KREI-KSP(Knowledge Sharing Program) 01 | 2010. 12.

Establishment and Operation of Agricultural Extension System in Korea

Korea Rural Economic Institute

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Chapter 1

Introduction

1. Purpose and Need for the Research

○ Korea's rural area suffered difficulties from changing environments at home and abroad for the past 60 years. For example, it endured a severe poverty right after the Korean war in 1950, decreasing competitiveness of rural areas due to rapid economic growth along with increasing gap between urban and rural areas in the 1970s, and went through the period in which its survival was threatened by joining of WTO and import liberalization of agricultural products since the mid 1990s.

- Despite such difficulties, it responded to changing environment pro-actively, thereby achieving increased agricultural productivity including self-sufficiency in rice, its stable crop, and eradicating rural poverty through Saemaul Movement and comprehensive rural development project ,while effectively undertaking restructuring in the agricultural sector.

○ Behind such a success in the agricultural sector of Korea lies the central government's effort over a long period of time to identify and implement effective policies, introduce and develop advanced agricultural technology

and make an administrative and financial investment necessary for the establishment of agriculture-related infrastructure in an active manner.

- In addition to them, another key to success was voluntary participation and creative and innovative efforts of farmers and fishermen to innovate and develop rural areas in cooperation with the central government.

○ Educational effort in the form of “Agricultural extension” had also a significant impact on the growth of agricultural sector in Korea.

- Various agricultural extension services that was implemented to re-vitalize the rural area and agriculture for the past 60 years contributed significantly to the enhanced competitiveness of farmers and agricultural technology.
- Advancement of urbanization caused some problems, such as diminishing rural population and lack of farm successor, but, considering structural problem of rural areas, agricultural extension services of Korea was a realistic and effective strategy.

○ In short, agricultural extension services is to enhance agricultural competitiveness and achieve rural development in the face of collateral challenges for agriculture, rural area and farmers, and enhance the standard of living for farmers.

- Agricultural extension services of Korea began in earnest with the establishment of ‘Rural Development Institute’, a predecessor of Rural Development Administration, in 1957.
- Agricultural extension services distributed newly developed farming technology to rural areas for the purpose of increasing agricultural productivity and farm households’ income.
- In other words, agricultural extension services played a pivotal role in distributing new agricultural technologies and diffusing achievements, and establishing a virtuous cycle in which such achievements are re-in-

vested in development of technology.

- A regulatory basis was created through amendment of relevant law since the 1960s, which is a result of properly responding to the demand of rural areas on the basis of mutual cooperation between central and the local government.
- Although agricultural extension services had shortcomings in responding to internal and external changing environments surrounding rural areas, it made a significant progress compared to the past, and still developing to date.
- As one of the representative development cases of Korea that achieved a condensed growth in a short time span, agricultural extension services is an important asset in respect to rural areas.

○ Since 2004, Korea has been proactively pursuing Knowledge Sharing Program aimed at sharing Korea's development experience with developing countries.

- Knowledge Sharing Program is a project with which Korea, through outsourced research of professional research institute, provides consulting to developing countries on its economic development experience.
- Knowledge Sharing Program enables Korea to diffuse its success cases to developing countries, thereby effectively helping their economies to grow, and creating a positive impact of enhancing the national interest of Korea.
- Until 2009, this project undertook consulting services for 134 projects in 15 countries since its inception in 2004.

○ Starting in 2010, Knowledge Sharing Program shifted away from the previous research style of comprehensively describing the past experiences, and is now undertaking modularization project of selecting specific policy cases that can contribute to the economic development of developing countries.

- Modularization project aims to describe the rational for policy implementation (why), specific contents (what), how to implement (how), evaluating performance (evaluation) and lessons to be learned in a detailed manner.

○ Subjects related to rural areas and agriculture of Knowledge Sharing Program in 2010 deal with agricultural extension and its distribution system.

- As described above, agricultural extension services of Korea played a pivotal role in the development of rural areas and agricultural sector of Korea in the past. In this context, systematic summarization of the development experiences will not only make a realistic contribution to the economic development of developing countries, but also help increase policy exchange with developed countries.

○ Against this backdrop, the goal of the study is to comprehensively organize and evaluate development experiences of Korea's agricultural extension services, distribution of technology and increased agricultural competitiveness after the liberalization of Korea from colonial rule of Japan in the form of modularization, thereby providing some policy advice to developing countries as well as other countries.

2. Main Contents and Framework of the Study

○ This study consists of three parts. (refer to Figure 1-1)

○ First part of the study will establish the concept of agricultural extension and summarize the changes in rural areas of Korea.

- The study will reflect upon the concept of agricultural extension that is generally accepted in Korea, while take an overview of uniquely Korean

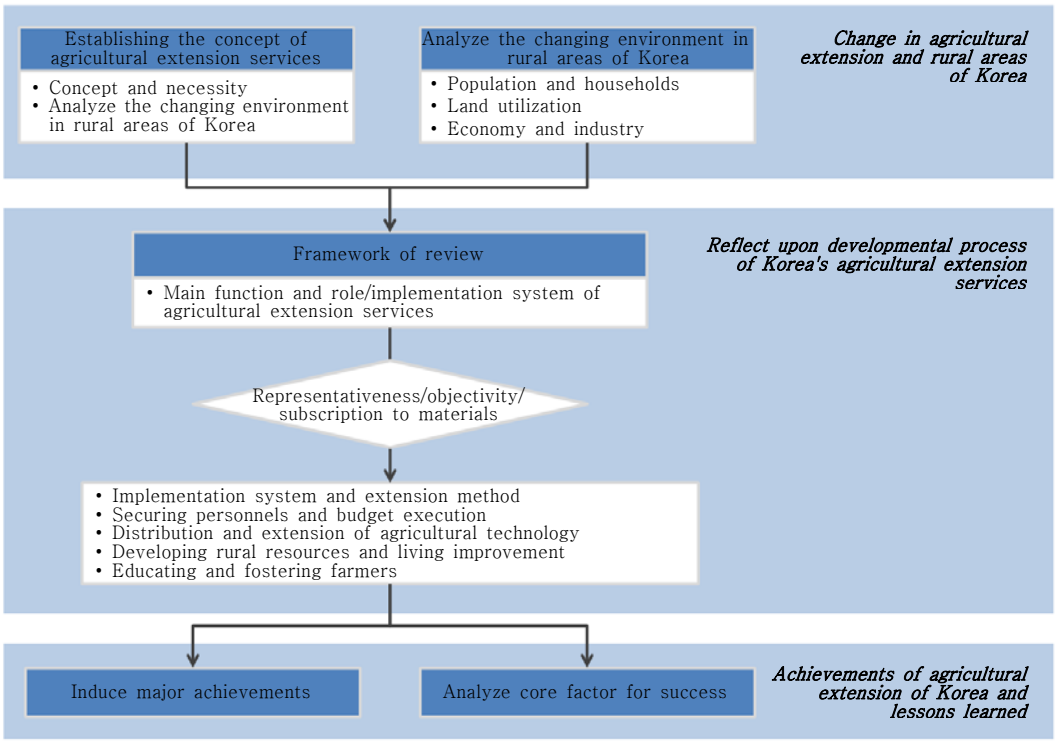
characteristics of agricultural extension services and changes that it underwent thus far.

- With a view to sharpening the understanding of the changes in Korea's rural areas, the study will examine the changes in rural area of Korea in terms of population and households, land utilization, and economic and industrial structure since the 1950s.

○ Next, the study will look at development process of agricultural extension services in Korea.

- Based upon theoretical basis of major function and role, and implementation system of agricultural extension services, the study will categorize major contents of agricultural extension services of Korea and specifically analyze them by period.

Figure 1-1. Composition and Implementation System of Study



- The contents of agricultural extension services of Korea under review have representativeness and are based upon objective facts. Five criteria will be employed in examining the contents of agricultural extension services after considering whether basic database of related documents have been established or not : implementation system and extension method, securing personnel and budget execution, distribution of agricultural technology and extension, development of rural resources and living improvement and educating and fostering farmers.

○ Lastly, the study will identify major achievements of agricultural extension services of Korea, analyze key to success and finally provide lessons to other countries including developing countries, which can be a substantial help for them.

3. Research Method

○ The study will conduct its research mainly based on documentary survey with a view to examining broad agricultural extension and its distribution system for the past 60 years after the nation's liberalization from Japanese colonial rule, and specific contents of the study is as follows.

○ Relevant research and documentary survey at home and abroad in relation to agricultural extension services

○ Analyze various statistics for examining changes in rural areas of Korea

○ Analyze planning system and legal system related to agricultural extension in Korea

○ Analyze relevant research, documents and statistical materials to reflect on development process of agricultural extension services of Korea

○ Conduct an analysis on various statistics to analyze achievements of agricultural extension in Korea

Chapter 2.

Concept of Agricultural Extension and Change of Rural Areas of Korea

1. Concept and Need for Agricultural Extension Services

○ Agricultural Extension Services, as its name suggests, uses the term ‘extension’, and it means extension of educational activities.

- The term extension education was first used in Britain, and it started as an open education session at an university to increase educational level of general public.
- Such activity spread to the United States and it was conducted at the level of U.S. state universities. Agricultural extension services of today originally focused on educating farmers. (Choi Min-ho, 1995)
- The concept of agricultural extension services went through some changes in its meaning under different circumstances, however, in an overall context, it boils down to pre-emptively and comprehensively transferring useful information that farmers need.

○ The concept of agricultural extension services can vary because its business domain is broad, and its goal and function can be different depending on the

national circumstances, but in general agricultural extension services is understood to be as a series of program aimed at facilitating agricultural management, managing household life and the development of community. (Park Tae-sik, 1989)

- Song Ki-jin (2003) defined agricultural extension services as conducting educational program together with rural dwellers as opposed to conducting it for their sake based upon cultural change and its principle.

○ At the international level, FAO, World Bank and OECD also define the concept of agricultural extension services, and their definitions are consistent with the aforementioned definition of concept from a macro perspective.

- FAO and World Bank (2000) defined agricultural extension services as Agricultural Knowledge and Information Systems for Rural Development, and OECD defined it as Agricultural Knowledge System, respectively, meaning that they recognize agricultural extension services as broad-based knowledge system.
- That suggests that for a smooth operation of agricultural extension services a system is needed that allows for mutually complementary and mutually reinforcing relation between research, extension and education.
- In the same vein, Kim Jin-mo, Ko Soon-cheol and two others (2009) defined agricultural extension services as being programmed and implemented to maintain continuity while being operated within mutually complementary and investing relation in one system.

○ The concept of agricultural extension services can be also found in the contents regarding establishment of Rural Development Administration in Rural Community Development Promotion Act promulgated in 1962. Its aim is to increase the welfare of farmers through experimental research, enlightening instruction and technology distribution, and corresponding training of specialists. (Rural Development Administration, 2007)

- In addition, education and training program is conducted on experimental research project, agricultural extension services and agriculture-related people to promote agricultural science and technology for the purpose of developing agriculture, a basic industry of a nation, and enhancing farmer's welfare. (Rural Community Development Promotion Act)
- In summary, agricultural extension services aims to achieve capacity building and higher efficiency in market, distribution and utilization of agricultural products that enables increased production of agricultural products and greater efficiency for farmers and agriculture-related people.

○ In respect to the concept of agricultural extension, Choi Min-ho explains about the need for agricultural extension from two perspectives of characteristics of modern industrial society and aspects of national development.

○ He refers to the development of science, rapid social change, specialization of industry, liberalization of international community and increased level of knowledge as the characteristics of modern industrial society.

- At a time when the development of science is leading to rapid development and research of new agricultural technology, new variety, and agricultural equipment and data, education is most effective in ensuring the earliest utilization of those innovation factors.
- To ensure successful agriculture in modern society that rapidly changes while exerting influence on one another, an ability should be equipped to predict future distribution and price change of agricultural products in response to social change and agriculture itself, and knowledge and information on agricultural fluctuation at home and abroad should also be learned.
- Agricultural sector should be equipped with up-to-date knowledge and information about agricultural production and distribution of agricultural

products in response to the industrial specialization, which makes it necessary for educational institutions in rural area and agriculture-related organizations to remain in close cooperation.

- Agricultural market is becoming more open as a result of increasing trade between countries made possible by opening international market. Against this backdrop, a nation should secure international competitiveness for its agriculture to be developed and sustained, and key to achieving this goal is securing information and technology on advanced agriculture.
- Thanks to much higher knowledge and educational level possessed by rural residents these days compared to the past, they have strong desire not only to enhance their quality of living, but also acquire knowledge and information that are necessary for them to adapt to the rapidly changing society. To accomodate their desire, more opportunities for social education such as agricultural extension services need to be provided.

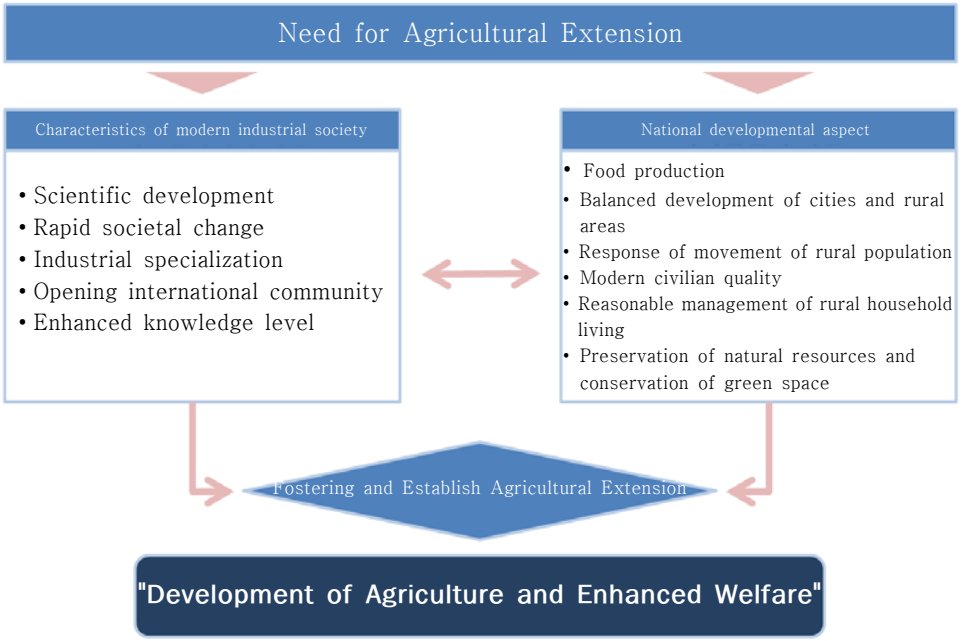
○ Agricultural extension services fosters an ability and capacity of rural residents that are necessary for the development of rural community, agriculture and rural households, thereby significantly contributing to the development of a nation, and more specifically, to food security, balanced development of urban and rural area, response to movement of rural population, fostering modern civil qualities of rural residents, reasonable operation of rural household life, preservation of natural resources and space maintenance, and succeeding traditional culture.

- Food self-reliance is critical not only to health of people, but also to the stable development of nation's society. In particular, agricultural extension services can play a critical role in ensuring stable supply of food, and production and distribution of pollution-free food that takes into ac-

count people's health and hygiene.

- In modern city, gap between urban and rural area is becoming a significant social issue, and agricultural extension is contributing greatly to reducing the gap between urban and rural area through promotion of rapid growth of rural area and agriculture.
- With shortage of labor in agriculture worsening caused by people giving up the farming, agricultural extension services can make a significant contribution to enhancing the ability to adapt to living in rural area.
- Rural residents on their part need to have active lifestyle and modern civil qualities that can enable them to rightly comply with obligations and responsibilities as a member of democratic society, and agricultural extension services can contribute directly or indirectly to cultivating modern civil qualities of rural residents.
- As sound clothing, food and housing life, decent management of family life, healthy child rearing and education are directly linked to the welfare of rural residents, the importance of agricultural extension services for decent family life is increasing.
- Preservation of natural resources should be managed according to the plan as it plays an important role not only in ecosystem conservation, but also in enhancing the quality of living. And agricultural extension services plays an important role in conservation of pleasant nature in rural areas.
- Given that the value of traditional culture grows as a nation develops and society becomes international, rural areas that have been succeeding agriculture and life-related traditional culture needs to be maintained and kept alive as an independent rural community.

Table 2-1. Background and Need for Agricultural Extension



Note: Choi, Min-ho, 1995, p.27-30.

2. General Characteristics of Agricultural Extension Services of Korea

○ The characteristics and system of agricultural extension services of a nation vary depending on the nation's environment surrounding the rural areas, economy and culture.

- At a time when a fierce competition and change in agricultural field is expected including development of agricultural technology and distribution of agricultural management thanks to the advancement of glob-

alization and developing science and information, nations that operate and pursue agricultural extension services are implementing them in a way that it is suitable for their national circumstances, with Korea being no exception.

○ Generally, agricultural extension services is divided into four different types : university-based education type, governmental organization type, farmer-organized institute type and private sector-led type.

- University-based education type: This type focuses on social educational function for agricultural development and found in some developed countries where the educational function of school developed earlier than others. (U.S., the Switzerland)
- Governmental organization type: This type began for the purpose of food self-sufficiency and developing rural area, and divided into sub-organization type under the Ministry of Agriculture and Forestry and government agency type. (Korea, Japan and Thailand)
- Farmer -organized institute type : Naturally born out of necessity by farmers, this type is led by farmers' organization employing and training professional extension personnels. (Denmark, France and Taiwan)
- Private sector-led type: This type introduces a policy of letting beneficiaries pay for agricultural extension services themselves, and focuses on market-oriented consulting and consumers. (Britain, the Netherlands and New Zealand)

○ Agricultural extension services of Korea falls into the category of typical governmental organization type.

- Implementation system of Korea's agricultural extension services is comprised of Rural Development Administration, an independent government agency type under Ministry of Agriculture and Forestry at central unit, Agricultural Technology Center led by governor at provincial level,

city/Kun Agricultural Technology Center (town/township Counseling Center for Farmers) [1]Such system has been existent in its form since Agricultural Community Development Promotion Act was established and Rural Development Administration was founded.

- The system in place allows for processing and designing of technology in a way that technologies and income sources developed by research institutes concentrated at the center, with Rural Development Administration taking the lead, can be applied to regional agriculture and agricultural field.
- Consulting service is under operation in which an effort is made to develop and discover a growth engine for regional agriculture including regional specialization to develop regional agriculture into technical agriculture, while regional agriculture and rural problems are addressed in cooperation with rural residents.

○ In the meantime, one of the main characteristics of agricultural extension services of Korea is distribution of agricultural technology. As shown in <Figure 2-1>, agricultural extension services of Korea conducts experimental research with a view to increasing income and welfare of rural residents, and transferring the state-of-the-art agricultural technology that resulted from such research to farmers through agricultural extension services.

- A system in which three pillars of experimental research, distribution of technology through agricultural extension services and increased income for farmers feedback with each other and systematically develop is the main content for facilitating distribution of agricultural technology.
- In that context, agricultural extension services means an activity that requires a higher level of specialty and creativity that can turn natural sci-

1) Information on specific changes can be found in Chapter 3.

ence knowledge as a product of experimental research into farmer-oriented technology through processing, training and education, thereby enhancing added-value. (Kim Sung-il, 2007)

<Figure 2-1> The Role of Agricultural Extension Services in Distribution of Agricultural Technology

Source: Kim Jin-mo, Go Soon-chul and 4 others. p. 40

○ There is a demand recently that agricultural [2]extension services of Korea shift away from its traditional function and role, and accommodate various contemporary demands for agriculture and rural areas. As a result, the concept and function of agricultural extension services need to change to fit into the current conditions.

- In other words, agricultural extension services need to maintain its traditional function of researching, developing and distributing practical technology, while continuing to keep its role of extending multifunctionality of rural areas, or enhancing amenity and settlement function of rural areas through development. Taking into these changing circumstances,

2) Studies that mentioned the problems of traditional agricultural extension services include those of Kim-Tae ho(1996), Yoon Yue-hak(1998), Kim Jin-kun, Park Sung-jun(2000), Cho Young-chul and Song Young-sup(2003), and for more information, reference to their studies is recommended.

agricultural extension services of Korea is being conducted in a more comprehensive way.

- At a time when there is a demand for realizing agriculture that is suitable for knowledge-information basis with the emergence and advancement of knowledge informatization society, and when there is a request for improving the relation between consumers and farmers on a voluntary, there is a greater need than ever before to turn the existing agricultural extension services into the one that is suitable for agricultural knowledge informatization.
- Various efforts are being made to address the limitations and problems of agricultural extension services, and examples include “Agricultural Extension Services Development Planning Group” created in 2002 published “Vision and Strategy for Agricultural Knowledge Information Project along with Consumers and Farmers” as part of official efforts to shed a light on the limitations that the concept and name of agricultural extension services have and change its concept and name.
- Agricultural extension services from this perspective can be understood as a broad concept that includes not only the traditional concept of technology distribution and training, but also educating farmers and fostering workforce, developing rural resources and improving living, and agricultural research. (Kim Jin-mo, Go Soon-cheul and 4 others, 2009)

○ The need for re-establishing the concept and operation system of agricultural extension services can be also seen in paradigm shift of agricultural extension. (refer to table 2-2.)

- Agricultural extension services of the past used to select demonstration farmhouses to distribute technologies to farmers and provide training or confrontational counseling for farmers, with the regional rural extension worker playing a central role in improving rural livelihood.

- However, the paradigm of agricultural extension is changing these days not only because of rapid progressing of rural circumstantial changes, but also an emerging need to respond to aforementioned changes at macro-level, including emergence of knowledge information society and expansion of recipient of agricultural extension services.

Table 2-2. Changing Paradigm in Agricultural Extension

Concept (definition)	○ Project of distributing new technology through education or pilot program	⇒	○ Public service of systematically collecting, processing, disseminating and linking agricultural knowledge and information required from production to consumption
Beneficiary	○ Farmers	⇒	○ Consumer + Farmer
Function	○ Distribution of simple technology ○ Improvement of rural living ○ Fostering of learning group	⇒	○ Technology/management consulting ○ Consumer ○ Fostering farmers' organization per item
Method	○ Demonstration extension for pilot farm ○ Confrontational counseling	⇒	○ Differentiation between full-time farm households and ordinary farm households ○ Cyber counseling
Resources	○ Utilization of local extension workers	⇒	○ Utilization of national network of technical experts

Source: Rural Development Administration, 2005, p. 7

- Recently, agricultural extension services reach even consumers, and its function includes technology and management consulting and fostering agriculture by consumer in addition to distribution of rural technology, with different method being required for different farm households. Thus, there is a need for facilitating cyber counseling conducive to informatization society.
- In summary, as was mentioned by Rural Development Administration (2005), agricultural extension services of Korea is making progress toward becoming public services that collect, process, diffuse and align agricultural knowledge and information in a systematic basis that are necessary at each process of education of new technology to distribution, production and consumption of new technology.

○ So far, in Korea, there have been academic discussions regarding changing concept and name of agricultural extension services.

- Jo Young-cheul and Song Young-sup (2003) suggested “Agricultural Knowledge & Information Service” as a new name that can help offset negative images about agricultural extension services caused by continued use of the name at a time of demand for change including informatization of agricultural environment and decentralization.
- Kim Jin-kun and Park Sung-joon (2000) suggested the name “Agricultural Technology Distribution Project” to specialize the name of agricultural extension services as part of efforts to shift the paradigm of agricultural extension services.
- Kim Jin-wha(2007) pointed out the inappropriateness of the name “Agricultural extension services” in terms of project purpose, contents, method and timing of national agricultural and rural polices given the fact that agricultural extension services is reaching not only farmers but also general consumers as a main customer and there is an increasing

demand for multifunctionality of rural areas.

- As of 2010, Korea officially continued to use the name “Agricultural Extension Services”, but it is believed to be desirable to consider changing the name taking into account long-term perspective and changing situation surrounding agricultural extension services.

3. Changes in Conditions of Rural Areas in Korea

3.1. Population and Households

○ As was the case with many developing countries, the population in rural areas rapidly decreased, while the population in urban areas sharply increased in Korea as a result of implementation and advancement of industrialization policy since the 1970s.

○ As <Table 2-3> shows, rural population decreased from 18.5 million in 1970 to 8.7 million in 2005, a decrease of 9.8 million, whereas its share in the total population declined by 40.4% from 58.9% to 18.5%.

Table 2-3. Changing Population of Korea (1970-2005)

Unit: 1 million (%)

Year	1970	1975	1980	1985	1990	1995	2000	2005
Sum	31.4	34.7	37.4	40.4	43.4	44.6	46.0	47.0
Urban areas	12.9 (41.1)	16.8 (48.4)	21.4 (57.2)	26.4 (65.4)	32.3 (74.4)	35.0 (78.5)	36.6 (79.7)	38.3 (81.5)
Rural Areas	18.5 (58.9)	17.9 (51.6)	16.0 (42.8)	14.0 (34.6)	11.1 (25.6)	9.6 (21.5)	9.3 (20.3)	8.7 (18.5)

Source: National Statistical Office.

- The population in urban areas increased by 25.4 million for the past 35 years (from 1970 to 2005), and its share in total population increased by 40.4%.

○ Decreasing population in rural areas is attributable to massive movement of rural population into urban areas due to income gap between rural and urban area and worsening agricultural management.

- Such population movement can be found in population movement statistics between urban and rural areas. <Table 2-4>

○ Movement of population from rural areas to urban areas made up more than 50% of total population movement up until the 1980, and started to decrease since then to drop to 7.9% between 2000 and 2005.

- For the past 40 years, the period when the largest number of population moved from rural area to urban area was between 1975 and 1980, during which time up to 2,529 people migrated from rural to urban areas.

Table 2-4. Change in Movement of Population between City and Rural Area (1965~2005)

Unit 10,000 (%)

Period	1965~1970	1975~1980	1985~1990	1995~2000	2000~2005
Rural to City	1,844(57.8)	2,529(51.7)	2,329(33.4)	897(19.0)	308(7.9)
City to City	670(21.0)	1,412(28.9)	3,527(50.6)	2,861(60.3)	2,870(73.9)
City to Rural	387(11.9)	679(13.9)	743(10.7)	929(19.6)	647(16.7)
Rural to Rural	297(9.3)	268(5.5)	368(5.3)	53(1.1)	60(1.6)
Sum	3,198(100.0)	4,888(100.0)	6,967(100.0)	4,740(100.0)	3,885(100.0)

Source: National Statistical Office

○ The number of farm households and farm population is also on the downward spiral since the 1970s.

