in Imports and a Decrease in Self-sufficiency Rates

○ From the late 1970s, the government converted its policy from limiting agricultural imports to the phase-in of import liberalization in order to offset factors in unstable prices and wages due to insufficient supply of agricultural products.[1)]

- Particularly, the WTO agricultural negotiation in 1995 and the conclusion of FTAs with major countries since 2004 led to the full-scale opening of the domestic agricultural market.

○ Accordingly, the trading scale of agricultural and livestock products has greatly grown, but trade deficits have increased. On the other hand, the proportion of agricultural and livestock products in the total trade has greatly decreased.

- In 1970, imports of agricultural, forest and fishery products reached 0.47 billion dollars, accounting for 23.6% of the total imports (1.98

1) From the 1980s, pressure on agricultural market opening, trade frictions owing to the expansion of trade imbalance between Korea and the U.S., and the import liberalization plan due to the graduation of the BOP clause, GATT Article 18, led to market opening.

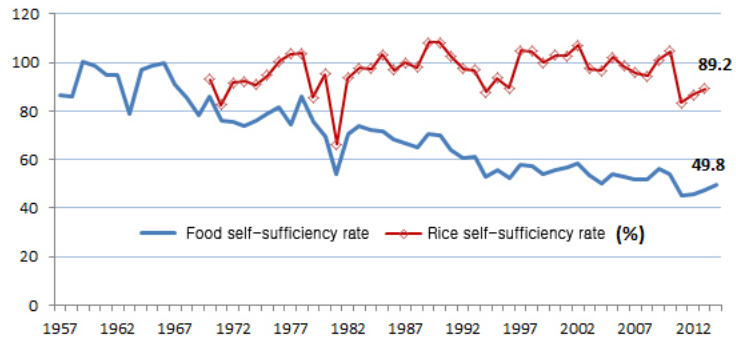
billion dollars). Exports of the products were 0.22 billion dollars, accounting for 26.1% of the total exports (0.84 billion dollars).

- In 2014, imports of agricultural and livestock products reached 32.03 billion dollars, 6.1% of Korea's total imports (525.7 billion dollars). Exports of the products are 6.4 billion dollars, only 1.1% of the total exports (573.1 billion dollars).

○ With the progress of agricultural market opening, Korea's food self-sufficiency rate fell from 86.3% in 1957 to 49.8% in 2014. If grains for feed are included, its food self-sufficiency rate is 23.1%.

- The self-sufficiency rate of rice decreased from 93.1% in 1970 to 89.2% in 2013, and that of wheat from 15.9% to 1.1% in the same period.
- Also, self-sufficiency rates of pulses (10.7%), fruits (78.7%), meat (79.5%), and milk (58.6%), which have been much affected by market opening, are relatively low.

Figure 6. Changes in Food and Rice Self-sufficiency Rates



Note: Food self-sufficiency rate (excluding feed) = (grain production ÷ domestic consumption) × 100, The figures of 2014 are estimates.

Source: e-National Indicators.

2. The Growth of the National Economy and Changes in Agricultural Structures

2.1. Agricultural Growth Rates

○ Through the farmland reform after liberation, 0.6 million ha of agricultural land was distributed, which converted Korean agriculture from the traditional tenant farming system to the owner farming system.[2)]

- This became the foundation for a rise in food production even in the chaos after the Korean War and an increase in the agricultural growth rate to the annual average of 3.4% by the early 1960s (1953-1962).[3)]

○ Nevertheless, the growth rate of the non-agricultural sector rapidly grew to the level of 10% from the mid-1960s, which increased the growth rate gap with the agricultural sector from 2%p to 6-8%p. This gap was maintained for about 30 years until the early 1990s.

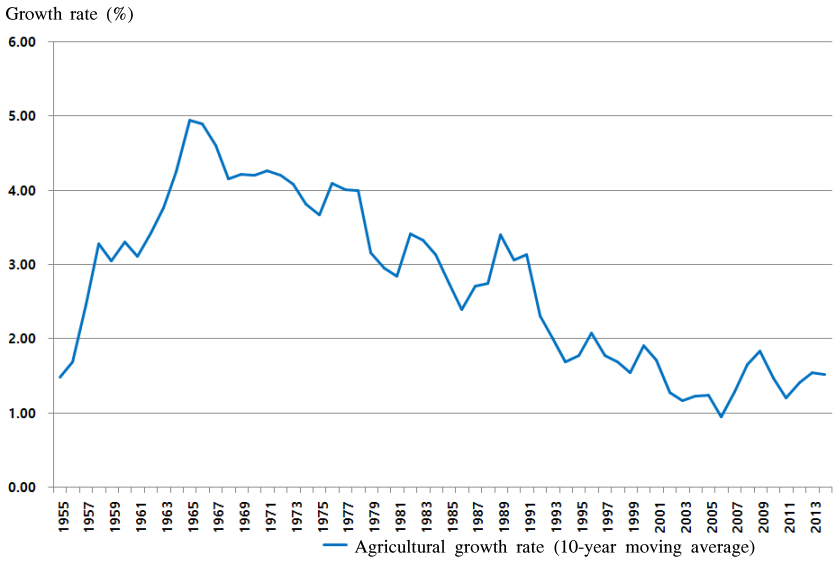
- Accordingly, the proportion of the agricultural sector in GDP plummeted, and rural labor and farmland also moved from agriculture to non-agricultural sectors rapidly. Since the foreign exchange crisis in 1997, as the growth rate of non-agricultural

2) As a result of the farmland reform, holdings decreased from 65% in 1945 to 8% in 1951, and net landed farmers increased 3.2 times from 0.29 million households to 0.93 million households.