- The number of farm households and farm population which stood at 2,480,000 and 14,420,000, respectively, in 1970 decreased by 1,210,000 and 10,990,000 to reach 1,270,000 and 3,430,000, respectively, in 2005.
- The share of farm households in the total households between 1970 and 2005 decreased 34.4%,while the share of farm population in the total population saw a decrease of 37.6%.

Table 2-5. Change in Population of Farm Households and Farmhouses (1970-2005)

Unit: 10,000 households, 10,000 people (%)

Year	1970	1975	1980	1985	1990	1995	2000	2005
Farm households	248 (42.4)	238 (35.2)	216 (27.0)	193 (20.1)	177 (15.6)	150 (11.6)	138 (9.7)	127 (8.0)
Farm household population	1,442 (44.7)	1,324 (37.5)	1,083 (28.4)	852 (20.9)	666 (15.5)	485 (10.9)	403 (8.6)	343 (7.1)

○ The change in population structure per age in Korean society from 1970 to 2005 can be found in <Table 2-6>.

- One of the characteristics in population structure during this period is the rapid aging of population.
- The share of population aged over 65 in the total population was only 3.3% in 1970, but increased up to 9.3% in 2005.
- In line with the overall trend of increasing population, the population aged between 15 and 64 steadily increased until 1995, but stopped increasing after 1995.
- Population aging in rural area is serious enough to reach a point where the speed of population aging in rural areas is more than twice that of urban areas.
- Between 1970 and 2005, the share of population aged 65 increased by 5.1% in urban areas, while the figure in rural area increased by 14.4%.

Table 2-6. Changing Demographics per Age (1970~2005)

Unit: 1 million people, (%)

Section		1970	1975	1980	1985	1990	1995	2000	2005
Sum	Sum	31.4	34.7	37.4	40.4	43.4	44.6	46.0	47.0
	less than 14	13.2 (42.1)	13.2 (38.1)	12.7 (33.8)	12.1 (29.9)	11.1 (25.7)	10.2 (23.0)	9.6 (21.0)	9.0 (19.1)
	15~64	17.2 (54.6)	20.3 (58.4)	23.3 (62.3)	26.6 (65.7)	30.1 (69.4)	31.7 (71.1)	33.0 (71.7)	33.7 (71.6)
	over 65	1.0 (3.3)	1.2 (3.5)	1.4 (3.9)	1.7 (4.3)	2.2 (5.0)	2.6 (5.9)	3.4 (7.3)	4.4 (9.3)
City	Sum	12.9	16.8	21.4	26.4	32.3	35.0	36.6	38.3
	less than 14	4.9 (37.9)	5.9 (35.2)	6.9 (32.5)	7.8 (29.7)	8.5 (26.4)	8.3 (23.7)	7.9 (21.6)	7.5 (19.5)
	15~64	7.8 (60.0)	10.5 (62.5)	13.9 (65.0)	17.8 (67.3)	22.6 (70.1)	25.2 (71.9)	26.7 (73.0)	28.1 (73.3)
	over 65	0.3 (2.1)	0.4 (2.3)	0.5 (2.6)	0.8 (3.0)	1.2 (3.6)	1.5 (4.3)	2.0 (5.5)	2.7 (7.2)
Rural	Sum	18.5	17.9	16.0	14.0	11.1	9.6	9.3	8.7
	less than 14	8.3 (45.1)	7.3 (40.8)	5.7 (35.7)	4.3 (30.4)	2.6 (23.6)	1.9 (20.2)	1.7 (18.6)	1.5 (17.2)
	15~64	9.4 (50.8)	9.8 (54.6)	9.4 (58.7)	8.8 (62.7)	7.5 (67.3)	6.5 (68.1)	6.2 (66.7)	5.6 (64.2)
	over 65	0.8 (4.2)	0.8 (4.6)	0.9 (5.6)	1.0 (6.8)	1.0 (9.0)	1.1 (11.8)	1.4 (14.7)	1.6 (18.6)

Source: National Statistical Office

3.2. Land Utilization

○ The share of arable land out of the national territory has been steadily decreasing as shown in <Table 2-7>.

- The size of arable land, which was 2,298,000 ha in 1970 decreased by 561,000 ha to 1,737,000 ha in 2009, a decrease of about 5.9%.

Table 2-7. Change in Utilization of National Land (1970~2008)

Unit: 1,000 ha

Year	National land	Arable land		Forestry land		Others	
		Size	Ratio(%)	Size	Ratio(%)	Size	Ratio(%)
1970	9,848	2,298	23.3	6,611	67.1	939	9.6
1975	9,881	2,240	22.7	6,635	67.1	1,006	10.2
1980	9,899	2,196	22.2	6,568	66.3	1,135	11.5
1985	9,914	2,144	21.6	6,531	65.9	1,239	12.5
1990	9,927	2,109	21.2	6,476	65.3	1,341	13.5
1995	9,927	1,985	20.0	6,452	65.0	1,490	15.0
2000	9,946	1,899	19.0	6,422	64.6	1,635	16.4
2005	9,965	1,824	18.3	6,394	64.2	1,747	17.5
2009	9,990	1,737	17.4	6,370	63.8	1,883	18.8

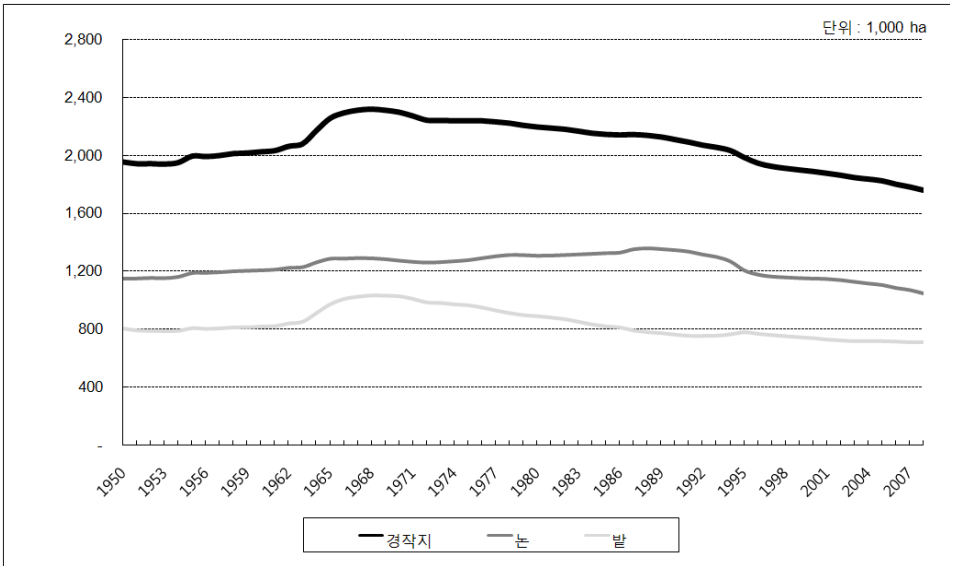
Source: National Statistical Office, Ministry of Public Administration and Security, Forest Service

- The share of forest land decreased by 3.3 % during the same period, which is not a sharp decrease compared to arable land.
- Compared to arable land and forest land, the size of other lands saw an increase of 9.2% in 1970 compared to 2009, which is attributable to diversion of arable and forest land to other purposes including residential, commercial and industrial purposes.

○ Since the independence of nation in 1950, arable land of Korea, which stood at 2,400 ha in 1969 started to decrease to reach 1,700 ha as of 2008, a 70% of that of 1968.

- The size of rice paddy out of arable land increased up to 1,400 ha in 1988, but since started to decrease to drop to 1,000 ha in 2008.
- The size of field peaked at 1,000 ha in 1968, but since started to gradually decrease to stand at 700 ha as of 2008.

<Figure 2-2> Change in Arable Land (1995~2008)



Source: The Bank of Korea

○ The size of arable land per farm household has been on the rise, though small, since 1970.

- It increased from 0.90ha in 1970 to 1.37ha in 2005, an increase of 4.7ha.

Table 2-8. Change in Arable Land per Farm Household (1970-2005)

Year	1970	1975	1980	1985	1990	1995	2000	2005
Size of land (ha)	0.90	0.93	0.94	1.02	1.11	1.19	1.32	1.37

Source: National Statistical Office

○ The size of arable acreage per farm household has been on the rise since 1960.

- In 1960, the share of farm household with less than 0.5 ha of arable farm land hovered around over 40%, but dropped to mid-30% in 2005.

- In the meantime, the share of farm household with more than 3.0 ha of farm land was only 0.3% in 1960, but sharply increased to 7.4% in 2005.
- Although the size of arable farm land per farm household has been on the steady increase, it is difficult to say that arable acreage per farm household enters the stage in which the size of arable farm land increasingly grows in size given the fact that farm household cultivating less than 1.5 ha of land as of 2005 makes up 76.7 % of the total.

Table 2-9. Change in the Size of Arable Land per Farm Household (1960~2005)

Unit: %

Year	1960	1970	1980	1990	1995	2000	2005
less than0.5ha	42.9	32.6	28.8	27.7	29.3	32.2	36.5
0.5 ~ 1.0ha	30.1	34.2	35.1	31.2	29.3	27.7	26.4
1.0 ~ 1.5ha	20.7	18.5	20.6	20.2	18.0	16.0	13.8
1.5 ~ 2.0ha		8.0	9.0	11.0	10.3	9.6	8.5
2.0 ~ 3.0ha	6.0	5.1	5.1	7.4	8.3	8.3	7.4
over 3.0ha	0.3	1.5	1.5	2.5	4.8	6.2	7.4

Source: National Statistical Office

3.3. Economy and Industry

○ As <Table 2-10> shows, the number of people employed in agriculture, forestry and fisheries plummeted from 1970 to 2005.

- During this period, the number of employees in agricultural, forestry and fishery sector declined by as much as 42%, which is attributable to

change in industrial structure, or agriculture-based industrial structure was re-organized into manufacturing and service industry through a rapid economic development period since the 1970s.

- The number of population employed in agriculture, forestry and fisheries stands at 1,815 as of 2005 making up less than 8% of the total, while the number of people working in service and other sectors makes up 73%, demonstrating that the change in industrial structure entered into a stable phase.

Table 2-10. Change in the Number of Employee per Industry (1970~2005)

Unit: 000, (%)

Year	Total Population	The number of employee	The number of employee per industry		
			Agriculture, forestry and fisheries	Mining and manufacturing	Services and others
1970	32,241	9,617	4,846(50)	1,377(14)	3,395(36)
1975	35,281	11,691	5,339(46)	2,235(19)	4,118(35)
1980	38,124	13,683	4,654(34)	3,079(23)	5,951(43)
1985	40,806	14,970	3,733(25)	3,659(24)	7,578(51)
1990	42,869	18,085	3,237(18)	4,990(27)	9,858(55)
1995	45,093	20,414	2,403(11)	4,844(24)	13,168(65)
2000	47,008	21,156	2,243(11)	4,310(20)	14,603(69)
2005	48,138	22,856	1,815(8)	4,251(19)	16,789(73)

Source: National Statistical Office

○ The change in the number of employees per industry for both urban and rural areas is shown in <Table 2-11>.

- In urban areas, population employed in service and other industries represented more than half of the total population until the 1970s, while the

number of people working for agriculture, forestry and fisheries was less an 10%.

- Such trend further intensified entering into 2005, with the share of agriculture, forestry and fisheries in urban area taking up less than 2%.
- The share of agriculture, forestry and fisheries in rural area continued to fall since 1970, showing a decrease of as much as 34%.

Table 2-11. Change in the Number of Employee per Industry in City and Rural Area (1970~2005)

Unit: 000, (%)

Section	Year	Total	The number of employee per industry		
			Agriculture, forestry and fisheries	mining and manufacturing	Service and others
City	1970	3,742	278(7)	1,053(28)	2,412(65)
	1975	5,419	368(7)	1,759(32)	3,293(61)
	1980	6,416	280(4)	2,282(36)	3,855(60)
	1995	13,357	368(3)	3,637(27)	9,353(70)
	2000	13,979	325(2)	3,276(24)	10,377(74)
	2005	15,065	315(2)	3,159(21)	11,592(77)
Rural area	1970	6,411	4,879(76)	495(8)	1,037(16)
	1975	7,533	5,840(78)	546(7)	1,147(15)
	1980	6,266	4,515(72)	606(10)	1,145(18)
	1995	4,631	2,487(54)	678(14)	1,466(32)
	2000	4,477	2,091(47)	672(15)	1,715(38)
	2005	4,212	1,785(42)	666(16)	1,761(42)

Source: National Statistical Office

○ Looking at the change in average monthly income for rural households and urban households shows that monthly income of urban households increase much faster than that of rural households.

- In 1975, incomes of rural households were 11% higher than those of ur-

ban households, but such trend reversed in 1980, with the incomes of urban households surpassing those of rural households. Such phenomenon continued to intensify to an extent that the average monthly income of urban households surpassing that of rural households by 22%.

Table 2-12. Change in Average Monthly Income of Farm Households and Urban Households (1975~2005)

Unit: thousand won

Year	1975	1980	1985	1990	1995	2000	2005
Urban household income (A)	66	234	424	943	1,911	2,387	3,251
Rural household income (B)	73	224	478	919	1,817	1,923	2,542
Ratio (B/A)	111%	96%	113%	97%	95%	81%	78%

Source: National Statistical Office

○ The share of farm income and non-farm income out of farm household has been steadily increasing since 1985.

- However, such trend is showing contradicting picture, in which farm income was higher than non-farm income until between 1985 and 1990, but this trend reversed in the early 1990, with non-farm income starting to outstrip farm income.
- This phenomenon is worsening to the point where an analysis in 2005 says that non-farm income was 6,863,000 won higher than farm income.

Table 2-13. Change in Farm Income and Non-farm Income out of Farm Household Income (1985~2005)

Unit: thousand won

Year	1985	1990	1995	2000	2005
Total(A)	5,736	11,026	21,803	23,072	30,503
Farm income(B)	3,699	6,264	10,469	10,897	11,825
Non-farm income (C)	2,037	4,762	11,334	12,175	18,688

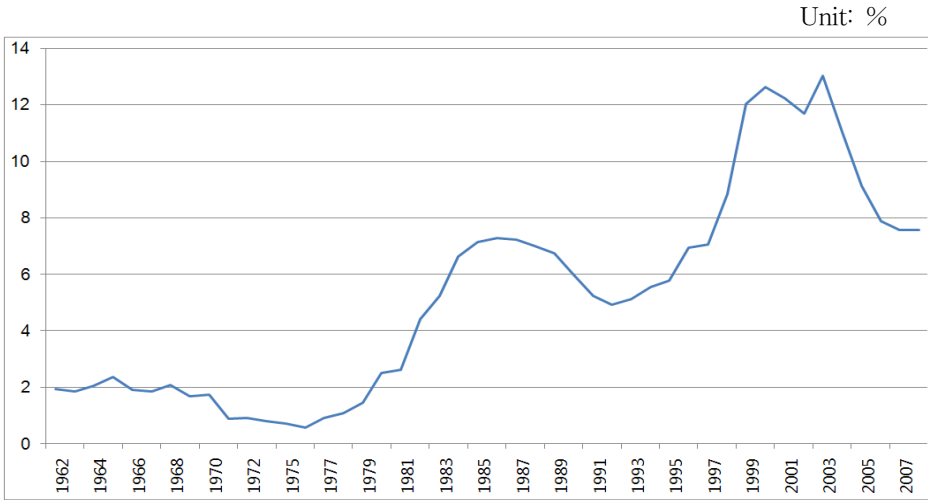
Source: National Statistical Office

○ The share of debt in farm household asset of farm household also increased a lot recently compared to the 1960s.

- In a broader context, there were two times when farm household debt soared, during which time the debt skyrocketed in the mid-1980 for the first time and sharply increased again until 2003 after 1997 financial crisis.

<Figure 2-3> Changing Ratio of Debt in Farm Households' Farm Asset (1962~2008)

Unit: %



Source: The Bank of Korea

- As of 2008, the debt has been declining by more than 4% compared to the level in 2003 when farm household debt peaked, however it still places a burden on the government unless farm household debt decreases.

3.4. Conclusion

○ An examination was made through various statistics on the changes in rural areas of Korea in terms of population and household, land utilization, and economy and industry since the 1950s. The changes that Korean rural area has went through can be summed up as follows.

○ First off, there was rapid decrease in population and resulting hollowing out in rural areas, which is attributed to the movement of rural population into urban areas.

- It is a well-known fact that decreasing population in rural areas led to decrease in the number of farm household, which then had various impacts including agricultural production and rural settlement system.
- Population aging visibly took place entering into the 21st century, and is predominantly more clear in rural areas than in urban area due to increasing income level, enhanced medical technology and improving quality of public health environment.

○ The share of agricultural land in the national territory has been on the steady decline, which means an increase in urban area.

- Arable acreage per farm household is increasing compared to the past, but it is hard to say that it is moving toward a trend of larger-scale given that agricultural production system centering around enterprises has not been established.

○ Rapid decrease in rural population led to rapid fall in the number of people

employed in agriculture, forestry and fisheries, while average monthly income gap between rural household and urban household is further widening since the 1980s.

- Farm household debt, which is higher than in the past is also placing a burden on the government.

○ Examining the changes in rural areas of Korea from a macro perspective is a pre-requisite for understanding the distribution and operation system of agricultural extension.

- The reason is that implementation direction and contents of agricultural extension should be carried out in a way that it can accommodate the changing environment of rural areas, and in fact agricultural extension of Korea pursued various polices so far to improve agricultural production and competitiveness of agricultural sector.
- Agricultural extension services of Korea endeavors to enhance the welfare of farmers and achieve agricultural development of rural areas, which remain relatively poor compared to other urban areas.
- Though the position of agriculture as a main industry of Korea was replaced by manufacturing and service industry, resulting in reduced competitiveness of agriculture, a base industry for rural area, and rural competitiveness, it is crystal clear that agricultural extension services were policy and strategic tool to address those issues.
- The next chapter will study with what missions and goals the agricultural extension services were implemented by period, and how those efforts improved the agricultural productivity and settlement system of agriculture.

Chapter 3

Developmental Process of Agricultural Extension Services in Korea

1. Contents and Reviewing Direction

○ Before studying the developmental process of agricultural extension services of Korea, a work needs to be done first to categorize major contents of agricultural extension services.

- Agricultural extension services of Korea since 1950 have pursued various projects, while responding to changing agricultural environment at home and abroad and remaining in conformity with agricultural policies and agricultural extension policies. Detailed contents of project also show characteristics of comprehensively covering agricultural technology, agricultural extension services, education and training, fostering of farmer organizations, and development of local community.
- Therefore, a desirable way of contemplating and summarizing the contents of agricultural extension services would be to study them in a systematic way focusing on core contents as opposed to enumerating them all.

- Given that this study is a part of experience sharing project to share Korea's economic developmental experience with developing countries, enumerating the core contents of agricultural extension services is advantageous in that it allow developing countries to study Korea's cases in devising their own policies, thereby saving themselves time and cost.

○ Main function and role of agricultural extension services of Korea can be summed up as distribution and extension of agricultural technology, development of rural resources and improvement of living, and education and nurturing of farmers.

- Such categorization, which is in line with the concept of agricultural extension services, was made based upon preceding study of Kim Jin-mo, Go Soon-cheul and others (2009).
- Therefore, main execution system of agricultural extension services can be categorized into implementation system, extension method, and organization and personnel.
- Such categorization and compilation of logical structure allows for a more historical reflection and sharing of Korea's experiences with developing countries, thereby enhancing understanding of them.

○ Before reflecting upon main contents of agricultural extension services, a comprehensive developmental process of agricultural extension services will be contemplated.

- The rationale is that looking at how Korea's agricultural extension services progressed within a macro level framework would be reasonable from an analytic point of view and also helpful in enhancing a comprehensive understanding of agricultural extension services of Korea.
- An attention should be paid to through what channel these policies and projects were implemented, in other words, whether they were conducted through appropriate execution system, how their effectiveness were dem-

onstrated and how the problems identified in the execution stage were addressed.

- A comprehensive developmental process of agricultural extension services of Korea will be studied by categorizing the way that the implementation system, extension method, and organization and personnel responded and developed in accordance with changing time and requirements by period.

○ A comprehensive developmental process of agricultural extension services of Korea will be studied first before moving on to in-depth examination of main contents.[3)]

- As mentioned above, characteristics of developmental process, major policies, focus and effectiveness of agricultural extension services of Korea after the nation's independence from Japanese colonial rule will be examined in terms of distribution and training of agricultural technology, development of rural resources and living improvement, and education and fostering of farmer.
- For clear and efficient organization of major functions and characteristic of each role, contents will be divided into major periods.

○ Meanwhile, examination of characteristics and developmental process of agricultural extension services of Korea, the subject of this study, has its limitations as follows.

- Structuralization and examination of main contents of agricultural extension services implemented for the past 60 years requires establishment of abundant database, which remain somewhat inadequate thus far.

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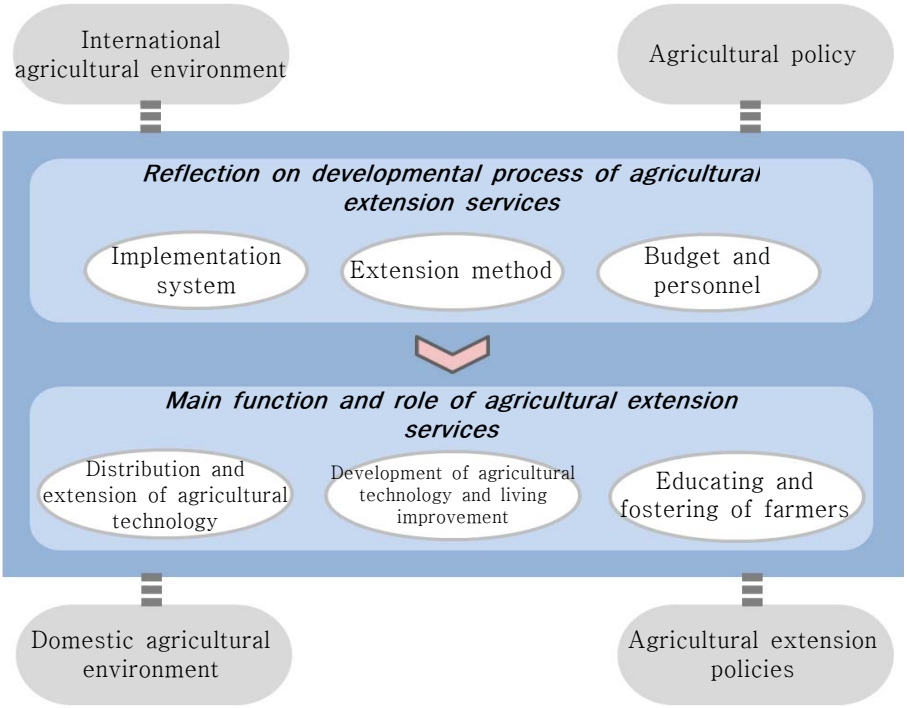
3) Preceding studies that examined agricultural extension services of Korea most comprehensively were conducted by Rural Development Administration (2008) and Ministry of Agriculture and Forestry (1999), and this study refers those previous studies, but only main contents were extracted.

- Accordingly, there exists a limitation in that there was no examination on more specific contents at a micro level.
- It is believed that historical reflection or re-interpretation of contents at a more micro level should be carried out after establishment of in-sufficient data.

Figure 3-1. Main Contents of Agricultural Extension Services of Korea



2. Implementation System and Extension Method

2.1. Beginning of Agricultural Extension Services

○ It was after the introduction of democratic agricultural instruction programs in 1945 when agricultural extension services began in earnest in Korea. It was in the year 1947 when well-established system was created in Korea after agricultural college, agricultural experiment station, instruction bureau were incorporated into a single organization called "Agricultural Improvement Institute" modelled on agricultural extension services of the U.S.

- Agricultural Improvement Institute was responsible for education, and research and extension, with operational cost of the organization 100% paid for by the national budget.
- Agricultural Improvement Institute conducted workshop for 150 city/Kun agricultural extension official about instruction ideology and method as 1st plan in 1948, and as 2nd plan, 2,400 private extension workers were selected and trained to work as instruction personnel.
- However, Agricultural Improvement Institute was not able to carry out planned projects in earnest due to lack of education, personnel and national budget, and lack of understanding on the U.S. agricultural extension's ideology and organization, and it was against this backdrop that Agricultural Research & Extension Services was founded to compensate for such limitation.

○ Agricultural Improvement Institute was abolished in January 1949, and Agricultural Technology Institute, composed of experiment section and instruction section was founded.

- Agricultural extension services were discontinued following the outbreak of the Korean war in 1950, but agricultural extension services restored its function again with the establishment of agricultural extension specialist system in 1952, creation of Central Agricultural Research & Extension service office in 1956 and establishment of Agricultural Instruction Act in 1957.
- Various extension services were carried out by administrative organizations, and regional community development committee, irrigation association and cooperative federation.

2.2. Implementation System and Method of Extension Services by Period

2.2.1. 1960s

□ Implementation System

○ 1962 is an important year when agricultural extension services of Korea became systematic and agricultural extension services were unified.

- Final draft was adopted in 1962 that functions of agricultural extension would be unified and its institutes would exist in the form of agency not government department, leading to the promulgation of Agricultural Community Development Promotion Act in March 1962.
- The characteristics of Agricultural Community Development Promotion Act is as follows. Firstly, it broadly stipulates the scope of agricultural extension services resulting in prescription of agricultural extension services as all educational projects for achieving agricultural development. Secondly, it prohibits extension services from being conducted by other

organizations and stipulates the mandatory approval by Rural Development Administration. And thirdly, it stipulates that local Rural Development Administration Institutes remain the agency of governor, mayor and county chief, with the administrator of Rural Development Administration having the authority over personnel affairs.