3) In this period, the Korean economy was based on agriculture. Until the early 1960s, agriculture employed 80% of the total employed, and accounted for 45% of GDP. Also, in the early 1960s, agriculture and fisheries contributed to earning foreign currency as major export industries: agricultural exports took up 7% of total exports and 21% if fishery exports were included (Research Department, National Agricultural Cooperative Federation, 1983).

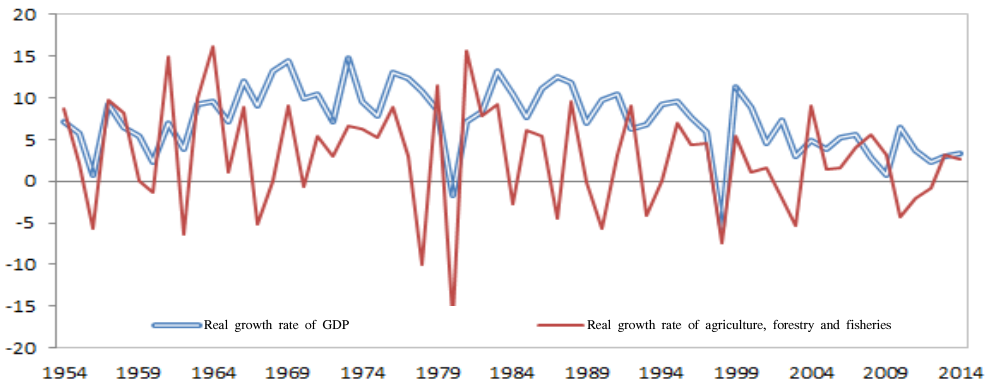
sectors has fallen, the growth rate gap between agriculture and non-agricultural sectors has been on the decline.[4)]

Figure 7. Changes in Agricultural Growth Rates



Source: The Bank of Korea's Economic Statistics System (ECOS).

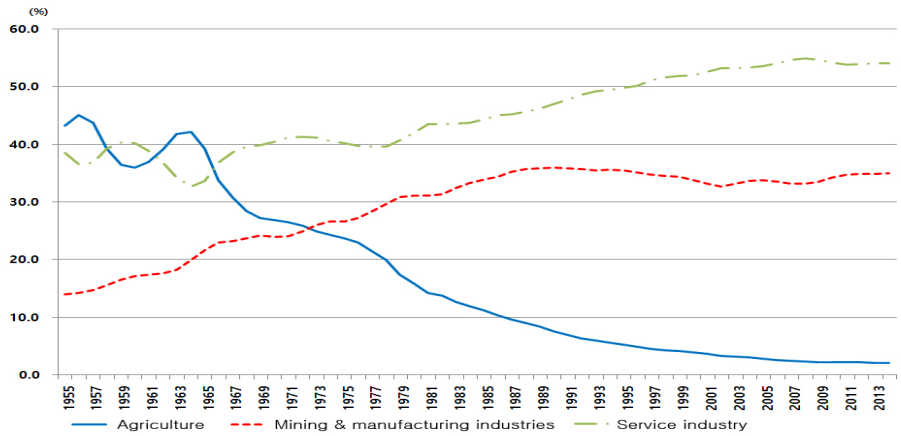
Figure 8. Changes in Real Growth Rates (%)



Source: The Bank of Korea's Economic Statistics System (ECOS).

4) Between 1954 and 2014, the real growth rate of GDP dropped from 7.2% to 3.3%, and that of agricultural, forestry and fishery production decreased from 8.7% to 2.6%.

Figure 9. Changes in the Proportion of Each Sector in GDP



Source: National Accounts, The Bank of Korea.

2.2. Changes in Production Structures

○ In the land market until the 1980s, a decrease in the number of farm households increased farmland supply, while a rise in farmland's conversion into non-agricultural purposes raised farmland prices, which led to the farmland mobilization centered on leases (Lee, 1998).[5)]

- Moreover, as large farmers adjusted their cultivation scale to the level that they could manage with family labor in response to a decrease in agricultural labor supply and a growth in wages, medium-sized farmers increased.

○ Nonetheless, with the progress of agricultural mechanization from the 1990s, large farmers' ability to pay rent, which decreased due to a decline in labor, improved. This increased large farmers through leases and led to the production concentration of large farmers.[6)]

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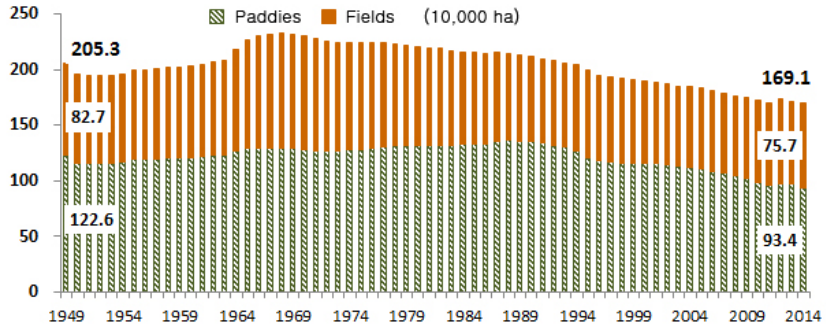
5) Lee Jeonghwan. 1998. *Agricultural Structure Transformation: The Beginning and the End*. KREI.