○ In April 1962, Rural Development Administration was launched as an exclusive body of agricultural extension services.

- In accordance with Agricultural Community Development Promotion Act, agricultural extension system consists of 4-level organizations: Rural Development Administration at central level, Rural Development Institute at provincial level, Agricultural Extension Office at city level and branch at town and township level.

○ Main programs of Rural Development Administration can be categorized into experimental research program, extension program and training program, and the specific projects of each program is as follows.

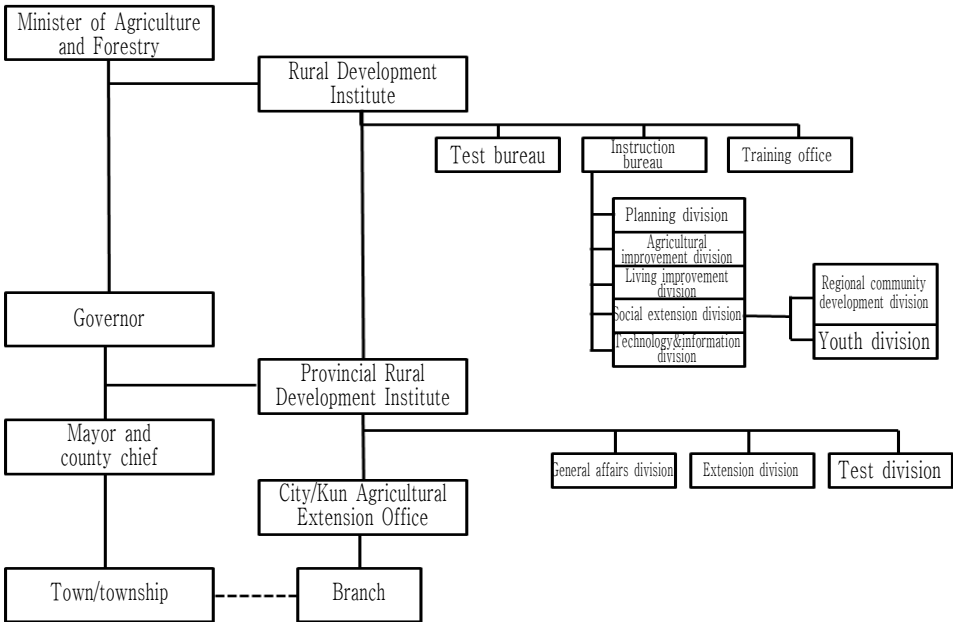
- Experiment program includes experimental stu요 for improved agriculture and living, production of high-quality crop and seed, and survey research for agricultural management and rural development.
- Extension program includes distribution of scientific knowledge and technology related to improved agriculture and living, diffusion of technology and knowledge on rural sidelines, farmer education, fostering of farmers' group, and creation of demonstration farm construction project.
- Training program includes research, training of employees in extension and technology, training of high-ranking officials and employees in institutes under the Ministry of Agriculture and Forestry, and training of agricultural resource specialist.

○ Along with the launch of Rural Development Administration, prohibition of extension programs by related organization and group related to agricultural

extension, and cooperation system were institutionalized.

- Personnel affairs of research and extension government employees were subjected to the administrator of Rural Development Administration, thereby establishing system of professional personnel management and consistent program supervision.

<Figure 3-2> Composition and Organizational Structure of Rural Development Administration (1962)



Source: Rural Development Administration, relevant law No. 1039.

○ In July 1962, Rural Development Adminstration was established each in province, city and county.

- This is designed to address the difficulty in securing independence of research and public extension workers at city and Kun, and establishment of Rural Development Adminstration serves as a venue to consult main factors regarding agricultural extension.

- However, it was replaced by Agricultural Industrial-Academic Cooperation Committee in October 1971 due to low participation by some officials in automatic position and lack of managerial effort.

○ The strategy to strengthen cooperative ties with the National Agricultural Cooperatives Federation began in 1962.

- An agreement was established with National Agricultural Cooperatives Federation in March 1962 to ensure the settlement of supplementary function of learning group and village·neighborhood association.
- The gists of the agreement is to minimize the organizational conflict by appointing the senior officials from farm group and living improvement group of village·neighborhood association among representatives of agricultural improvement clubs and living improvement clubs, and county extension office and National Agricultural Cooperatives Federation, and provincial rural development institute and provincial office of National Agricultural Cooperative Federation hold monthly consultative meeting, respectively, as part of efforts to ensure harmonization between extension instructions on the scene and production credit.

○ As a result of organization overhaul in October 1963, 410 branches at 3 to 4 town and township level under city and Kun agricultural extension office were established.

- In March 1964, two regional crop experiment centers for self-sufficient food production were established, and the number of extension public workers was increased.

○ Efforts started to be made to reshuffle agricultural extension services in July 1968.

- Along with the 2nd and 5th economic development plan, efforts were focused on more efficient implementation of agricultural extension services for increased income of farm households.

- To this end, the focus was placed on village extension specialist and permanent extension specialist, and the shift was made from distribution of individual technology toward complex technology, and from extension for individual farm household toward focused extension for agro-industry cluster or unit region in terms of extension method.

□ Extension Method

○ In the early days of 1960, various kinds of demonstration projects, which had been main extension method since Rural Development Institute, were carried out.

- Group-based approaches through leaning groups became more common including agricultural improvement clubs, living improvement clubs and 4-H clubs.
- What constitutes major extension methods includes evaluation of high-quality variety demonstration field and local workshop for extension specialist in charge, display of forage crop, pilot projects including creation of living improvement demonstration farm and visiting extension, and various lectures and workshops.

○ The policy to strengthen agricultural extension services of 1962 also focused on strengthening learning group organization, establishing rural promotion pilot region and publicity activities.

- In 1963, one branch of demonstration farm was established in each town and township, and the project was carried out according to set priority extension period.

○ As part of 10-year plan for increasing food production, additional 1,743 new extension specialists were employed and 190 branches were added in 1965.

○ In 1967, 270,000 copies of 3 version of <Agricultural Technology Extension Outlines> that compiles the experiment performances so far were published

and distributed, and in 1968, collective cultivation method for rice was introduced to which factors of production increase were put in.

- In 1968, as part of efforts to reshuffle extension services, rotating development extension was switched to permanent extension, and 247 village extension workers and 432 permanent extension workers(farmers) started to be deployed.

○ In 1969, winter farmer education was adopted and developed as national plan project, and in 1970, “National Federation of Rural Resources Extension Workers” led to the undertaking of establishing farmer hall.

2.2.2. 1970s

□ Implementation System

○ In April 1970, agricultural improvement division at extension bureau was promoted to technology promotion bureau, and post of applied nutrition officer was newly created.

- In February 1970, experiment division and extension division at provincial Rural Development Institute were promoted to experiment bureau and extension bureau, respectively, and extension bureau included extension division, technology distribution division and rural society division.

○ In December 1971, Deliberate Regulation on Agricultural Academic-Industrial Partnership was established to strengthen cooperation with agricultural schools, and regulation on agricultural research extension commission was abolished.

- To strengthen cooperative activities between agricultural high schools and agricultural extension service organizations, a regulation was estab-

lished and enforced to foster pilot agricultural high school.

○ In September 1974, Regulation on Farming Technology Training was established for systematic training for farmers, and in January 1975, agricultural extension offices were created in every town and township across the nation.

○ In December 1976, administrator of Rural Development Institute and chief of Kun Rural Extension Office in every province were promoted, and the position of technology officer was newly created.

○ In April 1977, extension capability was enhanced through facilitating specialization of extension specialists on the scene, and Specialization Regulation for agricultural extension specialist was established.

- This regulation was reformed two times and had a significant impact on increasing capacity of extension specialists and managing workforce before it was abolished in January 1989.

○ In September 1978, taking into account of the fact that extension specialists working on the scene spent much time doing paper work and little attention was paid to communicating with farmers in the field, assimilation guideline for documents of agricultural extension offices was enforced.

- This guideline allowed for minimizing documentary work and focusing on training farmers, an original purpose of the office.

□ Extension Method

○ Since 1973, Saemaul Movement started to spread in earnest and the capability of agricultural extension services was utilized to the fullest for expanded distribution of Tong-il rice.

- In 1974, 191,000 copies of 12 kinds of Standard Farming Textbook by Crop were published for distribution, and starting in 1979, Replying Card System for Farming Questions was operated nationwide for swift resolution of farming-related issues.

○ In 1977, according to the prime minister's instruction, farmers' organization that were fostered by each organization were consolidated, in which agricultural improvement clubs were incorporated to Saemaul Farm Clubs, and Living Improvement Clubs into Living Improvement Group.

○ In 1978, 88 pilot complexes for machinery transfer were established, and rural promotion project and traces of green revolution were made in forms of slides as promotional materials.

2.2.3. 1980s

□ Implementation System

○ Starting in December 1985, as part of efforts to enhance the professionalism of agricultural extension services and establish regulatory instrument to secure capable workforce, single salary system was implemented for extension officers and extension workers among 7,976 public extension workers.

Table 3-1. Details of Adjustment of Number of Extension Public Employees (as of January 1986)

Division	Before adjustment								After adjustment		
	Total	2 degree	4 degree	5 degree	6 degree	7 degree	8 degree	9 degree	Total	Extension official	Extension worker
Total	7,976	9	161	240	1,678	2,362	1,657	1,869	7,976	413	7,563
Central	102	-	12	35	38	15	2	-	102	50	52
Provincial	226	9	8	26	120	59	1	3	226	43	183
City/Kun	3,328	-	141	179	702	1,248	737	321	3,328	320	3,008
Branch	4,320	-	-	-	818	1,040	917	1,545	4,320	-	4,320

○ The year 1989 brought about a significant transformation regarding implementation system of agricultural extension services of Korea.

- A comprehensive overhaul was made on agricultural extension organizations, including creation of new division at agricultural extension office at Kun level.
- In the past, agricultural extension services focused on educating on how to increase food production to achieve food self-sufficiency, but in order to respond to changing agricultural conditions and increasing farmers' demand for extension services, extension services shifted toward the one that focused on education on economical crops, such as horticulture, fruit tree and special crops, and on improving quality of living in rural areas.

○ In April 1989, 1,461 town and township offices that were established in every town and township across the nation were incorporated into city/Kun agricultural extension office, and in November, Living Guidance Service was newly created in provincial Rural Development Institute, and the position of technology officer at Kun Agricultural extension office was eliminated.

□ Extension Method

○ In the 1980s, Variety Comparison Demonstration Field for food crops and income crops were created that allows farmers to compare between different varieties, thereby strengthening the on-site education, and in particular, focusing on developing income crops for farm households.

- It was a period when more attention were paid to demonstration and counseling extension services through utilization of various samples and audio and visual materials.

○ In 1982, 4,769 agricultural extension specialists were appointed as honorary extension personnels to strengthen cooperation extension and close relation between agricultural extension specialists and members of learning groups

was further solidified.

○ Starting in 1983, Complex Farming Pilot Region was designated for the spread of complex farming technology, which was one of the strategies to increase farm household income.

○ As mentioned above, the year 1989 brought about the transformation to agricultural extension services of Korea. Consequently, method of agricultural extension went through a lot of changes compared to the past.

- Agricultural extension services of the past that used to focus on early-ripening rice project centering around the goal of increasing production to achieve self-sufficiency in food supply was switched to the one that focused on economical crops, including horticulture, fruit and special crops that help increase farm household income.
- In addition, a shift was made to the extension system to increase the quality of living in rural areas, thereby solidifying the base.

2.2.4. 1990s

□ Implementation System

○ In February 1991, regulation on establishment of local organization of rural development that stipulates the creation of local organization of rural development and the number of researcher and extension personnel, regulation on centrally administered city and provincial administrative organization, and regulation on the number of government employees at local government were abolished, and were incorporated into a regulation on the organization and number of local government.

- To address a sense of alienation felt by farmers caused by a sudden termination of offices and to ensure a cooperative relation between pro-

fessional extension and extension on the scene, a counseling center was operated in town and township where 1 experienced extension specialist worked, and in 1992, it became an organization and 12 organizational parts of agricultural extension office were reduced to 8 to 9 parts.

○ The 1994 saw a significant change in terms of the system of agricultural extension services of Korea in that a measure to achieve localization of agricultural extension government employees was taken.

- Local Government Law, amended in March 1994 prescribes that in case of employment of national public employee at local government, it should follow the law, and in December, law was enacted to regulate the number of national pubic employees employed at local government.
- Accordingly, in accordance with the above law, relevant laws were amended and enacted for the era of localization, such as transferring 9,996 public employees excluding 179 pubic employees for rural development to local government in January 1, 1997 after 2-year grace period.

○ Transferring of those pubic employees to local government brought about many organizational changes in city/Kun agricultural extension offices.

- Organizational changes include changing the name of the division and cutting the number, merging of administration divisions in some cities, and creating research center for pear, grape and ginseng in some cities, such as Chonan and Geumsan in Southern Choongchung pronvice.

○ With the amendment of relevant regulations on administrative organization and the number of employees at local government, organizational structure of local government was reshuffled after which Rural Development Institute started to focus on experimental research and technology distribution function.

- A guideline was established to harmonize the functions of head quater of agricultural extension office and ordinary agricultural administrative

organization, and specialize in development and distribution of technology.

○ In August 1998, provincial Rural Development Institute was renamed as Agricultural Technology Institute, and Agricultural extension office at city and Kun level as Agricultural Technology Center with a view to making the institutes more specialized that provide knowledge and information on agriculture.

○ Implementation process and main contents of organizational restructuring of agricultural extension pubic employees is displayed in <Table 3-2>, and the changes in the number and the organization from reform of the 1st and 2nd local agricultural extension organization is shown in <Table 3-3>.

Table 3-2. Implementation Process of Reforming Local Organization

Date	Title	Main contents
June 9, 1998	Convey basic direction of local organization reform	• Specialize the experiment and research function of Rural Development Institute and Extension Office, while harmonize other extension functions with those of organizations at government level • Gradual incorporation of Agricultural Extension Office in metropolitan and general cities into the neighboring region
June 18, 1998	Convey implementation guideline for local organization reform	• Rural Development Institute: Specialize experiment, research function and technology development and distribution function, while harmonize the agriculture-related general functions with those of organizations at government level • Agricultural Extension Office: Harmonize the agricultural administrative organizations and functions at government level, while specialize the region focusing on development and distribution of technology
July 14, 1998	Deliver supplementary measure for local organization reform guideline	• Position of extension officials is reduced within the extent that it does not lead to sudden downturn of regionally-specialized agriculture • As for Kun, incorporation centering around Rural Extension Office would be desirable
August 20, 1998	Vice-minister's conference	• Relevant law is handled as immediate agenda
August 25, 1998	Cabinet meeting	• Vote on the original bill of relevant law
August 28, 1998	Deliver implementation guideline for amendment of regulation on the number of employee per organization	• Name of Rural Development Organization -Rural Development Institute-> Agricultural Technology Institute -Rural Extension Office->Agricultural Technology Center • Retain 27 national officers at provincial level (3 persons per province)
August 31, 1998	Promulgation of relevant law	• Regulation on administrative organization and the number of people at local government (presidential decree No. 15875) • Enforcement decree on the number of national officials under local government (presidential decree No.15876)

Table 3-3. Result of 1st and 2nd Reform of Local Agricultural Extension Organizations

Section		Before reform	After 1st reform(1998)	After 2nd reform(1999)	Note
No	Sum	6,699	5,460	5,082	△1,617 people(24%)
	Extension official	565	466	455	△110 people(19.5%)
	Extension personnel	6,134	4,994	4,627	△1,507people (24.6%)
Organization	Agricultural technology center	161	157	157	△4 branches (2.5%)
	Counseling center for farmers	1,429	534	527	△902 branches (63.1%)
	Branch	11	36	9	△2 branches (18.2%)

□ Extension Method

○ Starting in 1994, a measure for localization of agricultural extension public employees was sought, and efforts started to be made to develop Agricultural Extension Office into Regional Agricultural Development Center that conducts positive research that can address problems of regional agriculture, distribution of technology and educational function to ensure the early realization of technical agriculture that can respond to the changing agricultural environment at home and abroad.

- In 1995, according to Agricultural Industry-Academic Joint Council, cooperative system for agriculture-related institutes and groups at city and Kun level became institutionalized, through which farmers at local level were able to collect various opinions in relation to development and efficient dissemination of agricultural scientific technology and regional agricultural development

- At the same time, Agricultural Industry-Academic Joint Council at city and Kun level which plays a pivotal role in regional agriculture was created to select and develop tasks for regional agricultural development, while creating cooperative system between local autonomous entities and agricultural organizations and groups.

○ As a result of localization of agricultural extension public employees in 1996, 18%, or 1,240 out of total number of extension workers were reduced, and the size of the organization also decreased due to restructuring at each institute.

- In an effort to strengthen extension activities for professional technology in the field of agricultural technology, the name of Rural Development Organization was changed, and in particular, the name of Rural Extension Office on the front was changed to Agricultural Technology Center.
- In the meantime, for the purpose of boosting morale of public extension workers and promoting self-reliance in the era of localization, more supports were given to the facilities and equipments that are necessary for professional training on technology.

2.2.5. After the 2000s

□ Implementation System

○ During the process of the 2nd-stage, 2nd-restructuring in 2000 and the 3rd restructuring in 2001, the number of city and Kun agricultural centers remained at 157, but the number of counseling center for farmers was reduced to 456, and the number of agricultural extension personnel reduced by 1,836 in total during the process of 3 restructurings.

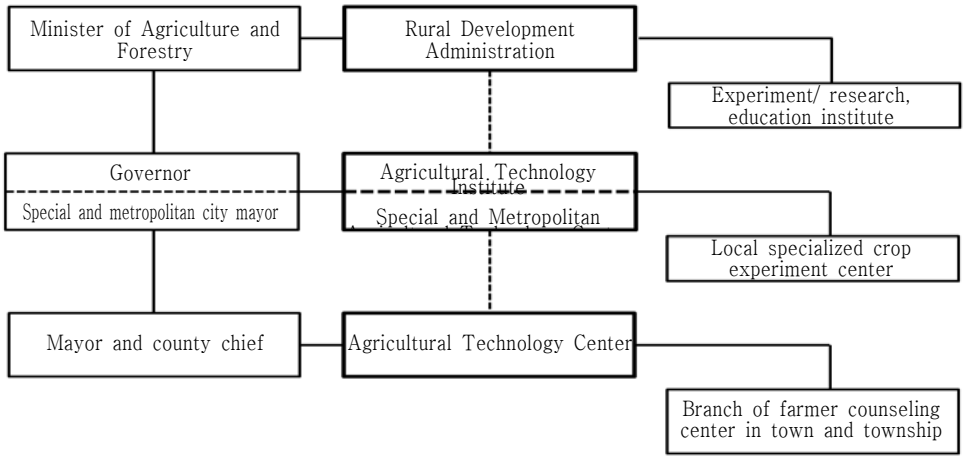
○ In 2003, the number of agricultural technology center, which had been continuously decreasing due to restructuring of local government increased due to the change of name by Joongpyeng county and Kaeryeong city.

- In January 2004, agricultural technology distribution office in Ansan city was promoted to agricultural technology center, increasing the number of total agricultural technology center to 160.

○ Ever since the enactment of Rural Community Development Promotion Act and creation of Rural Development Administration in 1962, the system of agricultural services underwent many changes during certain period and the implementation system of agricultural extension that was established during such process can be found in <Figure 3-3>.

- The implementation system of agricultural extension services of Korea consists of Rural Development Administration at central level, which is an independent agency of the government, Agricultural Technology Institute at provincial level under governor, and city/Kun agricultural technology center (otherwise called 'town and township counseling center') under mayor and county chief. And the structure remains in place ever since the enactment of Rural Community Development Promotion Act and the creation of Rural Development Administration.
- Under the system, technologies are processed, designed and distributed in a way that technologies and income sources that were developed by the research institutes which remained centrally concentrated, with Rural Development Administration at the center, can be applied to the agriculture and rural areas on the scene.
- Such system is also doing consulting function of developing, identifying and supporting a growth engine for regional agriculture including regional specialization to develop regional agriculture into technical agriculture, while addressing problems of regional agriculture and rural areas.

<Figure 3-3> Implementation System of Agricultural Extension



Source: Rural Development Administration, 2007, 9.49

□ Extension Method

○ It contributed not only to reducing the unemployment through provision of public labor forces into regional agricultural extension institutes which had been suffering from decreasing agricultural extension personnels due to localization and restructuring, but also to an early resolution of issue of rapidly distributing state-of-the-art agricultural technology and demanding technologies in the agricultural field.

- Public Work Services for Science and Farming Technology, which was designed to enhance on-site service for farmers and facilitate regional agricultural development, was implemented from 2001 to 2002 and the purpose of the services was changed to supporting technology development on the scene since 2003.

○ In order to supplement the function of agricultural extension on the scene that was weakened due to decreasing city/Kun agricultural technology center and execution of administrative affairs, all 1,481 professional personnels at

central level were divided into 157 teams taking into account their majors and hometowns to operate city/Kun Consulting Support Team.

- City/Kun Consulting Support Team plays a role in actively supporting resolution of not only technological and managerial issues for farmers, but also operational difficulties of agricultural technology center, facilitating application of newly developed technology at experiment research institute to the field, and collecting, disseminating and distributing the best practices, while monitoring the regional pressing issues.

○ Since 2002, in association with Rural Development Administration website, a separate website was established to provide information, including professional extension research council, rice growth situation, disease and pest occurrence situation, local food, rural living information and rural traditional theme village, and websites for different sectors are in the process of being built.

○ Since the mid-2000, an emphasis was placed on enhancing performance through provision of concentrated technological and budgetary support to various services, such as scientific facilities and securing equipment, farmer pilot project and development project of regional specialized crop, development project of demanding technology on the scene, project to boost the value-added of agricultural produce, project to develop export crop, rural living improvement project and project to foster farmers' organization.

2.3. Change in Personnel and Budget for Agricultural Extension Services

□ Securing Budget

○ Hiring procedures for agricultural extension public workers were established

in accordance with the Article 6 of Agricultural Instruction Act promulgated in 1957 taking into account the professionalism of the mission.

○ Rural Development Institute executed qualifying examination for public agricultural instruction workers for the first time in September 1957 and selected 348 persons, with 42 of them being dispatched to the central organization, 139 to provincial Rural Development Institute and 167 to city/Kun instruction office.

○ In 1961, the number of agricultural instruction workers increased to 1,444 and among them, 63 were deployed in the central organization, 151 were deployed in provinces, and 1,230 to city and Kun, with 47% of them having more than college degree.

- In the meantime, regional community development project shows that Regional Community Development Committee, created in September 1958, selected 12 villages in 5 regions including Kwangju, in Gyeonggi Province as pilot project sites, and deployed 25 as extension workers to carry out the project.
- Since then, the number of pilot village increased and as a result, the number reached 389 in 1961.

○ The number of people employed for agricultural instruction programs, regional community development project and agricultural extension services after the creation of Rural Development Administration in 1962 gradually increased as shown in <Table 3-4> and growth in the number of agricultural extension personnels can be summarized as follows.

- The number of agricultural extension personnels, which was about 1,000 in 1961, increased to 3,000 as a result of harmonization of agricultural extension systems in 1962 and increased to more than 6,500 with an undertaking of 7-year-plan for higher food production in 1965, peaking at 7,979 between the year 1981 and 1991.

Table 3-4. Trend of Agricultural Extension Personnel

Unit: person

Year	Total	Central	Province	City/Kun			Note
				Sub-total	Head Office	Branches	
1957	952	82	177	693	693	-	
1960	1,192	82	155	955	955	-	-Creation of branch
1962	3,173	75	180	2,918	2,918	-	
1964	4,790	71	210	4,509	2,017	2,492	
1965	6,534	72	242	6,220	2,683	3,537	-including 1,642 Tong-il rice increasing personnel (employed
1970	6,360	73	236	6,051	2,882	3,169	after 1972)
1975	7,626	82	226	7,318	2,667	4,651	-Translation of 1,095 Tong-il increasing personnels into regular workers
1977	7,628	84	226	7,318	2,667	4,651	
1980	7,980	106	226	7,648	2,997	4,651	
1981	7,979	105	226	7,648	2,997	4,651	
1983	7,979	105	226	7,648	3,183	4,465	
1984	7,979	105	226	7,648	3,198	4,450	
1985	7,979	105	226	7,648	3,198	4,320	
1987	7,979	105	226	7,648	3,229	4,419	-Abolition of branches (289 branches, 109 city counseling
1988	7,979	105	226	7,648	3,274	4,374	centers)
1989	7,979	105	226	7,648	7,250	398	
1990	7,979	105	290	7,584	7,295	289	-Transfer of 915 researchers
1991	7,979	105	290	7,584	7,290	294	-Reduce 1 person in Cheju Institute
1992	7,964	105	290	6,669	6,375	294	-Transfer of 89 researchers
1993	7,063	105	289	6,669	6,375	294	-121 people, reduced through merging of provincial institute
							-1person reduced at central level
1995	6,843	95	289	6,459	6,346	113	-3 people reduced at central level
1996	6,842	94	289	6,459	6,395	64	-1st-stage restructuring
1997	6,839	91	289	6,459	6,399	60	-2nd-stage, 1st restructuring
1998	5,545	85	241	5,219	5,159	60	-2nd-stage, 2nd restructuring
1999	5,153	71	234	4,848	4,821	27	
2000	5,032	71	235	4,726	4,700	26	
2001	4,863	71	226	4,566	4,548	18	-2nd-stage, 3rd restructuring
2002	4,728	71	228	4,429	4,411	18	
2003	4,738	71	227	4,440	4,393	47	-14 people were added to the newly established center
2004	4,901	71	240	4,590	4,528	62	
2005	4,906	71	241	4,594	4,514	80	
2006	4,919	80	242	4,597	4,516	81	-1 division was created at rural community support bureau
2007	4,885	81	247	4,557	4,461	96	-1 person was added to rural community support bureau
2008	4,742	91	239	4,412	4,555	96	-10 people were added to technology support bureau
2009	4,613	91	232	4,290	3,471	819	
2010	4,497	88	234	4,263			

Source: Rural Development Administration

- Since then, the number of agricultural extension personnel declined to 4,497 due to restructuring and localization at the government level as of 2009.