6) Between 1990 and 2010, the proportion of cultivation acreage of farms over 3ha quadrupled from 10.2% to 40.4%, and in the livestock sector, the proportion of the number of cattle of farms with over 30 head of Korean native cattle increased 7.3 times from 9.0% to 65.7%.

○ From 1965 to the present, farmland acreage fell 25% (2.26 million ha → 1.69 million ha), people employed in agriculture decreased 68% (4.53 million people → 1.45 million people), and aging rapidly progressed. Despite these, the real agricultural production value doubled because agricultural production changed promptly in response to changes in demand for agricultural products and a rise in labor opportunity costs.

- That is, as high growth has changed demand for agricultural produce and raised labor opportunity costs, production was converted to agricultural products with income elasticity and labor's high value-added productivity. This change in production enabled agriculture to grow continuously.

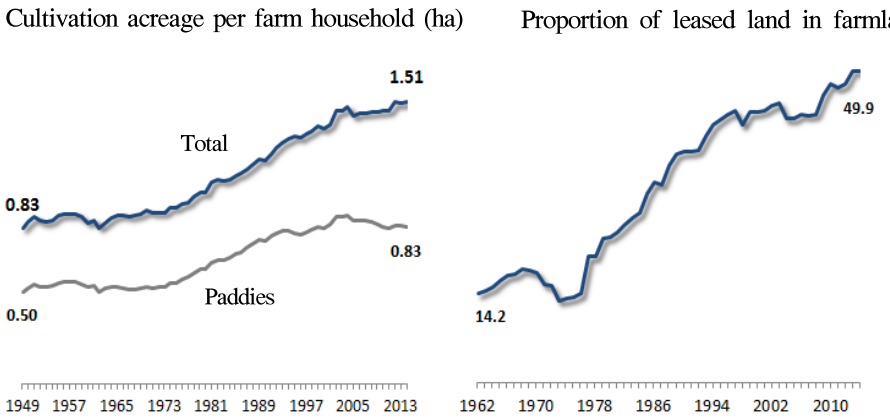
Figure 10. Changes in the Area of Paddies and Fields



Note: According to the data of the National Archives of Korea, arable land in 1945 was 2.26 million ha.

Source: KOSIS; The data before 1975 are based on each year's agricultural acreage statistics; The statistics between 1949 and 1950 are based on the "Revised Statistical Table of Agriculture: 1910-2001." Hwang Sucheol et al. (2003: 639). KREI.

Figure 11. Changes in Cultivation Acreage per Household and in the Proportion of Leased Land



Source: KOSIS.

2.3. An Increase in Agricultural Productivity

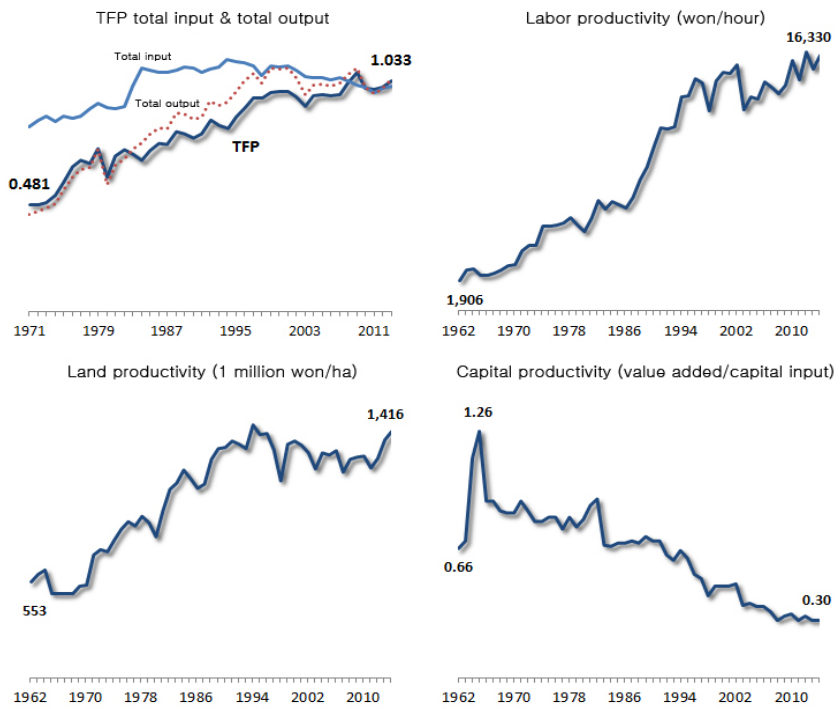
○ The Korean agricultural sector's total factor productivity (TFP) grew by an annual average of 1.84% from 1971 to 2014 (Gwon et al., 2015).[7)]

- This means that the production in 2014 can nearly double compared to that in 1971 with the same input. Although land and labor moved from agriculture to non-agricultural sectors, the use of intermediary goods and capital increased, which continuously expanded agricultural production itself.
- Korean agriculture showed a trend of changes in productivity in developing nations' agriculture whose output grew faster than input until the 1990s. Since 2000, however, agriculture in Korea has shown the trend that total input decreases and total output stagnates like advanced countries' agriculture.

7) Gwon Osang et al. September 2015. "Establishing KLAM Data of Korean Agriculture and Analyzing Characteristics of Production Technology." A paper presented at the 2015 Summer Symposium. Korea Agricultural Economics Associations.

- To prevent a fall in agricultural productivity, it is important to innovate technology, maintain the production scale, and effectively prepare risk factors including climate change.

Figure 12. Changes in Productivity in the Agricultural Sector[8)]



Source: Gwon Osang et al. (2015), KOSIS (Farm Household Economy)

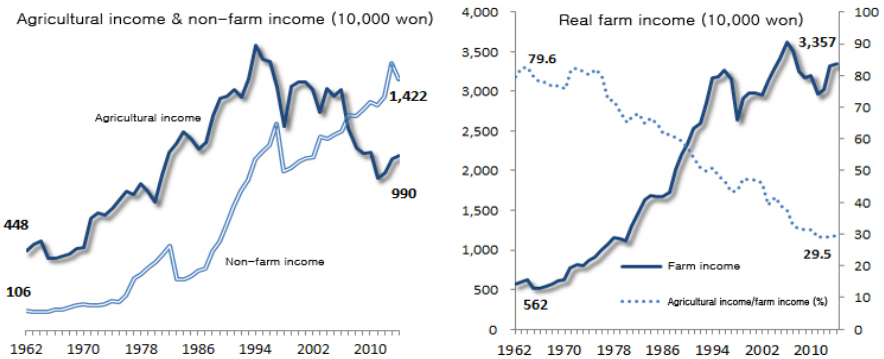
8) In the case of TFP and input and output indexes, we referred to Gwon Osang et al. (2015) who utilized Törnqvist quantity indexes. We calculated labor productivity through agricultural value added/self-supporting agricultural working hours, land productivity through agricultural value added/cultivation acreage (1ha), and capital productivity through agricultural value added/agricultural capital (1 million won). As for value added of labor productivity and land productivity, real conversion values were applied.

2.4. An Increase in Farm Income

○ Since 1962, real agricultural income has grown 2.2 times but non-farm income has increased 12.4 times, so real farm income has risen 6 times.
- With the industrialization of rural areas and rural development policies in the mid-1980s, non-farm income sources began to grow, and from 2007, non-farm income exceeded agricultural income.
- On the other hand, agricultural income has been on the decline since 1995, due to the growth gap with non-agricultural sectors, the expansion of agricultural market opening, and the worsening of farmers' trading conditions.

○ As the gap between growth and income has continued in the agricultural sector, the urban-rural income disparity and the polarization of farm income have become more serious.[9)]

Figure 13. Changes in Farm Income



Source: KOSIS (Farm Household Economy)

9) Although the real productivity gap with non-agricultural sectors decreased, the rural income plummeted from 95% to the level of 60% of the urban income between 1995 and 2014, owing to the worsening of agricultural trading conditions (according to the survey on the farm household economy and urban households). With the urban-rural income gap widening, the top 20% farm households' income grew from 6.3 times in 1995 to 12.1 times in 2010 compared to the bottom 20% farm households' income, which shows the intensified polarization of farm income.

2.5. The Expansion of Agricultural Budgets

○ Until the 1960s after independence, because the government lacked finances, the proportion of agricultural budgets was very small.

- At that time, budgets for urgent projects such as farmland improvement and afforestation for erosion control depended on the counterpart fund using profits from sale of U.S. farm surpluses and aid goods and Korea's property claims against Japan.

○ After the 1970s, as the government finances expanded, the proportion of agricultural budgets also increased. Nonetheless, the proportion of budgets for agriculture, forestry and fisheries was 5-6% of the total national budget until the mid-1980s.

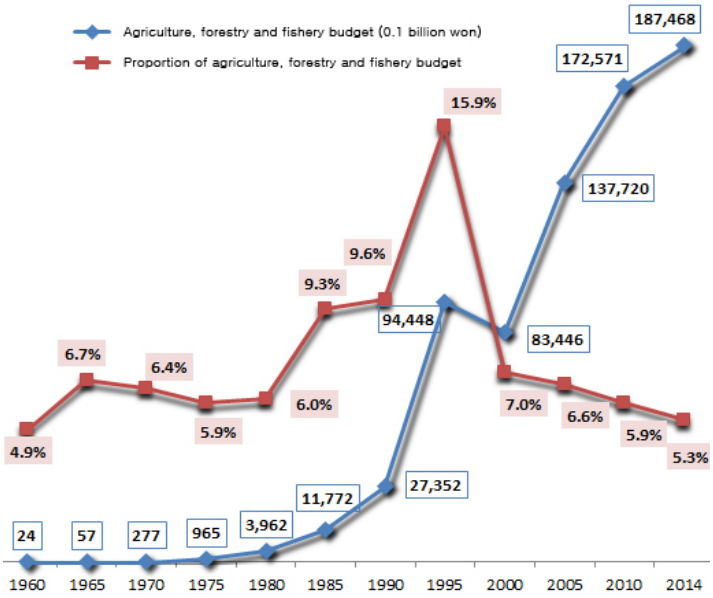
- After the enactment of the Agricultural Community Modernization Promotion Act in 1970, the full-scale implementation of production infrastructure improvement projects began, including development of agricultural water, farmland consolidation, drainage improvement, the Large-scale Agricultural Development Project, and land reclamation.