○ Hiring procedures for agricultural extension public worker applied the same qualification requirements without any separate regulation after the creation of Rural Development Administration in 1962 and graduates of agricultural and scientific schools were qualified for special recruitment.

- Most of the newly employed were high school graduates and the number of experienced extension specialists with university degree that used to represent 48% in 1965 decreased by about 1,000 to reach 25% in 1977.
- However, as of 2004, those with bachelor's degree makes up 71%.

○ Meanwhile, efforts have been continuously made to improve the capability of agricultural extension public workers.

- Rural Development Administration established "Regulation for Professionalization and Specialization of Agricultural Extension Personnels" in April 1977 as a directive to facilitate the process of making agricultural extension public employees at lower than 4th degree more professional and specialized, thereby enhancing their competence and extension capabilities.
- In 1984, directive "Regulation for Specialization and Professionalization of Agricultural Extension Public Workers" was amended, and in 1989, regulation for specialization and professionalization of agricultural extension public workers were re-modified to institutionalize the system in which all extension personnels could have one specialty and sub-specialty in each area for which he/she was responsible for.
- In addition to them, special recruitment was made for university graduates from 1982 to 1989 and 20-week long-term training course was carried out on a pilot basis at experiment and research institute in 1985 to

improve practical ability of newly employed extension personnel. Since 1988, 2-year program of dispatching extension personnels in their 30s to experiment and research institutes was executed three times until 1992.

- Professional extension research council created 27 research council consisting of 764 in March 1998 and in 1999, the council was expanded to have 42 research councils composed of 1,648.
- In addition, national technology certificate for agricultural extension public employee was encouraged as a way to enhance professional extension capacity and also a sense of pride.
- In order to help broaden the horizon and boost the morale of agricultural extension personnels, annual overseas training for agricultural extension chief officer began in 1968 and in 2001, exemplary extension public employees in the 21st knowledge and agricultural era were selected and prized to have their achievements widely known through enactment and enforcement of "Agricultural Extension Prize" regulation, thereby contributing to morale boosting and the development of agricultural extension services.

□ Budget Execution

○ The budget execution for agricultural extension services can be divided into 5 periods for a close examination.

- The 5 periods of budget execution include: 1) period before foundation of Rural Development Administration (before 1962) 2) early days of regular agricultural extension services(1962~1970) 3) period of achieving green revolution and increasing farm household income (1971~1980) 4) period of changing agricultural extension services and responding to import liberalization (1981~1990) 5) the era of import liberalization for agricultural produce (after 1991).

○ Prior to the foundation of Rural Development Administration (before 1962)
- During early days of agricultural instruction program and local community development project that were undertaken since the mid-1950, most of the resources relied on the U.S. aid.
- Therefore, most of the resources for agricultural extension services before the creation of Rural Development Administration came from Special Account for Economic Development and budget execution plan had to go through the consultation with the U.S., with the domestic budget completely paid for by government expense without relying on local government.
- With the foundation of Rural Development Administration in 1962, the share of Special Account for Economic Development began to decrease and a significant portion of local government expense was put into rural community development promotion project.

○ Early Days of Regular Agricultural Extension Services (1962~1970)
- The 1960s was a period of agricultural extension services for increasing food production, and the focus was placed on cultivating a new variety of food crop and improving cultivation method.
- Agricultural extension services focused on education and training for farmers, soil improvement program and food crop demonstration project for a rapid distribution of newly-developed varieties and technologies to farmers.
- From 1963 to 1976, agricultural extension services were supported by two accounts, including special account for economic development and general account and within general account, general administrative cost and management cost were included, and the cost of agricultural extension services were organized into special account for economic development along with research project cost.

- The amount of money committed to agricultural extension services, which stood at 280.514 billion won in 1964, increased by 18 to 20% every year and the amount of money dedicated to agricultural extension facilities on the scene, training facilities for farmers, supplementing extension equipment, agricultural soil improvement and food crop demonstration project increased at an annual average rate of 26% from 1957 to 1970.

○ The Period of Achieving Green Revolution and Making Farm Household Income Higher in a Sustainable Manner (1971~1980)

- From 1970 to 1980 marks the period for green revolution to increase food production in rural community development promotion project, during which time Tong-il rice variety, which was developed in 1969, started to be distributed to farm households on a pilot basis in 1971 and a massive amount of budget was committed to the distribution of Tong-il rice cultivation technology.
- Total expenses of agricultural extension, including the one that came from the central government and local government increased 26 folds in 1980 compared to 1964 and in particular, the share of local government increased from 47% to 78% during the same period.

○ The Period of Changing Agricultural Extension Services and Responding to Import Liberalization (1981~1990)

- Entering into the 1980s, a shift was made toward extension research system that can cope with a transitional period of agriculture at home and abroad, including international import liberalization for agricultural produce caused by free trading system and on domestic front, increasing income gap between urban and rural area and absolute shortage of rural workforce.
- To this end, the share of budget that is committed to developing cut-

ting-edge technology and sustaining crops, and to distribution of technology increased on a gradual basis.

- Starting in 1989, to respond to import liberalization for agricultural and livestock products, emphasis was placed on pilot project for regional specialization to develop a new income crop that fits regional characteristics and the central government expense and local government support, development fund for agro-fishery village, and financing increased each year.

○ The Period After Import Liberalization of Agricultural Product (after 1991)

- Along with the budget for rural community development promotion effort, which was on a gradual increase until now after entering into the 1990s, the expense for agricultural extension services was also gradually increased with a view to responding well to the market opening trend encompassing the agricultural sector in the ara of unlimited competition after the launch of WTO regime, finding a new growth engine for agriculture, establishing technological response strategy for each crop and nurturing ability to handle market liberalization trend.
- In 1991, the budget including ones from the central government and local government increased 31% and central government expense increased 35% with the creation of special account in 1995, while a total budget for extension services showed a continued signigicant increase rate of 54%, but such increase rate slowed to 6% level due to localization of agricultural extension public employees at provincial technology institute and city/Kun agricultural technology center of 1977.
- In 1999, a necessary workforce was provided to city/Kun agricultural technology center to manage scientific farming facility and demonstration field that were operated to strengthen scientific farming as part of efforts to address unemployment issue.

- Due to termination of public work program in 2003, the project cost, which was set at 2 billion won in 2002, was reduced to 1 billion won, but the foundation was laid for sustained assistance through transition of those public work program to general programs.

Table 3-5. Sharing of Agricultural Extension Service Cost in Central and Local Region

Unit: million won

Year	Total	National budget	Local government		
			Provincial budget	City/Kun	Sum
1963	190	190(100.0)	-	-	-
1964	528	281(54.2)	27(5.2)	220(41.6)	247(46.8)
1965	589	284(48.2)	49(8.3)	256(43.5)	305(51.8)
1966	685	228(33.3)	93(13.6)	364(53.1)	457(88.7)
1967	937	312(33.3)	145(15.4)	480(51.3)	625(66.7)
1968	1,115	442(39.6)	148(13.3)	525(47.1)	673(60.4)
1969	1,685	544(32.3)	307(18.2)	834(49.5)	1,141(67.7)
1970	1,671	593(35.5)	274(16.4)	804(49.5)	1,078(64.5)
1971	2,521	830(32.9)	381(15.2)	804(48.1)	1,691(67.1)
1972	2,417	403(16.7)	366(15.2)	1,310(51.9)	2,014(83.3)
1973	3,172	1,033(32.6)	366(11.6)	1,648(68.1)	2,139(67.4)
1974	4,357	1,602(36.8)	442(10.1)	1,773(55.8)	2,755(63.2)
1975	6,313	2,526(40.0)	511(8.1)	2,313(53.1)	3,787(60.0)
1976	8,386	3,563(42.5)	560(6.7)	3,276(51.9)	4,823(57.5)
1977	8,341	1,949(23.4)	571(6.8)	4,263(50.8)	6,392(76.6)
1978	10,187	2,527(24.8)	480(4.7)	7,180(70.5)	7,660(75.2)
1979	12,215	2,499(20.5)	962(7.9)	8,754(71.6)	9,716(79.5)
1980	13,661	2,913(21.3)	1,085(8.0)	9,663(70.7)	10,748(78.5)
1981	17,523	2,781(15.9)	2,023(11.5)	12,719(72.6)	14,742(84.1)
1982	21,893	4,541(20.8)	1,628(7.4)	15,724(71.8)	17,352(79.2)
1983	21,932	4,132(18.8)	1,396(6.4)	16,404(74.8)	17,800(81.2)
1984	25,558	4,077(16.0)	1,724(6.7)	19,757(77.3)	21,481(84.0)

1985	26,747	4,895(18.3)	1,482(5.5)	20,370(76.2)	21,852(81.7)
1986	35,374	4,819(13.6)	1,992(5.6)	28,563(80.8)	30,555(86.4)
1987	43,426	6,228(14.3)	3,795(8.7)	33,403(77.0)	37,198(85.7)
1988	51,279	6,731(13.1)	4,887(9.5)	39,661(77.4)	44,548(86.9)
1989	69,173	7,759(11.2)	8,653(12.5)	52,761(76.3)	61,414(88.8)
1990	86,183	8,797(9.9)	10,537(11.8)	69,849(78.3)	60,368(90.1)
1991	112,735	11,897(10.6)	12,838(11.4)	88,000(78.0)	100,838(89.4)
1992	144,647	13,216(9.1)	15,811(10.9)	115,620(80.0)	131,431(90.8)
1993	112,386	15,812(14.0)	14,338(12.8)	82,236(73.2)	96,574(86.0)
1994	159,693	18,338(11.5)	28,131(17.6)	113,224(70.9)	141,355(88.5)
1995	246,898	92,604(37.5)	31,560(12.8)	122,734(49.7)	154,294(62.5)
1996	268,234	90,453(33.7)	39,188(14.6)	138,593(51.7)	177,781(66.3)
1997	284,636	94,954(33.4)	43,625(15.3)	146,057(51.3)	189,682(66.6)
1998	263,918	82,177(31.2)	36,816(13.9)	144,925(54.9)	181,741(68.0)
1999	258,615	91,173(35.3)	36,681(14.2)	130,761(50.5)	167,442(64.7)
2000	258,672	86,426(33.4)	31,516(12.2)	140,730(54.4)	172,246(66.6)
2001	448,475	78,229(17.4)	39,437(8.8)	330,809(73.8)	370,246(82.6)
2002	489,988	65,266(13.3)	71,108(14.5)	353,614(72.2)	424,722(86.7)
2003	438,610	73,384(16.7)	46,733(10.7)	318,493(72.6)	365,226(83.3)
2004	438,610	73,384(16.7)	-	-	365,226(83.3)
2005	308,032	82,099(26.7)	-	-	225,933(73.3)
2006	376,126	80,081(21.3)	-	-	296,045(78.7)
2007	458,165	83,041(18.1)	-	-	375,124(81.9)
2008	467,140	89,741(19.2)	-	-	377,399(80.8)
2009	480,166	96,254(20.0)	-	-	383,912(80.0)
2010	582,910	116,582(20.0)	-	-	466,328(80.0)

Source: Rural Development Administration

Note: Includes budget for extension services in agricultural management and agricultural machinery education

Recent trend of agricultural administration and merging city and Kun makes difficult the calculation of local government budget

3. Developmental Process of Major Tasks

3.1. Distribution and Instruction of Agricultural Technology

○ The purpose of agricultural extension services is to make behavioral change among farmer through education and education for distribution of agricultural technology became the most suitable educational method to draw the participation and interests of farmers in that it is directly linked to farm household economy.

- Therefore, agricultural technology distribution project through pilot project has remained the most important tool for agricultural extension services.

○ Developmental process of agricultural extension technology distribution project of Korea is broken into 6 stages.

3.1.1. Early Days of Technology Distribution Project (1957~1961)

○ Early days of technology distribution project were mostly focused on the projects that could lead to tangible results through application of improvement technology including soil improvement and fertilizer effect demonstration, and they were concentrated on helping farmers voluntarily participate in such project through participation-based approach including booklet distribution, workshop and on-site appraisal rather than through forceful method.

- Soil improvement project through application of lime on barleys and bean was widely carried out, and barleys demonstration field and soy bean demonstration field increased every year in order to raise public

awareness of the effect of lime application.

- For rice-cultivation improvement project, variety demonstration for seed renovation and hydrogen storage through protected semi-irrigated nursey, and protected upland-rice nursery were encouraged.
- High-quality variety demonstration field and demonstration field for protected semi-irrigated nursery increased each year and in 1958, high-quality variety demonstration field showed an yield increase rate of 6 to 9%, with protected semi-irrigated nursery demonstrating a possibility of yield increasing rate of 25%.
- Ammonium whole-layer placement of fertilizer demonstration field increased the yield by 8%, and technologies for improving soil fertility including autumn plowing and soil dressing were distributed and encouraged.
- Farmers were educated about phosphoric acid and potassium fertilizer demonstration field for potato and sweet potato and vegetable variety demonstration field in real sizes, and they were also educated about how to use a new agricultural chemicals at the beginning of the year.

○ Effective reclamation method and soil preservation were critical to laying the foundation for food production, based on which various extension activities were conducted, leading to the attainment of original goal.

- In 1959, 1,500 reclamation demonstration field by contour grass strip was created to prevent soil loss and cultivate beans product, thereby training about soil fertility improvement method.
- In 1960, 82 demonstration fields in areas that had more than 10% gradient were installed, thereby preventing more than 90% of surface soil loss and increasing yields of more than 43% of crops.

○ Soil and water project included creation of one fuel forest for each city and Kun and sloping bench terrace in idle land, and yearly training on seed dis-

infection for preventing bakanae disease and smut was carried out, leading to a tangible result.

- As part of yearly extension, scientific theory-based extension method on the use of toxic pesticide, castration method for pig and trench silo construction method won the trust of diligent farmers, contributing to laying the foundation for agricultural improvement project.

○ Education that focused on simple but new agricultural knowledge such as agricultural technology, fertilizer knowledge and pesticide use was actively carried out in form of continued education implemented from village to village.

○ As an organization charged with operating agricultural improvement project, Rural Development Institute was founded in July 1957 and exclusive divisions were created, and exclusive personnels in charge were deployed at central and provincial Rural Development Institute, but many difficulties were founded in the process of implementing project at technical level.

- Thus, in the initial days, self-educational event was conducted to enhance the capability of extension personnels centering around the U.S. advisory group, and in particular, aside from technical education, the focus was made on nurturing basic knowledge of farmers including principles, basic ideology and extension method of extension services.

○ For training method, “One Task One Time” was abided by as a strict rule and the number of students per class was maintained at below 20, with practical training being required as mandatory.

- Education was mainly led by practical training, and although educational materials were poor, lecturer lectured about them systematically, had question & answer session and carried out practical exercise. After education course, 4 or 5 people created a group to have practical exercise on a repeated basis, with lecturers being engaged in pointing out and post-evaluation.

- Those practical exercise-based intensive education allowed trainees to master advanced technologies themselves and accumulation of tight practical exercises also led to significant enhancement of the capacity of all extension personnels.

○ The initial days of technology distribution project suffered from various difficulties including aforementioned low public awareness and insufficient environment for conducting project, but thanks to passionate activities of extension personnels that were trained through strict extension service education and technology training, effective technology distribution project was realized, which is believed to have contributed greatly to securing the foothold for agricultural improvement project.

3.1.2. Period of Laying the Foundation for Technology Distribution Project (1962~1970)

○ The scope of agriculture improvement services expanded with the transfer of agricultural extension services to the Rural Development Administration in 1962.

○ Instead of existing single factor technology demonstration farms, multi-factor high-yield demonstration farms were implemented starting in 1963, a huge success was achieved by implementing the distribution of group farming method instead of individual method.

- Starting in 1965 rice farming methods such as direct planting in dry land, early farming in highlands, early planting in one planting a year land, early planting to counter late planting in two planting a year land in the southern region, and transplanting in rice paddy fields and progressive planting in dead rice root spots were recommended.
- Since 1966 high-yield farming by considering both single and multi-factors to provide solutions was pursued as demonstration farming. But in

1968 collective farming that proved its effectiveness in Japan was pursued and managed at 500 sites throughout Korea, promoting cooperative farming among farmers who were used to individual farming.

- Collective farming of rice was well managed through proactive training in which a 5ha demonstrative plot yielded 23.3% in increased harvest. And rice management was also a huge success by collectively pursuing institutional farming including seed sanitization, seed bed installation, transplantation, pest control.
- Collective farming reduced costs and was effective by integrating varieties and farming technology and helped in the mechanization of agriculture.

○ Pest infestation forecasting and pest control services for rice started in 1965 and forecasting started for barleys in 1965.

- For the campaign to rid mice pursued for the protection of crops, demonstration villages were designated starting in 1961 and continued annually until 1971.

○ Simple soil testing was used to support the lime supply program to improve acidic soil. Fertilizer demonstration farms were designated to emphasize the need for 3 element-balanced fertilization, increasing transported soil and compost, and improving water drainage in order to focus on the need to improve soil quality.

- In 1964 a demonstrative program was implemented at 171 sites with each site being 40ha for terrace cultivation farming under the support of the American-Korean Foundation. During the period of 7-year plan for increasing food production that started in 1975, 390,000ha of land was reclaimed (out of 500,000ha reclaimable land). And demonstrative farms were used as training centers.

○ The demonstrative program for high production of barleys focused on rowed

barley, naked barley and wheat; however, it only focused on wheat for three years after 1969 to develop new varieties of wheat and distribution of the crop.

○ Starting in 1966 the farming techniques including field sowing and transplanting for barleys and transplanting of removed shoots for beans were distributed. For maize multi-cross bred varieties were distributed starting in 1963.

- Suwon # 147 variety of sweet potatoes and multi-cross bred Whangok # 1 and #2 varieties of corn were used for demonstration farming. For potatoes, only new varieties were used for demonstrative farming purposes but starting in 1969, potatoes planting in fields before rice transplantation became a demonstrative project to boost land usage.
- And the methods of demonstration moved on to include single factor as well as multi-factor crops considering regional characteristics starting in 1966, whereas focus was placed on single factor crops centering around excellent varieties until 1965.
- Technology transfer to farmers occurred for barleys starting in 1969 and corn and beans starting in 1970, when collective farming complexes had been organized to provide comprehensive training for farmers.

○ Demonstration farming kicked off in 1964 for 19 kinds of horticultural and speciality crops.

- Demonstration was conducted on fruits and vegetables with improved raised seedlings. focused mainly on the effects of fertilizers to emphacize the importance of improved varieties and to improve the perception of farmers on lime usage.
- Demonstration and distribution of good varieties of fruits became important agenda in which major production regions were established for apples, pears, peaches and sweet persimmons. The *Fugi* and *Sgaru* vari-

eties of apples and the *Shingo* variety of pears spreaded rapidly as they became vary among consumers.

- After vinyl greenhouses were used for the first time for grapes in 1969, the use of facility for fruit growth spreaded rapidly. And the technology for low temperature storage for long-term storage of fruits was distributed initially as an enterprise format.

○ In the area of speciality crops, demonstration farming was introduced for sesame seeds in 1959 and moved on to peanuts and new varieties of canola. When the Rural Development Administration took over matters related with herbs in 1963, demonstration farming for herbs including *Angelica gigas Naka,* and *Platycodon grandiflorum A. De Candolle* and speciality crops including flax, ramie, rush, hemp and cotton was pursued.

○ The 5-year silk production promotion plan was introduced in 1962 (1962-1976) in which a 30ha mulberry demonstration complex was designated for demonstration purposes containing 2,464 units of silk farms. And the campaign of one rack of silkworm for each farm was pursued.

○ In 1967 the department of fungus was newly established at the Agricultural Technology Research Center and demonstrative farming of button mushroom was conducted at 180 sites throughout Korea to promote systematical research and technology transfer.

○ The government also increased loans for livestock with the goal of reconstructing the foundation for the industry that had been completely destroyed after the Korean War.

- Various systems including the Act on Dairy Promotion, Act for the Management of Animal Feeds, and Act on Grassland were developed and implemented. By focusing on livestock farmers an 4-H club members, comprehensive extension services were provided including rabbit hide processing, parasite control, livestock growth, green fodder crop

farming and silage processing.

○ A government agency was responsible for providing extension services for the forestry industry until the early 1960's.

- This agency was responsible for the distribution of fruit bearing trees including chestnut, walnut, persimmons, ginkgo and jujube and special-purposes trees such as Paulownia, Lacquer tree, new poplar tree, and acacia tree even during the time as the Rural Development Institute.
- Especially since 1964 the focus was placed on seedling grafting to develop and distribute gallfly resistant chestnut trees. And these services were transferred to the Korea Forestry Service when the agency was established in 1966.

○ The project for technology distribution featured providing many opportunities for training related with extension services through annual workshops and on-site workshops. And training periods were divided to focus on different topics such as rice seed beds installation and pest control, showing the government's initiatives in providing these services.

○ Training in mass was provided by holding workshops on pesticide usage and special subjects at markets and other meeting places. Annual workshops for special subjects were actively pursued in which the central government also made movies and pictures to enlighten and distribute technology by visiting local and rural areas.

- Starting 1969 the government provided and distributed information weekly on weather and major farming tasks to be pursued for timely collective farming to local areas.

○ In 1967 as part of agriculture extension services, the "Outline on Agricultural Technology Demonstration" was published and distributed to celebrate the 60th years of demonstration farming, by compiling and organizing the data collected for the past six decades. These three editions on crops,

horticulture and major farming regions was a huge accomplishment for the government.

- In 1968, a removable-page-type book called “Major agriculture improvement tasks” was published and distributed where those tasks for each year were listed, reflecting extension services.

○ During this period, the organizations and personnel related with agriculture were restructured under close attention by the President for Korea to escape chronic shortage after the 5.16 revolution. Korea also built the knowhow and capacity needed to quickly distribute new technology to farmers, when the country secured a solid foundation for the distribution of agricultural technologies.

3.1.3. Period of Achieving Green Revolution (1971~1980)

○ The period of achieving green growth revolution is when green revolution is achieved by Korea drastically increased rice yields by distributing Tong-Il rice varieties.

- In 1971 Tongil (IR-667) variety of rice was distributed for farm rice fields (2,750ha) for the first time for on-site test and to be grown on a trial basis. And more new varieties of these Tongil rice (including Josang Tongil, Yongnam Tongil, Yushin, Milyang 21, 22 and 23, and Suwon 258 and 264, Nopung, etc) were developed and distributed, helping Korea to realize the goal of self-sustaining food supply.
- Some government organizations and scholars opposed to growing Tongil rice as many problems were seen with these rice varieties starting in 1972 during the process of expanding and distributing it. The problems included rice stalks turning red, severe bacterial leaf blight, and poor rice quality. On top of these problems, meterological disasters hit the nation.

Nonetheless, the government succeeded in growing these rice varieties by tenaciously sticking to its initiative, despite severe opposition.

- Korea achieved the rice yield target of 32,590,000 Seok (144Kg) in 1975, realizing the goal of self-sustaining food supply. It produced 36,200,000 Seok in 1976 and 41,700,000 Seok and in 1977 when it exported 70,000 M/T to Indonesia.
- Korea was able to achieve the biggest yield per unit area of 494kg(excluding field rice) in 1977, achieving green revolution.

○ Soil analysis on line and silicic acid requirements was conducted in 100,000 to 200,000 samples a year to provide improved varieties and basic data.

- Pilot projects growing mainly barley and beans kicked off in 6 large hilly sites in 1973 and 12 sites in 1974 in four provinces including Gyunggil, Chungnam, Jeonbuk and Jeonnam in order to produce more food crops. The government also distributed technologies to realize cropppable land early on by increasing phosphoric acid, line and compost supplies to these plots of land. Pilot farming started in hilly regions throughout Korea starting in 1976 in a total of 100 sites.

○ Pilot projects for field crops were also started focusing on the distribution of new varieties.

- In the case of barleys, collective farming complexes were built starting in 1972 for high yield. Starting in 1976, 1,000 to 2,000 1ha-scale pilot plots planted with early maturing varieties of rice and barley including Olbori, Milyang # 6, Bansa # 6, etc had been designated in the central and northern region of South Korea. In the southern region, paddy farming of early maturing wheat varieties including Jokwang, Olmil, etc became possible.
- In the case of barley, the yield level dropped around 30% in 1976 due to the worst drought and cold weather, providing the opportunities to re-

establish barley farming technology.

- New varieties of beans such as Kwangkyo, Dongbuktae and Bongeui were distributed. And new single cross varieties that had been planted for the first time in 1977 including Suwon 19, 20, 21 varieties produced more than 60% yield compared to older varieties.
- Seeds of single-cross corn varieties were obtained from pilot farms in Gangwon Province and successfully distributed throughout the nation.
- High-yielding corn varieties were distributed to farmers in remote mountainous regions where these corn varieties increased farm incomes compared to than rice; thus, new varieties were distributed and farming technologies also changed.
- The government also focused on farming of potatoes that were planted in rice paddy fields before rice transplantation (for the purpose of boosting crop land usage) starting in 1971 centering around the mid to northern regions in demonstrative farms and collective farm complexes of various sizes for potato plant transplantation. Research of potatoes was transferred to the National Institute of Horticultural & Herbal Science in 1978, this pilot program was also transferred as a vegetable crop.
- After its pilot project suspended after 1969, 100 demonstrative farms (1ha each) were established after Shimi and Whangmi new varieties had been developed, replacing Suwon # 147.

○ Farming of peppers was a huge success after the vinyl mulching technique was distributed starting in 1973. And the tunnel planting technique was distributed starting in 1979.

- The government actively sought to distribute the vinyl mulching technique for peppers and others, potato planting in paddy fields before rice transplantation, pea and garlic plantation, and horticulture using facilities.

○ In the case of horticultural crops, pilot projects continued centering around

self-sustaining villages based on the Saemaul Movement in order to establish the main production complex. However, there had been no guiding agency and not enough extension services despite the fact that some professional farmers started to emerge in flower farming.

- Tunnel- or arch-shaped vinyl greenhouses in tunnel or arch-shaped started to appear in the early 1970's but not many was distributed because of high early investment costs.
- The government especially encouraged the distribution of dwarf apple trees and rootstocks, and more than 90% corrugated boxes replaced the existing fruit boxes after 1970.
- The program to turn hilly areas into orchards as dwarf apple trees had been distributed expanded drastically as the government pursued the policy of developing hills.

○ Demonstrative programs for special purpose crops including sesame seed, sunflower seed and caster bean were promoted. Furthermore, a vinyl-covered growth technique was also distributed for sesame seed and peanuts starting in 1972.

○ The farming of fiber crops started to deteriorate with the development of chemical fiber industry and extension services on fiber crops became almost non-existent after 1975.

○ In the case of mushrooms, the usage of rice straws and cotton waste was distributed in wood culturing of oyster mushroom. And the export of button mushroom that reached the peak in the mid 1970's had declined since then.

○ In the case of silk farming, the focus was placed on high-yield mulberry tree and labor-saving silk farming techniques through demonstration farms and projects.

○ Extension services on livestock technology focused on honey crop demonstration farms, early growth of Korean calves, and helping to remove honey

bee mites. Starting 1976 the demonstration livestock program was launched in 1,471 villages that focused on distributing scientific growth technologies for fattening Korea beef cattle, standard pork swine, growing rabbits, growing of feed crops in paddy fields after rice harvest, making silage for succulent fodder during feed scarcity, livestock sanitation, etc.

○ The policy on agricultural mechanization was adopted and demonstration farms for agricultural mechanization were designated and operated.

- The first 30ha demonstration farm for agricultural mechanization was designated in 1970 in Wolsung-Kun, Kyungbook Province equipped with a tractor, a powered pesticide applicator, a binder and a combine. And this farm was also used to train 632 public servants.
- The number of this type of demonstrative farm was increased from 3 in 1971 to 19 in 1972. Furthermore, training on farm machine users was conducted and a mobile farm machine repair team was organized to teach farmers on the operation of these machines and repair actual farm machines.
- Upon a good response from farmers on training at these demonstrative farms, training centers were set up in cities and Kuns(A Kun is a smaller administrative district than a city) between 1972 and 1974 and mobile repair services had been provided.
- Since then the usage of farm machines became popular and the policy of agricultural mechanization further expanded, becoming the major policy for farmers.
- Powered rice transplanters were distributed for the first in 1975 and in 1979, the demonstrative project for small machine mechanization was started at 130 sites.

○ Starting in 1973 a postcard format questions was sent to farm leaders, volunteers, Saemaul Movement leaders, training center leaders and others on farm-

ing related matters. When questions arrived, the central government directly replied and notified applicable districts on the question. The number of respondents reached 2,187.

- Each year the questions and answers were sorted and organized before publishing them in a booklet for farmers to use them as reference materials, and publication continued for 20 more years.

○ The project of distributing farm technology at this time was concentrated on distributing Tongil rice too much. Although rice farming was at its golden age such as achieving the goal of self-sufficient food supply through distribution of new rice varieties, other areas of farming such as crops other than rice, horticulture, livestock, etc had slided.

3.1.4. Period of White Revolution and Labor-Saving Mechanization (1981~1990)

○ The exodus of farmers from farming increased in the 1980's with the government's growth strategy based on scale and industrialization, further increasing the distribution of farm machines and farm production methods also changed significantly with increasing per capita income of Koreans.

- Lack of labor became more serious during busy farming seasons as more farmers took on jobs in other industries at the height of this industrialization phase.
- The distribution of technology to achieve agricultural and farm facility mechanization became important agency in order to reduce labor with increasing costs of farm labor. Large farm machines including tractors, rice transplanters and combines were distributed at a rapid speed in rice farming.
- On the other hand, farm production transformed to a many product-less production format as Koreans consumed a variety of high-quality foods

as income rose. Animal husbandry was included farming and the focus was also placed in farming of vegetables and fruits in order to increase the sources of farm income.

- Rapid transition took place from self-sustaining farming to commercial farming when a year-round supply of various vegetables and fruits was achieved through the usage of vinyl covering of fields, tunnel-shaped vinyl houses and vinyl greenhouses.
- The area of these vinyl facilities increased from 7,114ha in 1980 to more than 3-fold in a decade to 23,698ha in 1990. And this decade is called the period of ″white revolution″ in farming.

○ The will to produce more gradually disappeared as rice farming continued to yield a productive harvest each year after Korea achieved the ″green revolution″ in farming. And in the 1980's, rice farming was focused on producing food quality rice including Dongjin, Odae, and Whasung varieties.

- Farming shifted its focus to technology to reduce farm labor with shortage of labor and increasing labor costs with industrialization of Korea. And all kinds of machines were mobilized in rice farming.
- A demonstrative production of young rice seedlings that reduced the seedling growth period was achieved at each 2 or 3ha farm in four provinces in the southern region of Korea, and this technology was distributed to farms starting in 1990.
- Although grass cutters that could replace weeding were introduced to farms starting in the early 1970's, the method of treatment after transplanting became popular centering around one-year weeds after 1980.
- A system of weeding was set up to kill weeds during growth as one-year weeds decreased and perennial weeds increased. And in the mid 1980's herbicides that could kill both one-year and perennial weeds were developed.

○ Farming of barleys reached its peak with the introduction of glutinous barley in 1984. Agricultural cooperatives purchased wheat from demonstrative farms producing new varieties starting in 1979, resulting in a huge increase in plots producing this grain. However, buying of wheat stopped in 1984, leading to the movement to ″revive Korean wheat″ in the late 1980's.

○ Extension services programs on beans, corn and sweet potatoes were focused on distributing new varieties, safe herbicides, and technologies to reduce farm labor.

○ Vinyl mulching for vegetables continued to expand and became popular for pepper, garlic and onion. And standard vinyl greenhouses were distributed starting in 1981.

- Furthermore, joint seedling growing centers grew as more farmers used these centers.

○ For fruits, along with the distribution of good quality new varieties, technologies were distributed to improve their quality including the usage of colored fruit covering paper, reflective films to cover orchard fields, irrigation using rainwater, and pruning during summer.

- The effort to reduce farm labor was also seen through extension services on technologies to reduce the number of herbicide spraying using the first Korean sprayer (SS herbicide sprayer) in 1981 along with active distribution of clean growing techniques.
- Extension services was also concentrated on the production of fruits for exports in which apples entered the U.S. market in 1987 and pears, in 1988. The markets were also expanded to include Europe.

○ Tissue culturing centers were set up under agricultural extension centers starting in 1984, and soil inspection centers were set up in 1988. The focus was also turned to horticultural products such as orchids with the distribution of techniques to produce disease free bulbs through research by tissue cultur-

ing centers.

○ For special crops, the technique of covering furrows with vinyl was also actively distributed for new varieties of sesame seed and peanut. Starting in 1986 farmers producing the highest levels of these crops were awarded to counter opening the markets for foreign crops.

- A strong policy promote the production of sesame seed and peanut was pursued in which self-sufficient supply was achieved with both crops. In the case of sesame seed self-sufficient supply was accomplished in 1988. In the case of peanut, a 113% production level was achieved in 1987 but the level decreased dropped due to the promotion policy not being implemented actively.

○ Extension services was focused around oyster mushroom in the case of mushroom and expanding mulberry trees for silk production; nonetheless, the trend of decreasing silk farmers could not be helped.

○ Livestock specification management was focused on increasing the number before 1985 and then on decreasing costs for nurturing of professional farms.

- The main contents included the technology of developing electric fences for grazing. Especially, experts from England, German and New Zealand stayed in Korea to develop demonstration projects for developing grazing fields by concluding cooperative agreements with these countries.
- Costs could be reduced significantly by distributing the technique for developing grazing fields using surface sowing.
- Furthermore, a cross breed of Korean and Charlotte cows and a three variety cross breed of pigs were produced. And cow specification technology was distributed centering around quality crude feeds. And purification technology was distributed to prevent environmental pollution by livestock manure, which drew interest.

○ As for the ratio of each area of total costs of farm production, food crops

that had been responsible for 84% in 1961 decreased to 42% in 1990. On the other hand, horticultural products increased from 4% to 27% and livestock, from 5% to 22% during the same period.

Table 3-6. Production of Agricultural Produce

Unit: 100 mil won

Year	Total production amount	Food crops	Horticultural crops[1)]	Special crops[2)]	Livestock	Others[3)]
1961	2,478	2,081	109	56	134	98
1970	7,891	4,328	1,338	276	1177	772
1980	64,151	28,573	16,964	3,159	12,273	3,182
1990	177,281	73,994	48,713	11,261	39,214	4,098
1990 ratio	(100%)	(42%)	(27%)	(6%)	(22%)	(2%)

Source : National Statistical Office

Notes : 1) Horticultural products include flowers after 1990

2) Special crops include herbal plants, monopoly crops, and mushrooms.

3) Others include rice straws and silkworms

3.1.5. Period of Enhanced Quality and Diversification (1991~2000)

○ Under the WTO region as the world rapidly entered into the internationalization and globalization era in the 1990's, the agricultural sector faced free competitive markets.

- During the Uruguay Negotiation in December 1993, Korea was able to secure a grace period of 10 years on imposing tariffs on rice but had to open up all other farm markets. This was why the government implemented the project of improving basic structures of agricultural and fishing regions (1992 to 1998) and levied a special tax for these farming and fishery (1994 to 2004).
- Agricultural products focused on quality and uniqueness to produce

high-end goods, enabling Korean products to compete freely with imported ones.

- On the production of rice, 17 Tongil varieties were removed from the recommended list in 1991, removing these varieties from rice production all together. All regular rice varieties were distributed to farms in 1992.

○ Rice growing technology achieved 100% mechanization during this time, in which direct seeders were developed and used for the first time, enabling rice farming to utilized various methods befitting each region using direct seeders and transplanters.

- Various direct seeding techniques including for dry fields, fresh water and no-tilling plots were distributed, in which these techniques were used in 117,000 ha in 1995. However, they did not expand much since. And starting in 1995 no-tilling machine transplanting was distributed on a trial basis.
- Organic farm techniques by mobilizing ducks, pond snails, etc were introduced in the late 1990's under the environmentally friendly agricultural policy promoted by the government. Various demonstrative projects were implemented with the introduction of direct payment on environmentally friendly agricultural products. And periods for fertilizer usage had been adjusted according to each crop.

○ New and better varieties of glutinous barley were continued to be developed and distributed, bringing another renaissance period for barley growth with the development and distribution of barleys that cook well together with rice. The movement to revive Korea wheat increased the total area of wheat fields to 2,800ha in 1996 with growing based on a contract basis. However, the area decreased again to around 1,000ha in 2000.

○ Various types of beans including kidney beans, etc were developed and distributed to meet increasing needs of consumers for various types. Corns be-

came specialized in which rather than existing the grain type, corns for feeds and snacks such as glutinous corn and sweet corn were developed and distributed. Furthermore, they became region-specific for local specialities.

- Sweet potatoes for processing purposes including *Jeunmi* and *Gumni* varieties of *Bam* sweet potatoes having high starch contents and colored types including red and yellow types were developed and distributed. And they were developed into healthy food products.

○ The project for regional specialization of horticultural products was launched in 1989 to counter opening of the agricultural and livestock industries. Focus was placed on the distribution of new technology to boost overall competitiveness for locally specific crops through this project in the 1990's.

- For vegetable farming, standard blueprints for the distribution of automatization purposes greenhouses were distributed in the 1990's. Rainwater irrigation technology, water pockets in greenhouses for energy reduction, and simple rain cover facilities became popular during this time period. The project for regional specialization started in 1989 was utilized to reduce production costs and boost quality competitiveness through technology distribution.

○ Planting of fruit trees became possible in some rice paddy fields with the overproduction of rice, and the consumption of fruits increased steadily and demand for various fruits also increased.

- The fruit industry greatly developed from the aspects of growing areas and techniques in the 1980's and 1990's.
- New techniques introduced were high density planting of apple trees, covering of fruits with special bags, covering with reflective films, farm-type low temperature storage facilities, fruit sorters, rainwater irrigation facilities for orchards, heat storage water pockets, heating system using underground heating facilities for facility houses, Y-shaped plant-

ing of pear trees at high density, grape simple rain covering facilities, artificial pollination and usage of horned bees, covering of fruits with colored bags, production of apples with writing on their peels, etc. These techniques were focused on reducing costs and improving quality.

- The number of low temperature storage per each farm increased from 1,038 units (16,605 pyung(1pyung=3.3㎡)) in 1991 to 6,183 units (137,943 pyung) in 2000, increasing the amount of fruit exports to USD 4,514.

○ Among special crops, mushrooms for consumption purposes including winter, baby oyster, large oyster varieties and medical purposes including reishi, *Phellinus Linteus* and *Agaricus* were developed and distributed. Automatization of facilities and mechanization of culture medium became popular.

○ Although artificial feeds for baby silkworms were developed, the number of silk farms decreased later so that focus was placed in the production of healthy foods including vegetable worms and silkworm powder, rather than on the production of silk.

- Farming of flowers including orchids, cacti, roses and mums steadily increased, making flowers one of the most important products.

○ In the livestock industry, the production of high-quality products became popular to compete with imported goods, with the efforts placed in cost reduction, quality improvement, minimizing disease, and distribution of manure treatment facilities, etc.

- Especially, demonstrative programs were pursued on growing consistent quality Korean cows, production of high-quality beef, formation of daily cooperative complexes, export complexes for pigs and promotion of professional pig farmers, production of omega-rich eggs, and production of quality crude feeds. Extension services stepped up qualitatively as well

as scientific such as the distribution of back fat measuring and UV pregnancy testers.

- Although sanitation issues such as spreading of foot and mouth disease and pig cholera became problematic as with active international trade of livestock. However, significant damage can be prevented early on by providing strict sanitation technology extension services.

○ If the national agricultural goal were a stable supply of food, the regional goals focused on increasing local farmers' incomes.

- Fostering of local speciality crops appropriate for local characteristics sped up because farm extension services agencies became local organizations with restructuring of these agencies by the central government and the spread of demonstrative programs for local specialization.
- As a result, rice paddy fields transformed rapidly to fields, increasing the farming plots for crops for income including fruits and vegetables.

3.1.6. Period of Introducing Environmentally-friendly Agriculture (after 2001)

○ The waves of internationalization and globalization hit harder since 2000 and the effort was made to introduce information technology and biotechnology into agriculture with the development of these technologies. Sustainable farming drew attention because of frequent weather abnormalities.

- As consumers became more interested in the quality and safety of foods, agricultural policies focused on organic products produced environmentally friendly farm products using no or little chemical fertilizers or pesticides or herbicides.
- Organic farming gradually grew with the establishment of "organic agriculture planning unit at the Ministry of Agriculture and Fishery in 1992, focusing on the organic farming movement that started at grassroots lev-

el in the 1970's. The "agricultural and fishery environment policy toward the 21st century" was introduced in 1996, and the adoption of the "Act on the Encouragement of Purchase of Environmentally Friendly Agricultural Products" in 1997 enabled active support and fostering of these products by the government.

- A five-year plan for fostering environmentally friendly agricultural was adopted in 2001, expanding direct payment for paddy crops to 835,000ha(promotion land: 564,000ha, non-promotion land: 271,000ha). The unit payment for promotion plots was KRW 250,000/ha, and KRW 200,000 for non-promotion plots.
- Government subsidies per unit area was increased two-fold in 2002. Direct payment for rice farming itself was increased to KRW 600,000/ha in 2005, and variable payment system was introduced for the government to supplement lost incomes for farmers.

○ The movement of reducing nitrogen fertilizers by 50% was introduced in 2002, in which rice farming using ducks, fresh water snails, husks and vinegar was introduced in some regions.

- However, not only producers but also consumers were still became confused because various regional brands of rice used "environmentally friendly rice" in their names.

○ In 2005 demonstration farms were designated at 19 sites in a total of 1,665ha of land to produce top rice with its standards set up based on quality rice. For the first time rice was strictly inspected and only top rice that passed the inspection was distributed, providing the opportunity setting up scientific standards for quality rice.

- The standards for quality rice included protein contents of less than 6.5%, whole rice contents of more than 95%, and nitrogen contents less than 7kg/10a.

○ Environmentally friendly technology was also applied for field crops such as farming of whole barley (silage barley) for livestock feeds by growing winter barley, technique of preserving soil quality by growing rye in orchards, preventing pests in beans using natural enemies, and bean farming using minimum tilling.

○ Sex pheromone was used to prevent pests in orchards since 2000, in which this technique helped to reduce the number of pesticide spraying about three times.

○ Sod farming techniques were also evaluated as an environmentally friendly farming method and included as one of the areas of agricultural extension services. Starting in 2001 biological pest control using natural enemies was implemented in strawberries.

○ Environmentally friendly farming of poultry was defined differently according to each group so that these differences were resolved in order to emphasize the need to place efforts to establishing more scientific farming in an environmentally friendly ways.

3.2. Development of Rural Resources and Living Improvement

3.2.1. Rural Living and Resources Development Services

○ Rural living and resources development services included overall technology support for the enlightenment and education of farmers, distribution of technology, creation of conducive environment, development of human resources and counseling on living that were generally focused on improving the quality of life for farmers and social education services to support farmers and consumers by analysing and processing knowledge related with overall tech-

nology support.

○ Rural living development services played new roles and functions with changes in the direction of agriculture and paradigm of agricultural extension services, needs of farmers and demand of technology.

- These services were called "home economic services" from 1957 to 2003 but rural living and resources development services starting in 2004. The target of these services expanded from farm women to farmers, consumers, the elderly and material resources were included as innate resources for agriculture and farms.
- The functions of these services were expanded from centering around the improvement of lives related with clothing, food and housing and promotion of economic activities of farm women to the creation of a safe and comfortable living environment, improvement of agricultural goods processing technology by farmers, promotion of consumer agriculture, value creation from agricultural resources, maintenance of local communities for farming families, and development of capacities.
- The methods of pursuing these services also transformed from small-scale demonstration services and standard education to the introduction of financial and material supported large-scale services, tripartite cooperation by the public, academic and research fields and the formation of networks among these entities, and the provision of education focusing in special areas centering around consumers.

○ In this sub-chapter, rural living and resources development services that changed with time is examined by dividing it into eight development phases.

(1) Beginning of Services (the late 1950s)

○ Rural living and resources development services (former home economic services) started in 1957.

- These services started with the proclamation of the act # 435, which was the act for agricultural reform (Feb. 12, 1957).
- The purposes of this act for agricultural reform included conducting demonstrative research to develop and improve farming and providing services to farmers related with knowledge and technology for improving living in order to improve yields and improve the standard of living.
- The major contents of these services included “demonstrative research on agriculture and distribution of knowledge and technology for agricultural reform”, “demonstrative research and services for improving and preserving soil quality”, “services on the operation of cooperatives”, “services to reform the young in farms”, “services to improve the quality of life for farm families” and “fostering of public servants in agriculture”.
- On top of the department of reform(planning, PR and training), the department for technology distribution(agriculture) and the department for adolescents, the bureau of reform at the Office of Agriculture organized the department of farming household’s home economics to launch a reform program for farm wives at home.

○ Rural living and resources development services at the time of its inception was not able actively promote activities for improving rural living because of the lack of guiding principle and a weak system for the pursuit of related activities. Rural living development services was pursued for the first time with the foundation of the Office of Agriculture.

- These services kicked off in April 1958 with the assignment of 91 part time training personnel at the provincial Office of Agriculture (2) and 73 city and Kun reform offices (about 1 per 2 Kun).

(2) Early days of Services (1958～1961)

○ These rural living and resources development services were implemented for the first time immediately after the Korean War (1950-1953).

- These services at the time sought to rid poverty coming from an unstable society and economy and a severe lack of food and to find stability amid destruction and confusion after the War.
- When the reconstruction efforts spread throughout Korea, people willed for new lives and farmers were thirst for new knowledge. And the office of agricultural reform was welcomed by farmers everywhere.

○ Rural living development services provided centering around farm wives to improve the quality of live in the areas of housing, nutrition, clothing and hygiene/sanitation.

- However, there had been many problems in the provision of these services because a home reform office could not be established for each city and Kun. Furthermore, overall rural living conditions also hindered the provision of these services. Thus, farm households were allowed to choose the services provided around them. On the other hand, a household living improvement club was organized and managed for farm housewives to contribute to the development of local communities.
- Specific examples of on-site programs pursued (in the case of 1959) included making of farm work clothes to improve clothing, basket aprons, jumper dresses and children's active wear; cloths storage by season; promotion of colored clothing; making of pajamas, underskirts and panties; basic sewing and handcraft; making of baby clothes, Korean tops, blouses, skirts, pillow covers, handkerchiefs, cushion covers, walking and arm gaiters, diaper covers, baby storage chests, children's storage chests and men's shirts; distribution of laundry techniques (laundering of woolly

clothes); making of rain clothes; and knitting of baby socks and hats.

- For the improvement eating life, these services concentrated the promotion of flour foods (encouragement of alternative meals to rice) and protein intake (bean-based foods); making of improved *Meju* (fermented bean paste made into brick-shaped forms) and potato-based *Gochujang*; farming of nutritious vegetables; making of weaning foods for babies and rabbit meat foods; vegetable storage; making of sweet potato foods and corn rice cakes; summer food management; storage of sweet potatoes, potatoes and eggs; and making of bread.
- The hygiene/sanitation services provided included pest control during summer; control of human parasites; nutrition and hygiene promotion for pregnant women; common knowledge on and prevention of childhood diseases; knowledge related with wells; fly, mosquito and mouse control; sanitization using the sunlight and steam; emergency aid; special sanitation; and improving washcloth sanitization.
- The services provided for improving living conditions related with housing included making of table covers, sinks, cooking tables, food storage chests and laundry facilities; the improvement of furnaces, wells and outhouses; installation of farm tool storage, fly nets, washcloths racks, kitchen organizers; democratization of farm households; improving living environment; making and usage of outhouse covers; etc.
- The services provided to improve farm income included soap making; livestock management; in-house horticulture; home handcraft; farming of shitake mushroom, chickens, pigs and rabbits, and vegetables; and knitting as side jobs for farms. Other services included club formation for the improvement living; bookkeeping for household spending; breaking of superstitions and bad traditional habits; simplification of rituals; toy making; and others.

○ Early services after the establishment of the office of agriculture differed significantly by region due to the lack of clear structure and features of these services.

- There was a lack of criteria such as the absolute number of clubs that each “farm reform office” could handle and the level of its services for each year, the level of each service, etc.
- Although early rural living development services lacked its foundation, these services as a whole a significant meaning in that they were mobilized to investigate, summarize and review issues that come from actual farm households and the resulting data were used to select needed services.

○ Toward the end of early rural living development services, these services were pursued based on those that could easily be attained related with food, clothing and housing by selecting demonstrative farms as foothold points starting in 1961.

- However, not much short-term success was seen in some home reform offices and farm housewives because of the lack of husbands’ understanding and cooperation.

(3) Period after the Launching of Rural Development Administration (1962～1970)

○ The Korean government pursued industrialization by establishing and implementing the first phase of its five-year economic development plan to develop the national economy and adopted a strong “agriculture first policy”.

- The government proclaimed the Act on Agriculture Promotion and Anti-corruption System in 1962 for the purposes of boosting farm income.
- The Rural Development Administration was founded in April 1962 for

the purposes of unifying rural services and fostering of rural development programs, when the department of “farm home economics” changed to the department of “living improvement”.

○ Demonstration farm households that drew a good response from rural residents was increased to 10 households per each city and Kun, making them a total of 3,368 units in 1962. A committee on the selection of tasks related with rural living conditions was formed to expand the scope of services by holding annual workshops and evaluation workshops and to place the effort select a variety of services.

○ With the need for the expansion of agriculture, more service counselors were hired and branches were opened at the *Eup* and *Myun* (administrative districts smaller than Kun) level in 1964 to improve the level of these services provided.

- A total of 400 branches were set up throughout Korea and some 2,100 counselors and 140 counselors for improving living standard were hired, when 2 personnel were dispatched to each Kun and 1 to each city. Furthermore, all temporary counselors were shifted to regular employees.
- In most cases, those tasks related with living improvement were pursued along with farm production such as the treatment of mouth ulcers through planned farming of green and yellow vegetables, supplementation of lagging nutrients through livestock farming, increased production of protein foods, provision of technology for food cooking, processing and preservation.

○ Although there was no government agency for these living improvement services, an expert committee composed of 20 people was formed in 1963 to review goals in each areas of clothing, foods and housing and determine which services to provide after sample testing.

○ in 1965 counselors conducted two-month training session training to help

farm housewives to seek side jobs to boost farm income. Starting in 1967, two central and 40 regional units using methane utilization facilities were installed as a pilot program to solve the fuel problem in rural areas and forestation.

○ Starting in 1967 the focus was placed on technology transfer for farm side jobs to boost farm income, where professional counselors were placed in each complex to provide technology training and led the distribution of methane gas facilities to resolve the lagging fuel problem in rural regions.

○ In March 1968, the Korean government along with UNICEF and FAO signed the agreement to launch an applicable nutritional project for 3 years and 6 months in Korea starting in 1968. In February 1968, 11 counselors for tis project was hired and dispatched to each provincial government.

○ In 1962 services for boosting farm income through a significant expansion of crop production as Korea faced a food crisis because of a bad harvest for the year and the consequent childcare services were launched actively, when the number of childcare facilities increased drastically during busy farming seasons.

- Childcare services during busy farming seasons started in 1963 when 145 teachers were placed at 139 facilities throughout Korea to care for 15,060 children. In 1969, the numbers increased significantly to 2,827 facilities, 2,699 teachers and 103,979 children.
- To boost farm income farm living improvement clubs were formed to provide training to farm housewives at the group level. In the 1960's the effort was placed especially on technology transfer for the production of goods by these housewives.

(4) Saemaeul Movement (1971～1979)

○ The launch of Saemaeul Movement in 1971 had brought many changes to

the living improvement project.

- The movement launched by the Ministry of Home Affairs in 1971 was composed of 10 Saemaeul projects aimed to develop 33,267 administrative districts including villages and neighborhoods across the nation. The focus of it was on achieving environmental improvements (roofs, public wells, public washing places).