○ As market opening accelerated and financial support for structural improvement for strengthening agricultural competitiveness expanded greatly, the proportion of the agricultural budget exceeded 10% in the mid-1990s.

- After the conclusion of UR negotiations, in order to improve agricultural and rural structures and competitiveness, investment and loan plans of the following scales were announced: the civilian government 42 trillion won (1992-98); the people's government 45 trillion won (1999-2004); and the participatory government 119 trillion won (2004-13).

○ The agricultural and forestry budget in 2014 is 18.7 trillion won, 5.3% of the total budget (355.8 trillion won).

Figure 14. Changes in Budgets for Agriculture, Forestry and Fisheries



Note: Based on revenue budgets (which include general and special accounts and exclude funds). The budget of 2000 is the budget for agriculture and forestry, excluding the Ministry of Oceans and Fisheries' budget.

Source: *Major Statistics on Agriculture, Forestry and Food*; The data before 1970 were based on *50 Years' History of Korean Agricultural Policy*.

3. Rural Communities: The Site of Dynamic Changes in Life

3.1. The Saemaul Movement and Forestation

○ If changes in agriculture after liberation can be summarized as the White Revolution and the Green Revolution, the Saemaul Movement is a revolutionary event that led rural changes.

○ The Saemaul Movement began in rural areas as a measure to solve the urban-rural gap and economic recession. The movement improved the living environment and production infrastructures, developed income

sources, and reformed the consciousness, and even expanded to the Urban Saemaul Movement.

- The Saemaul Movement consisted of both top-down and bottom-up development approaches that the government distributed resources and residents provided labor. And the movement focused on nurturing Saemaul leaders who promoted change.

○ Through this movement, the agricultural production base and the rural living environment changed greatly from 1971 to 1982.

- For about 10 years, 64,686 km of farm roads, 39,231 village halls, and 22,468 village warehouses were constructed.
- In this period, the House Improvement Project was implemented for 258,000 houses, and the Settlement Structure Improvement Project was carried out in 3,047 villages.

Table 1. The Saemaul Movement's Major Performance, 1971-82

Project	Unit	Performance (1971-82)
Farm Road Construction	km	64,686
Saemaul Road Pavement	km	6,187
Village Hall	No.	39,231
Village Warehouse	No.	22,468
Joint Workplace	No.	6,323
Rural House Improvement	1,000 houses	258
Settlement Structure Improvement	Village	3,047
Drain Installation	km	17,202
Small River Maintenance	km	21,562
Economic Crop Development	Complex	1,616

○ On the other hand, forestation is an innovative change that symbolizes the transformation of the Republic of Korea after independence.

○ The growing stock area was 31 million ㎥ in 1952 after liberation, but increased to 800 million ㎥ in 2010.

- The government-led efforts to restore wasteland, a decrease in forest fuel consumption, and residents' participation through the Saemaul Movement secured a force for afforestation.
- The production value of forest products (nominal price) grew from 116 billion won in 1970 to 6 trillion 909 billion won in 2013 (Korea Forest Service).

○ The annual number of the Korean population who enjoy forest recreation is 1.168 billion (as of 2010), and is forecast to increase to 2.07 billion in 2030.

- Forests' public interest function is estimated to exceed 100 trillion won as of 2010 (Korea Forest Research Institute).

3.2. The Decrease and Aging of Rural Population

○ Korea's rural areas include *eup*s (towns) and *myeon*s (townships) and account for 90% of the total area of the country. In 1944, 86.3% of Korea's total population lived in rural regions. As of 2010, however, only 18% of the population of the Republic of Korea live in rural areas.

○ The farm population reached 72.5% of Korea's total population right after liberation but plummeted to 6.4% now. The number of members per farm household fell from 6.1 people in 1960 to 2.6 people in 2010.

Figure 15. Changes in Rural Population and Farm Population

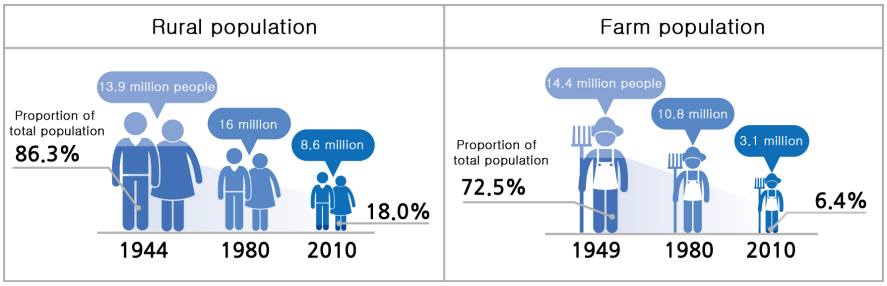
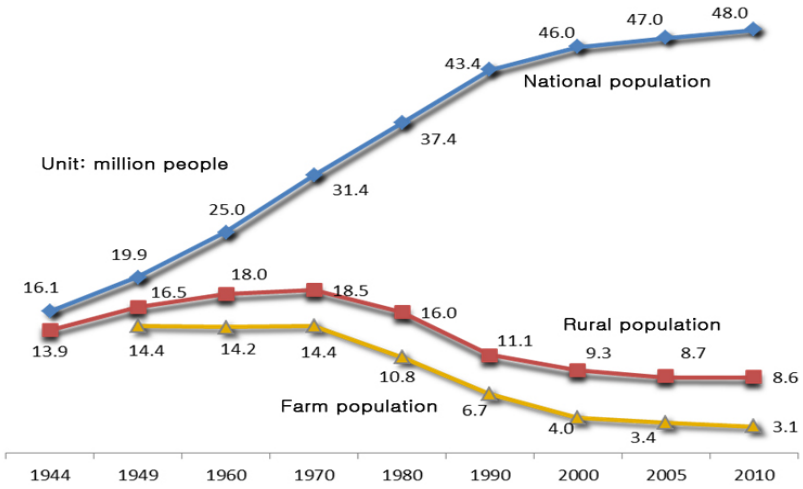


Figure 16. Changes in Rural Population and Farm Population by Year



Source: Each year's Population and Housing Census and Agricultural Census data.

○ The rural population decreased most in Jeollabuk-do and Jeollanam-do. Of course, since the 1970s, a period of the full-scale industrialization, the rural population has fallen in all provinces.

- In 2010, the rural population decreased to 29% compared to 1955 in Jeollabuk-do and to 36% in Jeollanam-do.

Table 2. Changes in Rural Population by City/Province

Unit: 1,000 people

Classification	1955	1970	1990	2010	Change rate (%)		
					'55-'70	'70-'90	'90-'10
Gyeonggi	1,831	2,283	1,986	1,962	24.7	△13.0	△1.2
Gangwon	1,206	1,461	797	552	21.1	△45.5	△30.8
Chungbuk	1,110	1,227	684	574	10.5	△44.3	△16.0
Chungnam	2,139	2,325	1,546	1,228	8.7	△33.5	△20.6
Jeonbuk	1,761	1,934	926	506	9.8	△52.1	△45.3
Jeonnam	2,645	3,064	1,740	940	15.8	△43.2	△46.0
Gyeongbuk	2,669	2,981	1,609	1,207	11.7	△46.0	△25.0
Gyeongnam	2,196	2,283	1,311	1,130	4.0	△42.6	△13.8
Jeju	229	254	194	135	10.9	△23.6	△30.4

Note 1) Previous figures were revised according to the standard of administrative districts in 2010.
2) The counties (Gijang, Dalseong, Ganghwa, Ongjin and Ulju) in metropolitan cities were excluded.

Source: Population and Housing Census data by year.

○ With a fall in rural population, the population structure has changed. That is, young people have decreased and the proportion of the aged has increased in rural areas.

- In 1955, the population under 15 years old accounted for 41.7% of the rural population, and those aged 65 or older took up 3.7%. Nevertheless, this population structure was reversed: in 2010, the population under 15 years old accounted for 14.9%, and those aged 65 or older were 20.9%.
- The aging of farm managers was more rapid. Between 1960 and 2010, the proportion of farm operators aged 65 or older grew from 6.8% to 49.5%, while those under 35 years old plummeted from 23.5% to 0.6%.

Table 3. Farm Managers' Age Distribution (1960, 2010)

Classification	1960	2010
Under 25 years old	4.5 %	0.0 %
25-34 years old	19.0 %	0.6 %
35-44 years old	26.6 %	5.5 %
45-54 years old	26.1 %	17.8 %
55-64 years old	17.0 %	26.5 %
65 or older	6.8 %	49.5 %
Total	100.0 %	100.0 %

Note: The survey targets were farm households in *eup*s and *myeon*s.
Source: Agriculture, Forestry and Fisheries Census by year.

○ While the rural population decreased quantitatively, their education level increased greatly.

- College graduates or those with higher degrees were only 0.8% of the rural population in 1955, but now account for 27%. Moreover, those who did not receive school education at all reached 75.9% in 1960, but plummeted to 11.2% in 2010.

Table 4. Rural Residents' Education Level (1955, 2010)

Classification	1955	2010
Elementary school	17.9 %	20.4 %
Middle school	3.9 %	11.7 %
High school	1.6 %	29.7 %
College graduates or higher	0.8 %	27.0 %
No education	75.9 %	11.2 %
Total	100.0 %	100.0 %

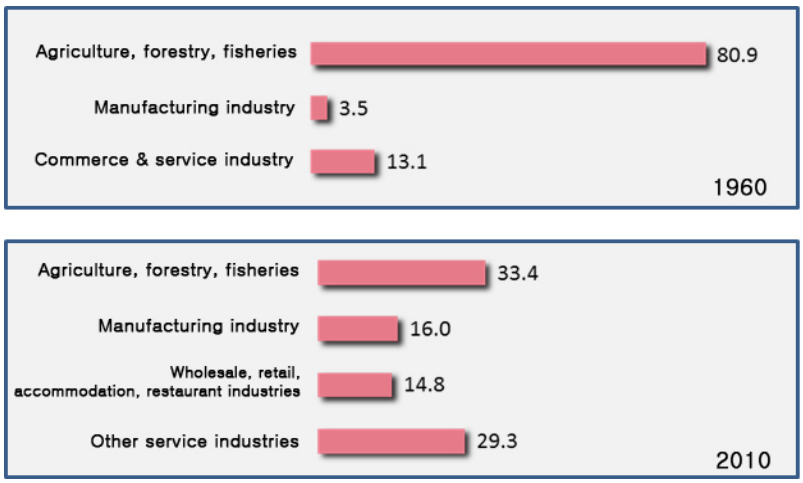
Note: The survey targets were the population aged 20 or older.
Source: Population and Housing Census.