○ With environmental issues given priority in the movement, the living improvement project had evolved into a nationwide project.

- Prior to the movement, the public campaign had been primarily focused on several living improvement programs such as improving living improvement clubs, creating demonstration farms, or running day nurseries. But from 1971 the focus was shifted to nutrition enhancement based on applied nutrition pilot villages, which also permeated into neighboring villages.
- With the spread of the spirit of the movement, extension educators came to handle general public education as well as region-based and living improvement club-based programs, allowing them to educate the public in a more effective way.

○ In 1977 Rural Development Administration presided over the food and nutrition policy workshop for Asia, an international conference and a domestic children nutritional experts conference.

- Around that time, the rural nutrition improvement training institute was set up. For systematic nutrition research and special training for family experts, the research and examination division of the institute did nutrition and recipe researches, food processing, examination, and review while the training division was charged with educational programs for public living extension officials and female extension educators.

○ In addition, in order to improve housing conditions, a variety of activities

were conducted from 1973 such as roof enhancement, house standardization, roadside house improvement, sewage facility enhancement where 34,665 villages across the nation were involved. On the culture and welfare side, projects including water supply and methane facilities, public wells, public bath houses, public washing places were carried out on a yearly basis.

○ Sine the lack of farmers had emerged as a serious social issue in 1975, education programs on how to use agricultural machinery (cultivators, water meters, sprayers) were offered to living extension educators of the central government·provinces·cities and 738 housewives in rural areas.

○ The focus of the living improvement education in the 1970s were on nutrition enhancement for rural areas and its pilot program was carried out in a total of 1,847 villages between 1968 and 1981.

- In addition to that, to promote scientific recipes, processing·storage technologies, a large place for cooking was set aside in city-Kun Rural Technology Centers (previously the Rural Extension Office), Provincial Agricultural Technology Centers (previously Rural Development Institute) where women learned various cooking techniques including potato and rabbit food.
- Sampling parties were held to assess the quality of new rice varieties developed to increase food self-sufficiency. Like this, with an aim to enhance balanced nutrition and children's eating habits, a variety of activities were in place in cooperation with UNICEF, which included applied nutrition enhancement pilot village program, and children nutrition pilot village program.

○ For collective education, living improvement clubs were organized with city/Kun, and town/township associations 1962, which were then divided into self-reliance·self-support·basic villages in 1975.

- Rural Development Administration held a workshop of chairmen of the

national living improvement associations to develop their leadership through key technology and knowledge education, which also had a positive impact on living improvement clubs and their neighboring areas.

- With the objective to revise ineffective structures of village-based farmers organizations and to develop cohesive practice of Saemaeul Movement, women's groups such as living improvement clubs, female training groups, Saemaeul female association, family planning mothers association had been integrated to Saemaeul female association, thereby creating a unified organizational structure in charge of living improvement , culture, family, and savings projects. Education was offered to chairmen of the female association and vice chairmen of Saemaeul youth association.

(5) Living Improvement Project for Rural Areas in the Era of Open Agricultural Trade (1980～1989)

○ In the 1980s, amid the global and national economic growth, Korea achieved its goal of rice self-sufficiency.

- In rural communities, women's roles continued to evolve over time. Women came to be actively involved in their family management, community activities and decision-making process. As a result, they became more interested in enhancing the quality of life, which resulted in development of various education programs for women.
- Moreover, to reduce women's housework burden and enhance sanitary conditions of kitchens, education programs regarding kitchen or kitchen equipment were provided . Between 1983 and 2002, a total of 170,000 families changed their kitchen into western style, which contributed to 20 to 40% reduction in housework.

○ As the Korean people adopted more western-style diets, the percentage of

those with 'adult diseases' were on the increase and rice inventory went up. Accordingly, the movement put greater emphasis on increasing rice consumption by solidifying Korean style diets which rice is eaten as a main dish along with vegetables.

○ Day nursery program during the busiest farming seasons were very popular in the 1980s.

- The program began around 1960 in association with 4-H club. In 1963 it had been expanded as part of living improvement project. With the launch of Saemaeul Movement, all villages or towns came to have a public hall for the program and it started to make real progress.
- To turn the programs into a nation-wide initiative, region-based children education programs were consolidated and then taken over to the Ministry of Home Affairs in Feb 1982.

○ On the clothing side, since environmental issues had become an increasingly significant challenge for the world, reductions in the use of synthetic detergents and production of soaps with edible oil wastes became more an integral part of the education program.

○ To increase the effect of the education, in 1983 one center on a town or township basis was selected as a 3-year living improvement pilot village. An as a result of it, community unity had enhanced and the quality of life in those regions increased.

- During the first year, 5 families per village were chosen for practice of living improvement activities. When their activities were coming to an end, another 15 families were selected to do the same activities, so as to spread them into their neighbouring areas.
- Until 2000, the program was implemented six times with a total of 8,180 centers. The program was composed of family-based activities such as building good families and creating convenient living environments, and

village-based activities including cultivating a culture of thrift and savings, creating healthy village cultures, transmitting unique rural cultures to next generations, creating green spaces, and preserving the environment, which were converted to voluntary activities from 2001.

○ The rural development project was initially designed to increase agricultural production. However, in order to proactively respond to changes in the agricultural environment, and improve welfare for farmers and balanced growth between rural and urban areas, a core mission of the development project, it was considered necessary to expand the scope of the project to cover agriculture industry, farming villages, and farmers. To do that, the structure of regional rural development organizations had undergone big transformation.

- In accordance with the transformation plan of the rural development project in 1989, town/township branches were integrated to Kun Rural Extension Office, adapting the living improvement programs to the trend of localization.
- While one or two staff of the development divisions were entitled to handle living improvement activities in the Rural Extension Offices at the city and Kun level, the living improvement divisions which were newly created inside the Rural Extension Offices at the city and Kun level, and an average of two staff, or up to four or five persons per city or Kun were assigned for the job. So the total number of responsible staff increased to 674.

○ As a benchmark for living improvement programs, five experts in the field were dispatched from the Japan International Cooperation Agency (JICA) between 1983 and 1987 and stayed for three to four months to conduct joint researches including the Prevention of Farmers' Syndrome and Fatigue (1983), the Efficient Extension Guideline for the Expansion of Women's Roles in Rural Communities (1987), and the Research and Guidelines for

Farming Conditions Improvement (1989).

(6) Living Improvement Project for Rural Areas in the Era of Localization (1990～1999)

○ Around this time, people came to realize that in the era of globalization and localization, increases in production and income were not enough to achieve their living improvement goal. People started to pay greater attention to improving the overall quality of life through better living environment and rational management of life.

- To do this, systematic and scientific researches into the overall living environment in rural areas were carried out with the support from 618 rural extension specialists (578 researchers, 12 administrators, 28 technicians). In addition, additional 30 people and 4 agricultural researchers were hired in the rural nutrition improvement training institute and the living improvement division of Rural Development Administration respectively, increasing the number of staff to 59 at the central-government level (14 staff of the living improvement division and 45 staff of the rural nutrition improvement training institute).

○ In line with the localization, relevant government officials of municipal governments were changed to those for local communities (6,696 persons) and local branches were put directly under the head of the local governments, adapting the extension service to the changing environment.

○ In the 1990s, the living improvement project was further expanded to include farmers' health, living environment, and life management.

- In particular, since women's status in rural areas were still weak compared to their roles in the communities, several projects were carried out to solve the gap. One of them was the 'women's employment project' which was aimed to enhance their economic status and strengthen their

self-confidence.

- From 1990, five areas were selected for the female pilot programs. Considering women's intrinsic aptitude, they were mostly encouraged to work in the areas of Korean traditional cookies, soy sauces and agricultural product processing as well as processed agricultural products and non-agricultural products including ramie fabric and silk.
- A total of the government-funded 169 centers were created until 2003 and an annual workshop was held where heads of businesses and public officials got together to decide business directions, share information, and introduce their products to each other, exploring ways to further develop their businesses.
- The project is especially meaningful in that it helped women in rural areas have their own bank account and it grew them into business women in line with its goal, 'one village one business one businesswoman'.

○ As health had become a more important issue for farmers, the new activities related to farming environment improvements were put in place as a local project.

- To reduce the negative impact of the temperature difference between inside and outside greenhouse on farmers' health, rest areas in the middle of greenhouse or shade tree areas were transformed into rest places equipped with sporting equipments and benches so that all residents can take a rest and relax.

(7) Living Improvement Project for Rural Areas in the era of Knowledge and Information (Since 2000)

○ With the development of globalization and informatization in the 2000s, farmers' needs and technical demands had become more diverse and women's roles and contribution to rural communities had further increased.

- Following the trend of globalization, the global community reached the Convention on Biological Diversity while, in recognition of the significance of agriculture and farming villages with multiple functions, Korea paid greater attention to developing rural amenity resources and turning them into profits.

○ The key projects carried out in Korea during the time was growth of farmers' incomes through women's employment project and advancement of agricultural products processing techniques, and promotion of environmentally-friendly environment such as improvements of working conditions, management of farmers' health, and installation of eco-friendly toilets.

- The stabilization of the Korean style rice-based diets, training for female agricultural professionals, group activities, and pilot village programs for the old citizens were key areas for support.
- In particular, the project to foster traditional theme villages based on the agricultural industry kicked off in 2002. Since it was focused on preserving rural communities' profound knowledge and life styles and created the place where people could experience the tradition and customs, it helped solidify the multiple roles of agriculture and farming villages.
- With these efforts, the extension service was eager to promote the growth of rural communities and farming societies.

○ The major policy changes which were made in Mar 2002 under the revised act, include creation of the position of living improvement official, a senior manager of the director general for technological extension and the director for extension .

- In Jan 2003, the living technology division (living techniques·family management·food development team) was newly established in the Agricultural Technological Center in the Northern Chungcheong Province and the traditional food team in the Northern Jeolla Province.

- In the meantime, the job training function for public living extension officials which started in 1979 by the rural resources development research institute was taken over to the technology training division of Korea National Agricultural College in Jan 2004.

3.2.2. Community Development

(1) Community Development Activities in the Early Stage

○ Community development activities refer to the social development process which community members take actions to raise the quality of life. To deal with a public issue or their own problem, people set up a collective or individual plan and put it into operation on their own or with the external support.

○ Like most developing countries which began their regional development project with the support from the West or private organizations, Korea also embarked on its project by forming a US-Korea joint task force team under the Korea-US Combined Economic Board in June 1957.

- In Jan 1958 the outline for regional development was adopted through the resolution of the Cabinet Meeting and its activities started in earnest.

○ The official foundation of the regional community committee conference in Sep 1958 served as a catalyst for the activities, which were initially implemented in pilot villages.

- The activities were run either by communities themselves or with the government fund.

○ Even before the rural development project reached the point of maturity, the political whirlwind brought a huge change to the structure and methodology of it. After having been consolidated to Rural Development Administration,

it came to handle food production and agricultural improvement as well as regional development. Yet, the budget allocated for the project was greatly reduced due to the policy to keep the balance of budget allocation among government agencies.

- Nevertheless, after the consolidation, the extension institute saw continuous progress under the stable structure and system.

(2) Developments of Regional Development Project

○ After agricultural instruction program and regional development project were combined in Apr 1962 according to Rural Community Development Promotion Act, a new pilot project for rural development was initiated. It focused on providing intensive extension service to a group of six to ten villages with similar geographical, social and economic conditions, rather than natural village-based extension service.

- In 1964 a comprehensive development project including new farming improvement technologies was launched, laying the foundation for more efficient and inclusive training.
- The rural development project which was combined with rural extension service and youth project was initially managed by the social extension division. But in May 1965, since the regional community development division attempted to strengthen the rural modernization project, the experience and success of the pilot project was applied across the country by the extension institute.
- In the meantime, a lot of efforts were made to ensure that the effect of new technologies and the government-led project would spill over to other areas via intensive training of flagship farms. And the six-year village self-development plan was set up to use it as basic information for farm household management survey and self-development project.

○ Along with the existing project, a new project to build a complex for farmers' subsidiary businesses was launched in 1967 by the Ministry of Agriculture and Forestry which worked hard for technical training and operation and extension of the complex.

- Under the rural extension service innovation policy in 1968, a flagship area-based promotion method which refer to the program that extension educators stay in villages with similar geographical and economic conditions for intensive training, was introduced together with the existing region-based travelling education. And until 1972 when Saemaeul Movement began in earnest, it played a pivotal role in modernizing rural communities.

○ Saemaeul Movement that was established in 1971 have many things in common with the regional development project, especially in terms of the principle and approach.

- With the launch of the movement, a variety of self-support projects were conducted and the regional development project came to take roots in rural communities of the country.

○ In 1973, a government-funded subsidiary project kicked off with an aim of turning idle resources into a new source of rural incomes, thereby creating new agricultural production areas.

- This turned out to be very profitable since the production of raw materials and access to resources were easy and it consisted of lucrative programs for community members.

(3) Projects related to Regional Development Project

○ The projects in connection with the regional development project included exhibition of rural model house, development map of areas near 3 rivers, extension service of methane gas utilization and of subsidiary business for

farmers, and joint project for rural family planning.

○ To more adapt Korean rural houses to farming and cultural activities, a rural model house project was launched.

- In 1969 A model house contest was held by Rural Development Administration and it was meaningful in that it was the first attempt to revamp rural houses and village structure.

○ To strengthen the rural production foundation, the government conducted land management, and irrigation reservoir and river construction in areas near 3 rivers (Ansung Stream, Dongjin River, Sangju Stream) in 1968 in partnership with the UNDP.

○ Since most of Korea' s agricultural fuels came from agricultural and forest products, materials of compost that would used for base manure for rice fields were utilized as firewood.

- As a plan for afforestation, soil improvement, housework reduction, and rural energy preservation, Rural Development Administration provided farmers with methane gas produced from animal excrement.
- The methane gas distributed as a pilot project was used for cooking in rural communities for 9 months in the southern part of the country and 7 months in the central area.

○ In order to increase rural incomes by making use of idle human and physical resources, the rural subsidiary business complex was built by the Ministry of Agriculture and Fisheries in 1967. In the complex, technique training was provided by Rural Development Administration. And, to give momentum to its activities, the national subsidiary business contest was held between 1969 and 1972.

○ Rural family planning in which the extension service was partly involved was a project to enhance welfare for farmers in line with the agricultural production increases.

- It began in Sep 1987 and village extension workers handling the project received one-week family planning training.

(4) End of Rural Development Project

○ The name of the rural development project changed many times due to the changing social environment. However, the pilot project which was established in 1988 continued to be a major part of it and the basic structure based on the village extension workers system and programs remained almost unchanged until 1993.

- Yet, as the central government-led system shifted to the local government-based one in 1995, the regional development project also turned toward region-based management, which ultimately put the traditional development style to an end.

○ After the change in 1995, no cities or counties were controlling the village extension project an longer in 1998 and the name of the project management division also changed to the capability support team. In other words, it meant that the project put more emphasis on nurturing special extension research association, and developing and supporting extension officials' capabilities.

3.2.3. Fostering of Farmers' Organizations

(1) Promotion of '4-H'

○ 4-H is a social education and development movement which was designed to prepare youth in rural areas with the skills to preserve and develop rural farming communities while educating them to be competent future citizens who can quickly adapt to the fast changing environment.

- Head : Develop intelligence for judgment and planning skills.
- Heart : Cultivate moral virtues and live together with others in a truthful

and humble way
- Hands : Grow useful capabilities through labor and community services
- Health : Improve health, combat diseases, enhance efficiency, and live a pleasant life

* The goal of 4-H is to make youth in rural areas be used to up-to-date agriculture technologies and knowledge from an early age by having them engaged in small groups of a village or region based on four practical principles so that they would contribute to improving the quality of life and become more cooperative for their community. In other words, it is to grow youth into key talent for social development by helping them become a more affluent and competent citizen.

□ **Development of 4-H**

○ It is fair to say that the movement began in Korea mainly on the back of strong support from foreign aid agencies.
  - The American-Korean Foundation, a US private aid agency, provided support to the Korean 4-H club for 26 years between 1953 and 1979.

○ The US 4-H club was first introduced to Gyeonggi Province, the central western part of Korea.
  - The Korean government which was formally established in 1948 attempted to spread the 4-H movement across the nation, but it failed to do that due to the Korean war on Jun 25 1950. In 1952 when the country regained independence, the movement began to grow.
  - In Oct 1952 the government created a program of agricultural extension professional and agriculture distribution society, and in Dec it adopted the 4-H movement as part of the Ministry of Agriculture and Forestry's correction project.

- The distinctive feature of Korea's 4-H is that Rural Development Institute which was set up in Feb 1957 had the youth division dedicated to 4-H.

○ When the institute was reorganized as Rural Development Administration in 1962, the youth division was shut down and the number of staff was reduced to 1/3. In the meantime, a total of 410 branches were formed on a three to four town and townships basis, under city-Kun Rural Extension Offices and more professionals were assigned for the distribution of agricultural technologies and training of farmers' educational organizations, which helped the extension movement make real progress.

- However, as rural youth extension project had grown remarkably both in size (1960: 7,477 →1965: 27,911) and in business scope and scale, the youth division was re-opened in Apr 1965.
- In 1965 the number of 4-H clubs registered on a town and township basis was 20 on average and one professional was handling 10 clubs and between 200 and 300 members.
- In 1965, the system of 4-H special extension educators was resumed at city-Kun Rural Extension Offices in order to provide necessary support to the region-based education of 4-H clubs, strengthen private cooperation, secure enough volunteer educators, and provide training to town/township and city/Kun 4-H associations

○ With the spread of the New Community Movement, also known as Saemaeul Movement, the 4-H activities had become more popular and also changed in several ways.

- This is because, with the same spirit and goal, Saemaeul and 4-H movements were easily assimilated to each other. In fact, the 4-H activities served as a specific driving force for Saemaeul Movement.
- The changes which were made in the 4-H movement with the spread of Saemaeul Movement, are as follows.

- In 1972 4-H club was renamed as Saemaeul 4-H club, 4-H club was formed in all Saemaeul villages, and the Saemaeul professionals were respected as trainers for 4-H, further uniting the two movements into one overall conception.
- With income growth based on scientific agriculture as a main purpose, the 4-H activities were focused on improving the yield of rice·barley·beans , making use of arable and idle land, and encouraging members to complete their livestock activities, so that combined agricultural practices would further increase.
- In terms of education and training, the main focus was on increasing people's devotion toward agriculture and their community, developing the four values of 'Head, Heart, Hands and Health', and making the spirit of Saemaeul a part of daily life. In particular, in response to the migration of young population to urban areas in the 1970s, the movement turned its attention to agricultural machinery training which would accelerate the use of machinery, and development of young farmers who will lead the growth of farming communities.

○ In late 1970s, the 4-H movement reached a turning point.

- During the time, more and more young people moved out of rural areas, which placed the issue of raising and securing young farmers at the center of the agricultural agenda. To solve the issue, more specific measures of Saemaeul 4-H had been developed and the details of them are stated below.
- The name of the organization was changed to 'Saemaeul Youth Association'.
- The age of membership was raised to 26 and a dualistic organizational structure was adopted. Youth members were categorized as Saemaeul Youth Association and older members as town and township Saemaeul

Youth Association with different guidelines and activities suitable for each organization.

- Financial support for agricultural activities was increased and the conditions for lending also improved from the previous focus on short-term and small amount loans to mid-term loans.
- Its support for the private sector had also expanded. In Feb 1979, the 4-H association changed its name to 'Korea Youth Saemaeul Committee' and came to play a bigger role as a 4-H private supporter, staying true to its name.

○ As the population in rural areas started to fall in the late 1980s and agriculture evolved into a more specialized industry with the liberalization of the market, Korea finally opened the door to imported produce, which brought a huge change to 4-H.

- Along with the change, the structure of 4-H club was transformed to function-based from region-based in Jan 1991, which led to the creation of youth, agricultural, and special 4-H clubs. The youth 4-H club was designed to work for rural development and develop citizenship while the goal of the agricultural 4-H was to grow agricultural capability by preparing next generation farmers with the skills to adapt to globalization.
- The membership age of 4-H was raised to from 9 to 29 years old in 2001 and its training programs further strengthened especially in the areas of agricultural technologies and management methods by introducing youth leadership program and training the members 4-H activities.

□ Change in the Organization and the Number of Members

○ Until 1950 the movement had a total of 50,000 members working in 1,900 organizations. Yet, with the promulgation of Agricultural Instruction

Programs Act and the foundation of Rural Development Institute, its members had jumped to 140,000 in 1958 with 3,700 organizations, and later to 300,000 in 7,800 organizations in 1961.

○ In the 1960s, the number of its organizations remained between 27,000 and 30,000 and the members were between 600,000 and 700,000. But in the 1970s when the Korean society underwent rapid industrialization and urbanization, the members reached a record high of 688,000 while there was no changes in the number of organizations. Since then the members gradually fell to 498,000 in 1979.

- But, the strengthening of 4-H's extension services in 1979 drove the number of members up to 608,000 in 180 and to about one million with 34,000 organizations in 1986.
- Afterwards, the population in rural areas continuously dropped. As of 2008, it members amounted to 68,000 with 2,108 organizations.

(2) Promotion and Activation of Agricultural Extension Workers Association

□ Emergence of Agricultural Extension Workers

○ Around 1957 when Rural Development Institute was established, 4-H clubs were widely spread across the nation and more and more people were willing to be the extension workers.

- Those voluntary workers played a pivotal role both as leaders for the modernization of rural areas and as pioneers for the development rural communities by developing cooperation and self-reliance of farmers and fishermen.

○ And associations, groups or organizations aimed to build closer relationship had mushroomed by those workers who were leading the rural extension

projects.

- The formation of those organizations began in late 1960s.

□ Roles of Agricultural Extension Workers

○ They played a vital role for Saemaeul Movement.

- Saemaeul Movement was initiated by then President Park, Chunghee in Apr 1970 as a national campaign to promote the values of diligence·self-help·cooperation and to instill in the public the responsibility for their community development.
- It was a grassroots community development and social innovation movement in which people were motivated to voluntarily modernize and innovate their life styles and mindset and to advance economic·social·cultural environments.
- The beginning and stabilization of the movement was successful mainly thank to a large number of volunteer participants and members of study groups.

○ The extension workers actively participated in the agricultural extension projects

- The extension projects were designed to encourage people to adopt new ideas and be more involved in social organization and operation for public good.
- Since the government believed that strong competitiveness of the educators was essential to achieving the goal, it exerted all possible efforts to nurture them.
- As the modern extension services began, the educators put more emphasis on horizontal communication among farmers rather than top-down communication, maximizing the effects of the projects.
- Most of the workers contributed to the development of their village or

community by running study groups and leading a variety of pilot programs in cooperation with community members.

○ Agricultural extension workers acted as an effective bridge among public extension officials.

- Although most agricultural technologies were led by the government, the extension educators equipped with in-depth knowledge on the technologies were great contributors to helping farmers learn and use new techniques.
- Since most of the extension educators were also from rural communities, they were able to communicate with farmers in a more effective way.

○ The extension educators devoted themselves to establishing and running farmers' study groups.

- Since the start of Korea's educational programs for farmers in the 1950s, the main focus had been on helping farmers learning new technologies and knowledge and creating an environment for group education, which turned out very effective in educating farmers with a limited number of educators.
- Volunteer educators made great endeavors to form and run necessary organizations like farmers' agricultural improvement villages, women's living improvement villages, and youth 4-H clubs.
- In particular, most of volunteer educators voluntarily joined the agricultural improvement villages since they were enthusiastic about enhancing their skills and helping study groups through their services.

□ Education by Agricultural Extension Workers

○ Rural educators associations of each region were keen to provide more educational opportunities to members and non-members who want to learn from them, thus spreading new technologies and information to more people. The

programs included special education by sector for outstanding farmers, city-Kun chairmen workshop, promotion of industries for greater food production, young farmers education, and income crops technology workshop.

○ With the foundation of Agricultural Extension Workers Central Association in 1970 as momentum, the associations at the city and Kun level further strengthened their education projects.

- The major projects which are still in place include travelling training project by the central association, open lecture on agricultural technologies, agricultural extension workers training by sector, housing environment support campaign, distribution of scientific agricultural technologies, rural environment improvement campaign, informatization training for agricultural extension workers and high-quality produce production training.

○ Overseas agricultural training program was also one of the very important elements. The overseas training was well executed at the central and province level and the city and Kun level. Those who completed the course worked hard to promote exchange of new technologies and modify agricultural organizations and institutes more appropriate for the Korean situation based on their research.

- They also collected P.R. materials for foreign countries' agriculture and presented lectures at various workshops and educational events on the global agricultural technologies and trend, which received good feedback from farmers.

(3) Fostering of Agricultural Human Resources

○ After the migration of youth to urban areas had risen from the 1970s, rural communities suffered from various side such as including lower quality of labor force, increases in base salary, and poorer productivity, which created

a vicious circle of depressed rural economy and therefore stronger agricultural reluctance among young people. Under these circumstances, there was a growing necessity to develop an innovative agricultural human resource project based on the 4-H HR program.

○ In 1980, with the enactment of the young farmers development funding act, the HR project was formally launched by integrating the HR development fund which was primarily channelled into Saemaeul youth, a member organization of 4-H, in 1978.

- The young farmers development fund was mainly reliant on donations although there were also other sources such as the government, public investment institutions, groups, individuals, and other funds.
- The fund is operated through government and public bonds, purchase of securities, and other businesses stipulated in the Presidential decree. Returns on the fund's investments were used as loans.

○ The HR development project not only provided financial support for potential farmers, but also offered various benefits to young farmers such as education on management, technology, and sales and overseas training.

- With an aim to inspire young farmers and share the best practices with them, a traditional agricultural young farmers development event had been held every year.

○ In Dec 1987, the young farmers themselves formed a nationwide farmers and fishermen association.

- Based on their cooperative relationship they built through various organizational activities, the association was turned into a corporation in Mar 1991 with an approval by the government which wanted to further solidity their unity and increase group activities.
- In Feb 1992, it was renamed as Korea Young Farmers Central Association and, in 1997 a farmers association was separated from the

corporation with a new name of Korea Advanced Farmers Federation.