3.3. Changes in the Rural Industries

○ In the past, those employed in agriculture, forestry and fisheries, the primary industries, accounted for an absolute majority in rural areas. In current rural regions, however, the proportion of those working in the service industry, the tertiary industry, is similar to that of those employed in agriculture, forestry and fisheries. This shows that the rural industries have been changing.

Figure 17. Changes in the Industrial Structure in Rural Areas (1960, 2010)

Unit: %



Source: Data of sample surveys of each year's Population and Housing Census.

Table 5. Changes in the Rural Industries (1960, 2010)

Year	Classification of industries	Percentage
1960	Agriculture, forestry, hunting & fisheries	80.9
	Mining & stone-quarrying industry	0.8
	Manufacturing	3.5
	Construction	0.9
	Electricity, gas, water supply & sanitation service industries	0.1
	Commerce	4.8
	Transportation, storage & communication	1.0
	Service industry	7.3
	Unclassified or unknown	0.8
	Total	100.0
2010	Agriculture, forestry & fisheries	33.4
	Mining	0.2
	Manufacturing	16.0
	Electricity, gas, steam, & water supply	0.4
	Sewage & waste treatment, raw material recycling & environmental remediation	0.3
	Construction	5.4
	Wholesale & retail	8.4
	Transportation	3.2
	Accommodation & restaurant industries	6.4
	Publishing, visual media, broadcasting communication, information service industries	0.9
	Finance & insurance	1.8
	Real estate industry, leasing service	1.2
	Professional, science & technology service	1.4
	Business facility management & business support service	2.7
	Public administration, national defense, social security administration	4.6
	Education service	4.3
	Health care, social welfare service	3.7
	Art, sports, leisure-related service	1.3
	Association/group, repair & other personal services	3.8
	Others or unknown	0.5
	Total	100.0

Source: Data of sample surveys of each year's Population and Housing Census.

○ Rural residents' jobs have drastically changed. The proportion of people who have specialized or white-collar jobs and who work in the service industry increased nearly tenfold, while that of those employed in

agriculture, forestry and fisheries decreased from about 90% in 1960 to about 30% in 2010.

Table 6. Changes in Rural Residents' Jobs (1960, 2010)

Year	Classification of jobs	Employees (No.)	Percentage
1960	Professional/technical worker	65,861	1.0
	Manager	42,066	0.6
	Office worker	82,489	1.2
	Salesperson	162,554	2.4
	Farmer, feller, hunter, fisherman, & similar worker	6,123,253	89.3
	Miner/quarrier	16,441	0.2
	Driver	17,463	0.3
	Special technician, worker in production process, similar worker	107,781	1.6
	Laborer (Farms & mines are excluded.)	171,472	2.5
	Worker in the service industry	71,002	1.0
	Total	6,860,382	100.0
2010	Manager	50,557	1.2
	Specialist	445,688	10.2
	Office worker	443,678	10.1
	Worker in the service industry	357,689	8.2
	Salesperson	326,017	7.5
	Skilled worker in agriculture/forestry/fisheries	1,415,407	32.4
	Technician	306,850	7.0
	Worker operating/assembling machines	521,642	11.9
	Laborer	475,115	10.9
	Others	29,539	0.7
	Unknown	1,239	0.0
	Total	4,373,421	100.0

Source: Population and Housing Census data.

○ On the other hand, the number of full-time farm households fell, while that of part-time farm households grew. Particularly, part-time farm households whose non-farm income exceeds gross agricultural income more than doubled.

- Proportion of full-time farm households: 73.3% (1960) ⇒ 53.3% (2010)

- Proportion of part-time farm households: 26.6% (1960) ⇒ 46.7% (2010)

Table 7. Composition of Full-time and Part-time Farm Households (1960, 2010)

Classification	1960		2010	
Total farm households	No. of farm households	Percentage	No. of farm households	Percentage
	2,329	100.0	1,177	100.0
Full-time farm households	1,706	73.3	627	53.3
Part-time farm households	618	26.6	550	46.7
- gross income > non-farm income	325	14.0	193	16.4
- non-farm income > gross income	293	12.6	356	30.3
No response	4	0.2	0	0.0

Source: Agriculture, Forestry and Fisheries Census by each year.

3.4. Residential Conditions in Rural Areas

○ Rural residents' housing environment has improved to the level similar to that of cities'.

○ In 1960, 81.2% of rural households used common wells and waterworks without private water supply. And only 0.1% of rural houses had a flush toilet.

○ In 2010, however, houses with a modern kitchen and those with a bathing facility accounted for 96.9% and 96.2%, respectively. In addition, 45.1%, 39.3%, and 85.6% of rural households used waterworks (metropolitan areas/the provinces), village waterworks, and flush toilets, respectively.

Table 8. Changes in Rural Residents' Housing Facilities (1960, 2010)

Year	Item	Facility	Percentage
1960	Water supply	Public well	79.8
		Private well	10.5
		Public waterworks	1.4
		Private waterworks	0.5
		Others/unknown	7.8
	Toilet	Conventional	20.8
		Cement-type	17.9
		Flush toilet	0.1
		Other lavatory	53.0
		No lavatory	7.8
		Unknown	0.3
2010	Kitchen	Modern	96.9
		Conventional	3.0
		No kitchen	0.0
	Water supply	Waterworks	45.1
		Village waterworks	39.3
		Private waterworks	0.7
		No waterworks	14.9
	Toilet	Flush toilet	85.6
		Conventional toilet	14.3
		No toilet	0.0
	Bathing facility	Hot-water supply system	93.7
		Cold-water supply system	2.5
		No bathing facility	3.8

Source: The figures of 1960 are based on Housing Census data, and those of 2010 on the survey data on farm households of the Agriculture, Forestry and Fisheries Census.