○ In the meantime, the military service law was revised in Dec 1993, which treated young farmers as skilled industrial personnel and enabled them to serve as reservist.

- Aside from it, to turn those with a degree in agriculture and competent youth into leaders for farming villages, an 'advanced progressive farmers project' was initiated in 1994.

(4) Growth of Farmers' Study Groups by Item

○ As mentioned in previous sections, with the localization of agricultural extension workers in 1997, educators shrank, weakening their roles. Thus, the extension programs which had been carried out by city-Kun Agricultural Technology Centers was shifted from individual to collective training.

- Accordingly, farmers' demands for technologies, especially high quality production technology and those appropriate for each community's conditions had grown.

○ Farmers' groups by item overlapped with the existing crop units of National Agricultural Cooperative Federation and farming association corporations, and there were weaknesses in their operation. To tackle those issues, item-based groups were changed to technology-based ones from 1999.

- And to grow those groups which cultivate the same kinds of items into a core center for new technology distribution, support was primarily directed at those with excellent performance, thereby overcoming the weak competitiveness of individual farmers.
- Besides that, with a purpose to grow special items and increase incomes of farming families, diverse group activities were encouraged such as information sharing within a organization and among members, close cooperation, on-site education, visit to advanced farms, and it further accel-

erated the spread of new technologies.

○ The details of farmers' study groups by item are as follows.

- To create a specialized structure from the prospective of study groups, national groups are organized on the basis of those who have been awarded global agricultural technology award, labeled as knowledge farmers, or have knowhow in advanced technologies, in association with public researchers and public extension officials of Rural Development Administration and its research institutes.
- Support for the study groups continue to be offered. Specifically, groups of advanced farmers growing specialized items have been set up at the provincial level and groups by item are operated by public extension officials and researchers of Agricultural Technology Center and its specialty crops test center through partnership.
- At the Kun level, up to ten groups are set up based on major items of each community. And farmers' organizations by item are being developed into production technology-based study groups, thereby meeting advanced farmers' demand.
- The system of 'one special educator one study group' is maintained.
- Special educators are responsible for regular meetings, provision of information, and relevant administration, and to promote participation in meetings, special extension researchers are selected by them. They should have at least one meeting every quater, and the operation of each groups are adjusted based on regional characteristics.
- And by having the members participate in research institutes' deliberations, mid-term review and final review, farmers' perspectives are reflected in the overall policy making process.

2.3. Farmers Education and Development

○ Korea's activities in this area are divided into farmers education, machinery education, and professional institutes' education. And there are a variety of specific education areas which can be categorized based on contents, target, and features.

2.3.1. Farmers Education

□ Winder Farmers Education

○ The winter education was put in place in order to help farmers who set up plans for the next year, and solve problems, while the summer education was primarily to provide necessary technology training and enhance crop yields through on-site visit during the season of cultivation and harvest.

○ The winter program was initiated by an administrative agency in 1961 as part of the strategy to eliminate rural poverty and set up plans during an off-farming season.

- In the initial stage, it was started as a public program to deal with farmer's gambling and drinking issues, to encourage them to have a second job for higher income, and to eradicate rural illiteracy.
- Although in the early stage it was nothing more than a round-table education without well-organized curriculums, it was turned into a formal farmers education course in 1969 with the establishment of farmers training guideline in 1964, which marked the beginning of systematic education by city-Kun Rural Extension Offices (currently city-Kun Agricultural Technology Centers)

○ Since the initial purpose was to achieve food self-sufficiency, it was mostly

centered on group farming like rice and barley. From the 1970s, the focus was shifted toward lucrative crop-based scientific agriculture. Recently, the program is more oriented towards making the program suitable for each community by giving greater discretion to the heads of city-Kun Agricultural Technology Centers.

- The curriculum was designed to educate the citizens. Its name was changed to Winter Farmers Education in 1972 and then to Winter Saemaeul Agricultural Education in 1973 to combine the spirit of the National Community Movement and agricultural technology education.
- The name continuously changed to Winder Saemaeul Agricultural Technology Education in 1975, to Winter Agricultural Education in 1982, to Winter Farmers Education in 1990, to New Year's Agricultural Design Education in 1995, to Agricultural Special Technology Education in 2009, and finally to New Year's Farmers Practical Education in Dec 2010.

○ The program had two main courses of comprehensive and specialized team including seven-year income crops farmers until 1984 when it was divided into specific areas such as food crops (comprehensive team), complex agriculture team, income crops (specialized team), and living improvement.

- In 1992 young farmers and 4-H teams were newly added, which caused various problems such as lack of expertise and overlapping participation. In 1993, in response to the problems, the course was reshaped into a small-scale curriculum for more specialized technical education by item.

Table 3-7. Developments of Education Targets

Year	Education Targets
1969~1976	Farm owners·members of study clubs, members of rice·barley·bean group farming, members of special business complex, self-support and basic village educators, members of 4-H and living improvement clubs
1977~1980	Members of rice·barley·bean group farming, self-support and basic village educators, members of 4-H and living improvement clubs
1981~1982	Certain-type cultivation farmers, income crop farmers, farms in low-productive areas, members of study groups, executives of joint insect control team
1983~1988	Food Crops Team - cultivation farmers and female farmers Complex Agricultural Team - complex farming and farmers of chief producing areas, pilot village farmers, or others who want to take the course living Improvement Team - workers for practice, young farmers' wives, female farmers who want to take the course
1989~1991	Comprehensive Team - farmers who want to take courses on food and income crops technologies Specialized Team - farmers who want to learn special technologies by crop living Improvement Team - less developed villages and female workers who want to take the course
1992	Young farmers and 4-H teams were added.
1993~1995	Farmers who want to learn the program
1996~2004	Item-based organization, farmers of chief producing areas, farmers who want to take the course The curriculum and the number of trainees were adjusted for each city's or Kun's conditions
2005~ to date	Farmers, female farmers and ordinary people who want to take the training course on technologies by crop, those eligible for direct farming subsidies.

○ The winter program which was launched as a formal course in 1969 is recognized as a historic and traditional curriculum which served as the strongest driving force for the agricultural extension projects by educating a large number of farmers in a short period of time.

- Unlike other education for farmers, it was supported by diverse parties such as administrative agency, National Agricultural Cooperative Federation, the Office of Education, Agricultural Extension Workers Association, living improvement association, 4-H club, agricultural businessmen, and farmers. It is especially meaningful that it was contributable to tightening the ties within the industry.

Table 3-8. Results of Winter Farmers Education

Unit: thousands

Year	Total	Executives	General Farmers					Lecturers
			Comprehensive Team (Food Crops)	Specialized Team (Income Crops)	living Improvement Team	4-H Team	Young farmers team	
'69	2,945	76	-	-	-	-	-	34
'70~74	13,534	470	-	-	-	-	-	125
'75~79	13,239	1,141	4,776	2,312	-	-	-	43
'80~84	11,556	-	8,342	3,185	-	-	-	30
'85~89	11,886	-	6,157	4,755	974	-	-	28
'90~92	3,400	-	2,045	890	446	-	-	15
'93~95	2,137	-		1,723	406	5	6	13
'96~00	3,181	-		2,667	513	-	-	15
'01~06	3,233	-		2,891	440	-	-	15

	Total	Food Crops	Vegetables	Fruits	Flowers	Specialty Crops	Livestock	Others	Rural Living	Consumer Farming
'07	435	203	62	51	2	13	19	37	48	-
'08	406	195	53	46	2	18	19	28	44	-
'09	396	186	63	49	2	11	20	27	38	1

Source: the Ministry of Food, Agriculture, Forestry and Fisheries, 2009
Note: From 1993 comprehensive and specialized teams were integrated into agricultural technologies team

□ Summer Farmers Education

○ The summer education was offered in the season of harvest and cultivation and was composed of discussion sessions on urgently required agricultural technologies and practices of new packaging techniques so that farming could grow crops in a more stable way with higher incomes.

- The curriculums pertaining to plantation, shade trees, and packaging were held in the most convenient place during break times for three months from Jun to Aug, where farmers learned step-by-step cultivation tips, harvest techniques, safe use of chemicals, and other useful information.

○ The education was a comprehensive training to promote scientific agriculture until 1989 when, in accordance with the revised agricultural extension system, it was changed to on-site packaging-based instruction by education teams of each city and Kun.

- Although it began as on-site packaging training, it was developed into a more systematic program like the winder program in 1991 mainly thanks to the formulation of a relevant provision. From 1994, it was adopted as a regional project which offered on-site training for urgent is-

sues, and run by the municipal government. As of 2001, a total of 273,845 farmers completed the course.

□ Year-round Education

○ In response to the liberalization of the market, the year-round program was initiated to produce high quality produce, sequentially increasing international competitiveness.

- With the goal of stable food supply and income growth via innovative technologies, it was offered at the city and Kun level from 1978. And as demand for income crops education programs grew, the program was adjusted for different regions.
- However, since it was funded by the government, it could not cover the cost of providing materials and food for participants. Yet, from 1991, it started to receive the government's fund (KRW 1.3 million per year), which led to the significant growth of the program.

○ The curriculum was centered on the crops that were suitable for regional conditions and that farmers preferred. It was a valuable contributor to improving trainees' technical skills and accelerating early adoption of new technologies.

- In the first half of 1995 the program was closed and changed to an item-based year-round education.

Table 3-9. Results of Year-round Education in response to the Liberalization of the Market

Unit: persons

Year	1978~1979	1980~1984	1985~1989	1990~1995
Persons	169,011	278,972	270,382	1,037,871

○ The year-round program began in 1995 to strengthen the competitiveness of each community's main crops. The main objective was to activate farmers' organizational activities on an item basis so that farmers could obtain more knowledge, learn better technologies and develop management skills while promoting the development of knowledge, technologies and rural income growth through useful education relating to production by item, management, procession and consumption.

○ Based on the conditions of communities and farmers' preference, the project was conducted between Mar and Dec in Agricultural Technological Center, advanced farmers' land, and the chief producing areas. It was implemented for one day on a three or four items basis and from three to four times.

Table 3-10. Results of the Year-round Education by Item

Year	1995~1999	2000~2004	Notice
Persons	420,602	356,931	3~4 times per item every year

○ The year-round education was in pursuit of promotion of regional unique crops and diverse sources for rural incomes in line with Agricultural Technological Center's development plan. The program contributed to building brand of regional special crops and improving distribution process, sequentially leading to the growth of rural incomes.

2.3.2. Education of Agricultural Human Resources

□ Education of Young Farmers

○ In response to the side effects of industrialization and urbanization in the 1970s such as the loss and aging of rural population and an increase in the

ratio of women to man, the education was initiated in 1981 as a agricultural policy to foster young leaders for rural development

○ Between 1981 and 1982, it was offered in the form of training camp by utilizing Rural Development Administration and its research institutes. In 1983 the camp places were changed to the Saemaeul Movement central headquarter and Rural Development Administration. In 1988, to deal with the problems caused by dual educational organizations and overlapping curriculums, the agricultural technology education was consolidated into the Saemaeul Movement central headquarter's spiritual education course.

○ As the number of trainees jumped to 10,000 per year from 1992, the education was taken over to municipal agencies, and driven by heads of city-Kun Agricultural Technology Centers.

- Rural Development Administration's program was closed in 2001 while the Ministry of Agriculture and Forestry started to provide it through an administrative body.

Table 3-11. Results of Young Farmers Education

Year	1981~1986	1987~1989	1990~1994	1995~1999	2000
Persons	29,069	11,839	48,142	46,348	5,038

□ Education of Agricultural Extension Workers

○ Initially, there were short-term technological training programs for practical rush, angora, artificial pearl processing which were offered to farmers in the areas selected for the subsidiary business complex by city-Kun Agricultural Extension offices. And then they were developed into the rural extension workers education.

- From 1962, in order to create voluntary study villages based on flagship

farms at the central and provincial level for the purpose of production increase and comprehensive regional development, relevant education was provided to volunteer educators, and in 1969 it was adopted as temporary training by city-Kun Rural Extension Offices.

○ Demand for the program continued to rise and its target expanded beyond study group educators to cover Saemaeul educators and 4-H educators, living improvement workers, and outstanding farmers. In 1972, the program was shifted to professional technology education by item.

○ Agricultural extension workers program trained a total of 823,957 people between 1962 and produced a large number of excellent talent who later led Saemaeul Movement. In this respect, the program is viewed as having made a significant contribution to the development of agricultural extension workers.

□ Education of Professional Farmers

○ With the establishment of WTO marking the opening of the market, strong agricultural competitiveness and professional farmers became a more serious issue and around that time the educational project to foster professional farmers kicked off.

- With a goal to create 100,000 farms, the government focused its efforts on expanding the business scale of individual farmers and increasing their competitiveness. As part of the efforts, long-term loans of up to KRW 50 million per person were provided at a low rate and Rural Development Administration opened a professional farmers training course for the beneficiaries in 1992.
- Until 2000 farmers who took out the loan were obliged to complete all the mandatory courses. But in 2000 the program was lifted and the name was changed to Special Farmers Education.

- Following a jump in lenders between 1995 and 1999, a 2 day mandatory course at the city and Kun level on the rice and livestock side, and the central government's education for other areas were initiated. From 2002, those courses were offered to those who want to take the central government's professional training.

○ Initially, education program was a 5-day camp training centered on the government's policy, motivation, and technologies by item, in order to inspire professional farmers with proper business directions. The course was divided into five areas such as field husbandry, vegetables, flowers, fruits, and livestock with a curriculum on major items, and participants could select their favorite course.

○ The professional training is recognized as having contributed to competitiveness enhancement and income growth by teaching farmers advanced technologies.

Table 3-12. Results of Yearly Professional Farmers Education

Index	Total	1992~1996	1997~1998	1999	2000	2001	2002	2003	2004
Period	2~5 days	2~5 days	2~3 days	2~3 days	2~3 days	2~3 days	2~3 days	2~3 days	2~3 days
Total	85,850	34,358	34,031	7,898	7,573	499	520	466	495
Field Husbandry	67,846	22,758	30,967	7,128	6,968	-	-	-	55
Vegetables	3,779	1,901	1,199	296	148	104	58	47	26
Fruits	3,165	991	1,006	257	252	315	182	84	78
Flowers	1,108	376	464	90	62	42	105	57	22
Specialty Crops	1,485	738	495	127	63	38	-	-	24
Livestock	7,751	7,594	-	-	-	-	72	85	-
Others	80	-	-	-	80	-	103	193	270

□ Education of Farmers who Returned to the Farm

○ During the financial crisis in the late 1990s when Korea was put under the control of IMF, the agriculture industry strived to attract the young and able but unemployed workers in urban areas with financial support. In line with that, to help the settlement of young farmers, Rural Development Administration offered a agricultural technology education program for four years between 1997 and 2004.

○ The recipients were provided with useful information on farmland policy, farmland purchase, and how to better utilize agricultural information. And the curriculum was mostly about professional technologies by item, on-site tour, and successful cases.

○ Afterwards, as the economy recovered from the crisis, the number of those who migrated to rural areas reduced, leading to lower demand for relevant education and ultimately to the closing of it.

○ Although it was only a four year program, the program was one of the very useful tools for the rural immigrants.

Table 3-13. Result of Yearly Education of Farmers who Returned to the Farm

Year	Total	1997	1998	1999	2000
Persons	951	82	275	423	171

□ Education of Agricultural Extension Institute

○ Agricultural Extension Institute's education program was to enhance services for farmers by building closer partnership between the Development Adminstration and National Agricultural Cooperative Federation and enhance between 1998 and 2002.

○ Since most of lecturers of National Agricultural Cooperative Federation's program which was implemented at the central and provincial level for its executive and employees at the central and provincial level were actually from Rural Development Administration, the federation later decided to officially outsource the program into a vendor.

○ The target of the program was the agricultural federation's employees in charge of agricultural training and the curriculum was organized in association with the administration (the technological training division of Korea National Agricultural College) based on the annual survey on employees' needs.

○ The curriculum covered core techniques including characteristics of varieties, harvest techniques, prevention of blight and harmful insects, fertilization and soil management, together with on-site tour, practices and Q&A sessions.

○ All costs for materials, lectures, and lodging were paid by trainees. To lessen the financial burden for farmers, the administration turned it into a public vocational training program run by the Ministry of Employment and Labor, entitling farmers to partial refund.

○ The administration and its research centers were used as the venue for education activities and lectures were provided by professional researchers.

- At the end of annual program, all people involved such as public officials from the administration and National Agricultural Cooperative Federation, lectures, and representatives of trainees gathered together to assess the results of the program which were then reflected in the future plans and publicly announced.

○ The institute's educational program laid the foundation for enhancing the quality of agricultural training and services for farmers. It also made a great contribution to close the ties between the federation and farmers.

Table 3-14. Results of Annual Education by Agricultural Extension Institute of National Agricultural Cooperative Federation

Year	Total	1998	1999	2000	2001	2002
# of Programs	63	13	20	9	11	10
Persons	1,316	251	376	236	258	195

2.3.3. Special Technologies Education

□ Special Technologies Education for Income Crops

○ The special technological education for income crops pursuant to the rural community development promotion and agricultural technological training regulations was an advanced course which combined the previous agricultural extension education and special technological education by the existing central and regional educational organization.

○ The special income crops program was initially started as a special technological education which was the government's initiative to increase rural incomes since they were kept low despite the economic development plan and Saemaeul Movement.

- In Sep 1974, the agricultural promotion organization formulated agricultural training regulations and, to boost rural incomes, focused on developing different technologies for different situations.

○ The target of the program was farmers capable of leading the development of their communities. It was held for two to ten weeks by utilizing the facilities of research institutes under the administration and their researchers. However, as rural HR development project began, the target was shifted to young farmers, and then to general farmers again in 1981.

- This was the government's policy to train young farmers, due to the growing number of them.

○ The total number of those who completed the course was 3,809 together with 31,245 agricultural extension workers. As a result of the program, all trainees worked hard to turn all kinds of crops to profits, upgrading themselves as commercial farmers and chief producing areas by crop were created across the nation. In addition, government-funded technical training was lunched by each Kun's Rural Development Institute (Rural Education Center).

○ The special program to which special technologies education was changed in 1989, strived to increase the sources of rural incomes other than income corps and to grow key leaders of rural communities in response to the opening of trade.

- In 1983, special agricultural extension workers training was opened by combining two curriculums and came to be operated by Rural Development Administration and Rural Extension Workers Central Association. The name was changed to special technologies education for income crops in 1989 with the creation of more specified curriculums.

○ Initially, the target was selected based on regional chief areas or the number of study groups. Yet, from 1989, it was offered to those with more than 3 year experience in their desired field, or to 20-year-old or older graduates of agricultural schools who were grown up in farming family and had strong desire to do farming, or potential leaders for rural development.

- It was an bottom-up program in that it was offered to those with strong desire through individual survey on applicants' preference for crops and time.

○ The contents of the curriculum are as follows

- Initially, 35% of the total 51-hour program is devoted to general courses

while technical courses are primarily focused on covering extensive areas such as rice farming, field crops, special crops, flowers, and prevention of harmful insects.

- Special extension workers technological education for income crops are centered on educating special techniques for various crops in a comprehensive manner.

○ The program for income crops were of great help for farmers who prepared to respond to changing environment. It also served as a key channel for the spread of special technologies.

Table 3-15. Results of Special Technologies Education for Income Crops

Year	Total	1989~1994	1995~1999	2000~2004
Persons	12,723	5,273	4,170	3,280

□ Informatization Education for Farmers

○ It is the project to promote an information-based farming and improve farmers' capability to collect and analyze data so that they could utilize resources in the most efficient way and increase their incomes.

○ It was initiated in 2001 with the financial support from the Ministry of Agriculture and Forestry. But, from 2002, thanks to the government budget set aside for the program, it could start in earnest by provincial Agricultural Technology Centers and city-Kun Agricultural Technology Institutes.

Table 3-16. Results of Informatization Education for Farmers

Year	Total	2001	2002	2003	2004
Persons	92,509	22,912	26,603	22,227	20,767

2.3.4. Agricultural Machinery Education

☐ Initial Phase

○ With the government's agricultural machinery distribution plan set up around 1958, it became more important to use machines for the joint work to exterminate blight and harmful insets in 1962. Accordingly, the importance of machines grew in the agricultural industry whilst the development of various machines and lack of labor force drove up the demand for relevant training.

- Around 1962 when people came to realize the value of machines, city-Kun Rural Extension Office (which was renamed as Agricultural Technology Center in 1998) began to offer 4-H farming training. In 1963, machinery operation training was launched as part of the agricultural extension project.

○ In order to make the machinery training more efficient, Rural Development Administration revised 4-H training places for 9 years from 1960 which was used to train 4-H senior members.

- In 1969 with the formulation of the administration's decrees, a comprehensive machinery training center was set up. At the provincial level, Rural Education Center was formed under provincial Rural Development Institute to offer training for operation of power tillers, power insect controllers, motors, and water meters and packing techniques.
- Each province had their own rural education center and 4-H training farm while farmers training center was opened at the city and Kun level. The special programs for public extension officials and machinery trainers were conducted by the central government.
- The basic practical training for rural youth and those who urgently need such skills were conducted at the regional level. A total of 2.89 million

farmers acquired necessary techniques and played a significant role for the success of the government's agricultural machinery project.

○ As for the government's policy, the 5-year plan for agricultural machinery (1972～1976) further accelerated the spread of machines. The government also built many training centers for different groups.

- The farming training places where woodworks and earthworks-related education was conducted for young people for three weeks at the city and Kun level increased from 50 to 100.
- In 1974 the total number increased to 141 with addition of new 41 centers. As of 2008, 145 training places were in operation by city-Kun Agricultural Technology Centers.

○ Through the training, farmers who had power tillers, insect controllers, movers and water meters learned machinery operation on a weekly basis, while machinery trainers and special extension educators offered lectures on machinery repairs and usage to the trainees

○ For efficient training, the places were well equipped with necessary lodging and training facilities. And to make the program more practical, the up-to-date equipment and facilities including tractors and combines were granted to entire training organizations.

□ Agricultural Machinery Education via Technological Cooperation

○ Since the machinery education required proper training facilities and able technicians, the government made an agreement with the British government for technological cooperation in Jun 1972, through which Korea-UK cooperation projects were implemented for five years.

Table 3-17. Details of Korea-UK Partnership on Agricultural Machinery

Machines	# of machines introduced		Departments which utilized machines (대)				Notice
	Types	#	Central Level	Province	Agricultural Research Institutes	Jeju Livestock Project	
Total	231	3,485	1,242	2,052	151	40	
Wheels	3	13	-	9	3	1	
Tractors	4	26	6	18	1	1	
Tractor Working Machinery	35	111	27	67	3	14	
Tractor Sowers	5	5	1	-	1	3	
Tractor Water Meters	1	1	1	-	-	-	
Engine Models for Education	1	1	1	-	-	-	
Landmaster Tillers	1	4	4	-	-	-	
Landmaster Working Equipment	11	17	17	-	-	-	
Machine Tools	8	52	8	40	1	3	
Working Equipment	47	169	86	69	12	2	
Methane Gas Tools	5	29	-	-	29	-	
Manual Tools	110	3,057	1,091	1,849	101	16	

○ After the partnership was reached, Korea received support from the UK including 26 tractors, 13 vehicles for travelling repair and training, various working equipment, and 3,485 machines tools in 231 types, which upgraded the quality of training programs and equipment.

○ In addition to that, British experts in the field of agricultural machinery significantly helped develop the teaching skills of Korea machinery trainers of provincial and city·Kun training centers and the quality of the Korea program.

□ Agricultural Machinery Education for Those who Need the Training

○ Since more and more people came to use agricultural machines, special programs were created to meet their demands. Those programs included female education, potential users training, safe use and maintenance, and agricultural machinery training.

○ The female education was initiated at the provincial level for three years from 1975, following the trend of growth in female farmers.

- Based on living improvement educators with agricultural machines, trainees were taught how to operate tillers, insect controllers, movers and water meters for a week.
- In 1977, it was transformed as a program of city-Kun Agricultural Technological Center, with a 2-day travelling course on rice-planting machines, combines, small tractors and controllers.

○ The program for potential users was put in place in line with the 5-year agricultural machinery plan. Since programs by manufacturing companies were insufficient due to the increasing use of machines, it increased the number of trainees two-fold the number of machines introduced in 1972.

- The curriculum was framed to train actual users as to how to operate, and manage various machines like power tillers in a safe manner, for two days.

○ The agricultural machinery training was initially started as Saemaeul Agricultural Machinery Club, a small scall community organization for sharing machines, in 1981 (the name was changed in 1985). Until 1991, it trained key talent who would lead 32,964 centers in the nation.

- With an aim to increase the use of machines for rice farming, machinery training was conducted especially during rice-planing, harvest, and dry

seasons at the provincial level. And with the growing demand for such types of training, the organization expanded the number of trainees from 2,000 per year in 1981 to around 4,500 between 1989 and 1994.

- The purpose was to create one center (40,000 in the country) per village for 4 years from 1989 with training for the machinery club's technical workers. Specifically, one-week course was offered mainly regarding safe use and self-maintenance skills.

○ The repair training kicked off by city-Kun Agricultural Technological Centers in 1983 as the growing use of machines led to increase in related incidents.

- It is aimed at preventing traffic incidents by agricultural machines and protecting the lives and property of farmers by promoting observation of traffic regulations and safe use of machinery.

2.3.5. Establishment and Operation of Special Agricultural Colleges

□ The Background of the Establishment of the Agricultural Colleges

○ The role of Rural Development Committee which was set up as an advisory body to the President in Jan 31 1994 was to collect diverse opinions for the development of agriculture and make recommendations to the government. One of the ideas it collected was about the necessity of schools dedicated to the agricultural industry, followed by various seminars and public hearings regarding the issue.

- While most farmers and teachers of high schools catering to agriculture were for the establishment of those special schools, professors of agricultural colleges were against the idea. The proponents argued that four-year universities were mostly centered on theoretical researches and

there were not enough two-year colleges with practical curriculums, highlighting the necessity of dedicated educational institute. By contrast, the opponents argued that since it cost a lot to set up new colleges, it would be more effective to provide greater support to the existing universities.