○ Nonetheless, waterworks and transportation accessibility should still be improved in rural areas. For rural regions to be new residential areas in the future, the people should be able to receive the same basic services wherever they live in the territory.

○ On the other hand, with the improvement of rural production bases, agricultural mechanization has also progressed, contributing to mitigating the rural labor shortage.

- In 1960, only 0.01% of farm households used machines in farming, and most depended on animal power.

- As of 2010, however, the percentage of farm households that own agricultural machines increased, and in the case of paddy farming, even if farm households did not own agricultural machines, the infrastructure for mechanization improved.
- Nevertheless, the infrastructure of dry-field farming is relatively insufficient, and the future-oriented infrastructure is needed in consideration of landscape and the environment.

Table 9. Changes in Agricultural Mechanization

Year	Classification	Percentage
1960	Farm households that use animal power	97.8
	Farm households that use mechanical power	0.01
	Farm households that use manpower	0.9
	No response	1.3
2010	Farm households with a cultivator	52.9
	Farm households with a tractor	20.7
	Farm households with a combine	7.2
	Farm households with a dryer	19.6
	Farm households with a transplanter	19.2

Source: Each year's Agriculture, Forestry and Fisheries Census.

4. Challenges

□ **Over the past 70 years, Korean agriculture has contributed to the nation's industrialization and economic growth by supplying food stably, and has continued to grow by converting from food crop to commercial crop production in response to changes in demand.**

○ Until the 1960s, the Republic of Korea was a society based on agriculture in that agriculture accounted for 80% of GDP. Through the farmland reform after liberation, Korean agriculture was converted from traditional tenant farming to owner farming systems.

○ Since then, the growth rate gap between the agricultural and non-agricultural sectors has expanded in the process of rapid economic growth, and the proportion of agriculture in GDP has decreased fast. Nonetheless, Korean agriculture has supplied food stably for smooth industrialization, and has continuously grown as production was converted to agricultural products with income elasticity and high value added, responding to changes in demand.

○ With the progress of market opening after the Uruguay Round agreement, a fall in farm prices and the worsening of agricultural trade conditions have led to a reduction in investment in the agricultural sector and a decrease in its growth potential. To cope with this, the government has adopted various direct payment programs for stabilizing farm management and income, and has developed and implemented diverse policies such as strengthening agrifood safety for consumer demand, nurturing farming successors, and supporting the enhancement of farmers' quality of life.

☐ **Since independence, rural areas have experienced dynamic changes including rural-to-urban migration, the Saemaul Movement, forestation, industrialization of agricultural villages, aging, and returning to farming and rural regions.**

○ In the industrialization period, the Saemaul Movement was developed to improve rural settlement conditions, and with the fast movement of agricultural labor and farmland to the non-agricultural sector, various policies were implemented to stabilize the rural economy and society, including an increase in non-farm income, the establishment of production infrastructures, the expansion of commercial crops, and rural development.

○ Despite these efforts, the young population with high productivity in rural areas has continued to leave for cities, and rural regions have become hollow and aged. Recently, with a slowdown in economic growth and harmful effects of urbanization, people, especially baby boomers, returning to farming and rural areas have increased.

☐ **New efforts are necessary for the sustainable development of agriculture and rural communities.**

○ First, while Korean agriculture has provided the quantitative base for supplying food to the people for the last 70 years, from now on, **it is needed to establish a system for supplying safe and healthy food**. Also, in order to cope with global warming, lack of resources, and changes in human consumption patterns, it is necessary to lead new food cultures.

○ Second, the industry related to agriculture and rural areas is the oldest creative industry in human history. The value added of farming and ru-

ral regions can expand infinitely, depending on creative ideas. Now is the time to lay the foundation for **more innovations in agrifood production and consumption through the convergence with new technologies including ICT and BT**.

○ Third, it is required to **create a management environment that can maintain agricultural holdings** including part-time farm households and family farms as well as a small number of elite, full-time farm households. For this, policy support is needed to nurture farming successors, operate income security and management stabilization programs, and establish a regional circulation system of agrifood.

○ Fourth, the minimum population should be maintained in rural areas by promoting **urban-to-rural migration**. Policies need to be strengthened to provide information and education for facilitating returning to farming and rural communities and to support settlement. In addition, it is necessary to build a support system to provide **one-stop services** for those including **people who establish agriculture-related businesses and farming-related employees**.

○ Fifth, **basic infrastructures and accessibility in rural areas** should be improved for the people not to experience inconvenience wherever they live in the territory. At the same time, it is required to conserve **rural assets such as ecology, landscape, history and culture** and pursue their harmony not to damage rurality.

○ Last, **North and South Korea should expand cooperation in the fields of agriculture, rural areas and food in preparation for unification**. It is needed to establish mid- and long-term development plans of agricultural policy covering the entire Korean peninsula, and to seek strategies related to Korean agriculture's position and roles in consideration of the agrifood supply and demand system in Northeast Asia.

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