○ After having conducted a series of activities such as visit to rural communities to listen to farmers, aside from the aforementioned official discussions, Rural Development Committee finally decided to recommend that the government revise the structure of high schools specialized in the fields of agriculture and fisheries and set up a practical two-year college.

○ In June 1994, all government bodies involved were brought together to review the recommendation. And after the meeting, it was decided to set up Korea National Agricultural College catering to the needs of the industry to promote rural development and agricultural innovation.

- The rural development and agricultural innovation plans were part of the government's policy to respond to the changes to which the establishment of WTO would bring. Among the top priorities was preparing 150,000 farming families with expertise in farming.
- The core element of the plan was to set up practical colleges specialized in agriculture and fisheries (agriculture 3, fisheries 1, forestry 1), and promote the growth of one or two independently operated high schools at the provincial level. The plan also said that graduates of those schools would be given priority as key talent with military preference.

○ In Sep 1994, the detailed action plans for rural development and agricultural innovation were devised through discussion among government agencies involved. One of them was the establishment of a school dedicated to farming.

- The plan said that a related policy would be formulated to set up the

schools as two-year special colleges under the Rural Development Administration·Forestry Service·Fisheries Agency, and during the process the existing facilities and staff would be fully utilized.

- The target date for the school under the administration was 1996 while that for other schools under the Forestry Service and Fisheries Agency was 1997.

○ Creation of dedicated schools were the government' strategy to respond to decreases and aging of rural population and imbalanced educational structure, universities's weaknesses in developing human resources, and weak linkages between education and HR development policy in the field.

○ In July 1995, the「Decree on the Establishment of Korea National Agricultural College·Korea National Forestry College·Korea National Fisheries College (No. 14742 of the Presidential Decree)」was enacted and proclaimed, in which the status of the schools was presented.

- First, in accordance with the Education Act, Korea National Agricultural College is considered as a two-year college under the control of the Minister of Education.
- Second, Korea National Agricultural College is under Rural Development Administration.
- Third, Korea National Agricultural College has similarities to a military academy. That is, graduates will be exempted from admission and tuition fees for the period twice the length of the curriculums on the condition that they work in the agriculture-related field stipulated by the head of the Rural Development Administration. In addition, any necessary cost will be covered by the public funds and students are obliged to stay in the dormitory during the education.

○ In Mar 1997, the ceremony for the completion and opening of the college and the first entrance ceremony were held.

□ Operational Structure and System of Korea National Agricultural College

○ Korea National Agricultural College had been expanded and revised twice with the revision of the decree. Through such changes, it was transformed into a comprehensive educational institute, offering both three-year formal curriculums to grow competitive farmers and new technologies training for farmers.

○ Rural Development Administration explored the way that researchers and extension educators who retired two or three years earlier than the formal retirement age could serve as technical advisors to the administration and its affiliated organizations for one or two years, which was then applied to its employment system of professors.

○ After having been appointed as a 'business incubation center' by Small and Medium Business Administration on Mar 12 2001, it was officially opened in Oct 2002. As of Aug 2005, it controlled 24 companies. The school was rated as level A in the assessment of 290 business incubation centers by Small and Medium Business Administration, and received awards several times in the venture startup contest (held by the Ministry of Agriculture and Forestry) (Two best awards , two awards for excellence 2, one award of encouragement).

□ The Curriculum

○ The distinctive feature of the curriculum is that it is composed of 'integrated course' by subject and 'common and sectoral agricultural machinery course' for the first year, 'domestic and overseas practices' for the second year, 'special course by crop' for the third year, and 'lectures by outside experts' for both the first and third year, which were unprecedented around that time.

- The long-term practical course for the second year was a program that sent students to advanced farms at home and aborad and make them experience actual production and management skills under the instructions of farm owners. The program was had a lot in common with Germany's Meister system.
- The purpose of the long-term program was, first, to encourage students to learn advanced production and management skills based on their basic knowledge and techniques they acquired at school, and indirectly experience the trials and errors of farm owners and, second, to help students complete the third-year course with confidence through the experiences, thus giving a strong momentum for their start after graduation.
- The special course for the third year was organized based on crops, rather than subject as a intensive course. The course included start-up seminar where students delivered a presentation on their long-term and short-term plan for the start of their farming to the time of stabilization, which was followed by reviews.

○ Long-term (longer than 10 months) overseas course was also part of the program. For the first time in 1998, two students were sent to 2 dairy farms in Hokkaido of Japan, ten to advanced farms in Japan and the US in 1999, 10 to Japan, the US, and Canada respectively. On top of that, about 50 students were chosen every year for longer than ten month training in the countries with strong competitiveness or famous for advance farming, and between 1998 and 2004 a total of 278 students were trained through the course.

○ Although there were frequent changes in the curriculum which were inevitable for the newly established institution to flexibly respond to fast changing environment, its overall structure remained the same.

- Integrated courses by subject were gradually reduced to eight hours in

2001 while new curriculums such as basic agricultural science were crop protections added.

- For livestock and specialty crops, integrated courses were only available during the first semester of the first year. From the second semester, students learned intensive specialized courses by livestock or crop.

□ Results of Promotion of Farming by Graduates

○ The college made various attempts to guarantee opportunities for graduates to start their own farming.

- All graduates were eligible to the young farmers development fund and those who had to complete their military service were given preference to work as skilled industrial personnel instead.
- If a student became incapable of starting their own, the student was allowed to work in an advanced farm during a certain period, and received support to get municipal government's funding.

○ Moreover, the school continued to provide assistance for the sustainable operations of their farming, which included various follow-up measures and harvest training.

- Under the 「Regulations on the Terms and Payment of Financial aid」, those who were granted financial aid were obliged to make an annual report on their progress in July every year with the confirmation of Rural Technological Center. The graduates extension committee selected some graduates in need of help, based on their report, and gave them an opportunity to work in an advanced farming or take overseas training. Payback of tuition fees was also delayed for the beneficiaries.
- Faculty members including professors gave an year-round education relating to harvest by visiting farms or contacting them via the Internet or phone and helped them receive financial aid, or fulfill their military duty

by working in farms.

- In 1999, public officials from relevant organizations such as Agricultural Technological Center were assigned as instructors in charge of on-site training, thereby creating partnership for domestic long-term practices and training for graduates. From 2001, best practices among them were published into a book. In 2002, each faculty member was held responsible for managing from two to four cities or Kuns and handling school PR activities or harvest training for graduates.

○ Such efforts by the school were very useful in helping students continue their farming. As of late Sep 2005, a percentage of graduates involved in agriculture reached 95.1%.

Table 3-18. The Number of Graduates of Korea National Agricultural College involved in Agriculture

Unit: persons, %

Graduation Year	Graduates (A)	Those doing farming (B)	Farming Postponement (C)	Duty completion		Payback of tuition fees	Application for postponement	Exemption (E)	% of involvement in agriculture	
				Agriculture (D)	Non-agriculture				(B+D)/(A-E)	(B+D)/(A-C-E)
2000	209	1	4	124	47	30	0	3	60.7	61.9
2001	208	7	8	138	27	26	0	2	70.4	73.2
2002	223	106	8	71	16	14	5	3	80.5	83.5
2003	217	126	16	35	10	19	6	5	75.9	82.1
2004	187	133	9	23	5	13	2	2	84.3	88.6
2005	207	174	10	-	-	12	7	4	85.7	90.2
2006	193	169	14	-	-	6	2	2	88.5	95.5
2007	193	171	13	-	-	1	6	2	89.5	96.1
2008	220	200	16	-	-	1	2	1	91.3	98.5
2009	223	199	15	-	-	0	7	2	90.0	96.6
2010	207	186	11	-	-	0	10	0	89.9	94.9
Total	2,287	1,472	124	391	105[1)]	122	47	26[2)]	82.4[3)]	87.2[4)]

Source: Korea National College of Agriculture and Fisheries

Note: 1) Non-agriculture: Out of 496 who completed their agricultural duty, those who are not working in the agricultural industry is 33 and the jobs of 22 are not identified.

2) 26 exemptions : Deaths (21 persons), persons of merit (2), the disabled (3 persons)

3) 82.4% out of the total graduates are doing farming.

4) The percentage of graduates excluding those who postponed their plan : 87.2%

Chapter 4

Achievements and Lessons of Korea's Agricultural Extension Service

1. Achievements

1.1. Higher Productivity and Production Capacity

○ The biggest achievement of Korea's extension projects is to tackle insufficient food supply by enhancing agricultural productivity and production capacity, especially for rice.

- In the 1950s Korea's rice production was only 15million suk (the unit of rice, around 178 liters or 4.96 bushels of rice) which increased to 25 million suk in the 1960s thanks its continuous efforts to improve the quality of soil and distribute production technologies.

○ The establishment of Rural Development Administration in 1960, which developed the agricultural extension program in a systematic way, further accelerated the country's efforts to increase food production.

- The major cause for the increase in food production was the spread of the high-yielding variety of Tongil rice and increases in extension

educators.

○ High-quality varieties, especially Tongil rice, were at the center of the remarkable growth of productivity.

- As for Tongil rice, 8,451 farming families started to cultivate the variety in the 2,750-hectare area in 1971. The total production was 500.9kg/10a, far higher than the average of 330kg/ 10a.
- With the continued development and spread of Tongil, it occupied 15% of the total farmlands in 1974. One year later, as its production reached 32.4 million suk, Korea turned its goal of self-sufficiency into a reality.
- The massive spread of new rice varieties like Tongil through pilot collective cultivation and seed production created an opportunity to greatly shorten the existing 3-year step of seed multiplication in which original seeds were modified three times.
- Along with plant breeding and resulting increases in yield, maintenance facilities, land management and other improvement projects took place, leading to increases in rice cultivation areas to 1,200,000 hectares in 1991.
- Yield per 10a also rose. As types of Tongil rice came to occupy 54% of the total rice fields, yield per 10a jumped to 40 million suk in 1977 from 434kg/10a and Korea finally achieved the goal of Green Revolution.

Table 4-1. Rice Yield

Yield	1960	1970	1975	1980	1990	2000	2005
Areas (1,000ha)	1,121	1,203	1,218	1,233	1,255	1,072	966
Yield (kg/10a)	272	327	383	288	451	497	490
Total Production (1,000 tons)	3,047	3,939	4,669	3,550	5,606	5,390	4,741

- In the 1980s, while the areas of Tongil saw gradual decreases, the country's self-sufficiency remained intact thanks to growing use of other high-yielding varieties.

○ In the last 1980s, rice self-sufficiency continued to remain high. At the same time, the public turned more and more to high quality rice thanks to the economic growth.

- Following the trend, the industry shifted attention toward high-quality varieties, which resulted in increases in general types of rice. In the 1970s there were only 5 types of varieties other than Tongil which took up only 17%. Yet, those general rice amounted to 46 types out of total 61 with a share of 75%.
- Around late 1987, activities to develop Tongil rice almost disappeared and in 1991 it was no longer considered as promising variety.
- In 1992, 11 types of varieties with poor quality were taken off the list of promising varieties, accelerating the spread of high-quality varieties.

Table 4-2. Quantity of Tongil Rice by Period

Varieties	Period	Avg. Quantity of Rice(kg/10a)	Quantity (kg/10a)
Temperate Types	1962~1965	377	370~385
	1966~1970	389	370~385
	1971~1975	468	370~385
	1976~1980	434	370~385
	1981~1985	491	431~528
	1986~1990	502	478~534
	1991~1995	511	445~711
Tongil Types	1972~1975	491	449~554
	1976~1980	510	439~581
	1981~1986	562	496~605

Source: Rural Development Administration, Lee, Jil-hyeon, 2001, quoted from p.88

○ Along with promotion of high-quality varieties, the distribution of cultivation technologies and machine-based labor-saving cultivations were critical to improving agricultural productivity.

- The cultivation techniques for rice were distributed to a variety of areas such as rice-planting, harvesting · manufacturing, and processing through pilot projects.
- In particular, the wide use of protected semi-irrigated nursery, among various seedling techniques, gave rise to early- planting culture and stabilized rice farming in highland fields.
- The building of joint young seedling places which took place as a pilot project to promote technologies in 1991, gave rise to a new type of rice farming without seedbed. In recognition of its remarkable contributions to cost reduction and efficiency growth, it is viewed as the 'Second Green Revolution'.

○ With the industrialization of the economy, the rural population which stood at 15.91 million in 1965 (55% of the total population) shrunk to 6.07 million 1991 (14% of the total population). At the same time, the country also faced challenges stemming from aging of the population and increases in female. Under these circumstances, labor reducing cultivation method was considered more important and consequently the equipment for young seedling transplantation and combines for harvesting became widely used.

- The pilot project to distribute young seedling transplantation machines was conducted in 1990 for 17,000-hectare fields, which later expanded to 395 hectares in 1992 in three years. Since it was contributable to the reduction of KRW 56billion cost and 3.45 million labor force, it is viewed as the most outstanding achievement of Tongil rice.
- However, from the late 1990s, more and more transplantation methods for labor saving had been developed, leading to the decline in the use

of the machines for young seedling.

Table 4-3. Distribution of Young Seedling Transplantation

Unit: 1,000 ha

Year	1990	1992	1994	1996	1998	2000	2002
Areas	17	396	523	302	200	164	147

Source: The Ministry of Agriculture and Forestry (1990～2002 Results of rice planting)

- In terms of rice harvest, with the growth of combine supply (56 in 1975, 1,211 in 1980, 43,954 in 1990, and 86,982 in 2000), 98% of rice harvest were dependent on combines.

Table 4-4. Machinery Use for Rice Cutting

Year	1986	1987	1988	1989	1990	2000
Use of Machinery	18.2%	49.3%	61.5%	70.3%	80.1%	98.0%

○ As mentioned above, development of new varieties, distribution of cultivation technologies, machinery-based labor saving cultivation techniques all have remarkably contributed to enhancing productivity and production capacity. And the detailed improvements that were achieved for agricultural production are as follows.

- Growth in rice yield, following the spread of Tongil rice were the key causes of rural income growth.
- Average annual rural income which was around KRW 429,000 in 1972 jumped to KRW 1,156,000 in 1976, and along the way Tongil's contribution to the growth increased by between 11 and 14%.
- Higher income meant stronger purchasing power which laid a foundation

for industrial development. In the meantime, high self-sufficiency enabled the country to save money which otherwise it should pay to importing countries, which ultimately accelerated economic growth.

- Furthermore, the successful distribution of new varieties strengthened the public's trust in the government while its tangible results, in other words higher yield, raised the public awareness about the value of scientific agriculture.
- The success of group farming led to the transition of farming style from individual one to joint activity and had a great impact on the cooperative production system.

1.2. Reduction of Rural Poverty through Nutrition Improvement Project

○ With a severe food shortage during the 1950's, one of the goals for agricultural extension services was improving nutrition in farms by improving diet.

- After the establishment of Rural Development Institute, extension services for improving diet mainly focused on providing new knowledge related with nutrition and cooking using easily accessible ingredients.
- The major contents focused on the development of flour based foods to replace rice, protein intake through bean consumption and growing of nutritious vegetables.

○ The Rural Development Administration founded in 1962 placed efforts in promoting flour based foods to reduce rice consumption, distribution of alternative meals and mixing other grains into rice for the purposes of reducing poverty in rural areas.

- Extension services were provided on the usage of barley press, farming of nutritious foods using idle plots, and demonstrative farming for the

promotion of sweet potato consumption.

○ Starting in July 1967, the Applied Nutrition Program (ANP) under cooperation from UNICEF, FAO and WHO contributed significantly in improving diet and nutrition and reducing poverty in rural Korea through large support including budgets, HR with expertise, equipment and vehicles.

- The ANP was implemented for some 20 years under the goals of improving grain-based diet of Koreans, increasing production of nutritious foods, attaining self-sufficient food supply, and improving physical development of Koreans.

○ UNICEF and the Rural Development Administration extended the cooperative agreement for 2 to 4 time extension plans with contribution by rural Korea bought highly for this ANP on improving diet and nutrition for farmers.

- Visible achievement was seen with the expansion of the ANP to cover a total of 1,847 villages from 1974 to 1981.
- Starting in 1978 when the 4th extension plan was implemented, the ANP was focused on improving children's nutrition. Thus, existing demonstration villages under the ANP were transferred to local governments to promote villages focusing on children's nutrition. And based on the fifth 5-year plan (1982~1986) for improving nutrition for rural Korea, these villages were fostered under UNICEF's support where USD 320,000 in foreign funds and KRW 583 mil were poured into these villages.
- Extension services for villages that were under the UNICEF supported program for improving children's nutrition in December 1986. However, this program continued in 1987 under domestic support where 11 villages were newly designated to be included in the program, focusing on building of lunch facilities for children and providing children with main and supplementary meals.

- Until 1989 a total of 88 villages were under this program of improving children's nutrition, providing extension services for providing weaning foods and lunch for before school age children. After 1990, the program was transferred to local governments for voluntary management.

○ Kitchens and group lunch facilities were under operation starting in 1974 to reduce food waste coming from cooking of and providing lunch with Korean foods; a thorough hygiene management by utilizing scientific facilities and cooking utensils; and providing a balanced nutrition.

- Group lunch facilities that can cater to more than 50 individuals were operated on a demonstration basis at the central government level including at training centers of Saemaeul Movement leaders and training centers for farmers at the Rural Development Administration. At the local government level, they were operated at 4-H club training centers of each province and training centers for farm leaders of cities and Kuns.
- These facilities were used as training centers for trainees on nutrition and as exhibition centers for improving diets of Koreans; thus, they contributed toward attaining self-food sufficiency.
- Central government support for each facility was KRW 400,000 in 1974, KRW 800,000 starting in 1977, and KRW 1 mil in 1984 when a total of 192 facilities were established.

Table 4-5. Results of Applied Nutrition Improvement Project

Category	1965~70 (Main program	1971~73 (1st extension)	1974~76 (2nd extension)	1977 (3rd extension)	1978~81 (4th extension)
1. Fostering of demonstrative villages					
○ Applied nutrition demonstration villages	171 sites	276 sites	380 sites	220 sites	800 sites
○ Children's nutrition demonstration villages	-	-	-	11 sites	11 sites
2. Survey of basic food and diet information					
○ Food intake survey	16 villages	46 villages	27 villages	10 villages	20 villages
○ Health status survey	8 villages	46 villages	24 villages	10 villages	20 villages
○ Eating habit and food to avoid survey	26 villages	46 villages	-	-	-
3. Nutritious food production					
○ Protein food (soybean)	8,867 homes	44,724 homes	116,684 homes	13,171 homes	148,000 homes
○ Protein food (chicken)	933 homes	8,487 homes	32,648 homes	17,032 homes	120,000 homes
○ Calcium food (goats)	1,657 homes	8,814 homes	7,910 homes	2,344 homes	17,000 homes
○ Vitamin food (green and yellow vegetables)	17,022 homes	75,826 homes	137,753 homes	47,416 homes	138,000 homes
4. Homes for nutrition improvement	171units	276 units	380 units	220 units	800 units
5. Group lunch facilities	-	7 sites	39 sites	50 sites	33 sites
6. Cooking to replace rice	-	Potato cooking:24 kinds	Sweet potato, potato, rabbit cooking: 115 kinds	-	-
7. Clean wells	356 units	730 units	-	-	-
8. Nutrition education					
○ Counselors	2,500 individuals	4,700 individuals	5,700 individuals	4,700 individuals	10,000 individuals
○ Village leaders	63,200 individuals	129,200 individuals	2,067,000 individuals	94,000 individuals	190,000 individuals

Source: The Rural Development Administration, 2008, 『Book 9, Modern History of Korean Agriculture』, p.435

○ In other words, the applied nutrition program was implemented for a long time through extension services for rural Korea to fight poverty. And as a result, it contributed greatly to reduce poverty among farmers with lower incomes compared to urban people who could improve diet on their own.

1.3. Improvement of Rural Living Conditions

○ The efforts to improve the foundation for settlement in rural areas started in a full scale in the 1950's and 1960's.

- These efforts started when rural Koreans accepted the local community development program that focused in improving their own communities through active participation and pursued the program in a productive way.
- The program was implemented for the first time in 1957 and the local society development pledge was adopted in the same year. In 1958, 12 communities were designated for demonstration purposes. As a result, local people voluntarily pursued the development of local resources and income creation through this development, and improving living environment for rural areas.

○ Later until the 1980's, problems were pointed out on rural development that centered around villages. And consensus was reached that rural development should be pursued by integrating an area of settlement to include the center and the periphery that can complement each other to expand each area. Thus, rural development was pursued extensively and comprehensively under the goal of comprehensive development of farming and fishing regions.

- Related agencies pursued various methods of development of farming and fishing regions in the late 1980's. Development units were reduced

to the Myun unit, in which among 1,220 Myuns, the program for general settlement was pursued in 758 Myuns and the rural development program in 399 and the comprehensive island development program for 53 islands.

○ In the 1990's various settlement infrastructure plans and programs were pursued based on specific units and Kun-unit based rural development programs transformed to the Myun-level settlement development plans.

- The development program for settlement-centered living districts was the major program pursued by the government to improve the infrastructure for settlement. By improving Myun unit settlement infrastructure, these extension services carried a significant meaning by recovering rural settlement by satisfying basic needs of rural Korea.
- The program to develop living districts of settlement provided the financial foundation for the Act on "reforming farming and fishing regions" in 1994. And this infrastructure development program improved a poor living environment and provided various infrastructure and facility programs so that they could be pursued consistently from a comprehensive view point, contributing significantly to the activation of local economies and improving awareness on settlement.

○ In the 2000's, most programs from the 1990's were continued to be pursued but theme-pursuing rural communities and voluntary reform programs by local governments were different from the previous decade.

- The program on demonstration IT villages that started in 2000 contributed in the distribution of high-speed Internet services to marginalized rural regions and the provision of IT contents such as e-commerce to these regions. And 25 villages were designated to pursue the program promoting informatization living among these people, vitalizing local economies and increasing local incomes.

- In 2001 the Ministry of Public Administration launched the pilot program for forming beautiful local communities in which under this program, environmentally friendly facilities for comfortable living and reform of income creating facilities by designating villages by theme such as “transnational rural type”, “21st century leading type”, “type for eco-friendly green tourism” and others.

Table 4-6. Living Conditions Development Project by Year

Program title	'90~'94		'95 performance		Total	
	Business volume	Program costs	Business volume	Program costs	Business volume	Program costs
Culture village formation -complexes and waste water treatment facilities	32 districts	1,025	19 districts	700	51 districts	1,725
Village infrastructure reform -village roads, water and sewage, street lights, parking lots	465km of roads etc	1,408	142km of roads etc	393	607km of roads, etc	1,801
Road improvement -roads, bridges, stations, etc	1,050km of roads etc	2,272	141 km of roads etc	496	1,190km of roads	2,768
Culture and welfare facilities -community centers, welfare centers, etc	357 buildings	332	114 buildings	110	471 building	442
Industrial infrastructure in rural Korea -depots, storage, etc	73 sites	464	13 sites	155	86 sites	619
Improvement of rural housing	13,883 buildings	1,606	3,236	535	17,119	2,141
Plan setting, etc	-	398	-	92	-	490
Subtotal		6,480		1,781		8,261
Total		7,505		2,481		9,986

○ One of the extensive services pursued in rural Korea was the program to improve the living environment with the purposes of improving poor living conditions and the quality of life significantly improved the overall settlement infrastructure in rural areas.

- The improvement programs for farm housing and hygiene/ sanitation was pursued in the 1950's, and in 1960's the programed included in the expansion and improvement of infrastructure of facilities and improvement of living environment.
- Agricultural development funds were provided to 56,000 farm households in 1980's to actively pursue the program to improve living environment in rural areas when the structure of traditional Korean houses centering around kitchens, sewage and working environment was improved, and traditional practices related with housing were changed to create a productive working environment.
- In 1990 the Act on Special Measures for Rural Development was adopted in which 40,000 rural houses were renovated using rural development funds and standing kitchens were introduced. During the same year, the "campaign to help in the improvement of living conditions in hometowns" was carried out, improving living conditions for 16,608 houses using a KRW 30.1 billion fund commissioned by an agriculture-related agency.
- In the mid 1990's special fiscal loans for the improvement of rural structure were provided to support various programs to improve kitchens and bathrooms. And the attempt was made to distribute a hot water boiler using the sunlight.
- In 2001 the program for building environmentally friendly bathrooms was pursued in which KRW 2.8 mil in loan was provided to each household, helping 183 rural homes. Later until 2004 this support was expanded to public facilities.
- From 1983 to 2004 a total of KRW 292.3 billion in loans was granted to rural houses through the program for the improvement of living environment. As a result, 173,000 homes could improve kitchens, bath-

rooms and various other facilities.

- This program became the face of all programs for rural living condition improvement and improved living environment and the quality of life for farmers and fishermen and contributed significantly in boosting the efficiency of farm work.

1.4. Efficient Use of Agricultural Resources

○ Utilization of rural resources was one of the important agency in agricultural extension services related with restructuring of the agricultural industry and vitalizations of rural economy.

○ The Korean government pursued to many rural resource development programs including traditional farming theme villages, green villages offering the experience of farm life, and comprehensive rural development by linking to agricultural extension services.

- On the other hand, civic organizations such as the "rural amenities research committee" were organized voluntarily to develop local amenity resources and connecting them to tourism.
- By 2006 more than 500 rural tourism attractions were created including 190 green villages offering the experience of farm life, 97 traditional farming theme villages, 75 villages for experience of rural life.

○ To attract rural tourism, the Ministry of Agriculture and Forestry in 2002 designed 18 villages throughout Korea as green villages for the experience of rural life where the Ministry helped to improve their infrastructure such as public parking lots, road signs, nature trails, etc and provided training and counseling.

○ The Rural Development Administration researched about traditional local

culture and knowledge and organized a place where rural people could experience and learn about their culture and share knowledge. And the agency pursued the program for traditional farming theme villages to boost farm income and continue on with unique local culture.

- The major contents of this program included offering the experience of farm life were development of facilities for farm-life experience and stores, information centers, renovation of village surrounding, accommodations and amenities, and software including consulting, education and marketing.
- In 2002 the concept of "traditional theme villages" was established, medium and long-term plans were adopted, and offered training for leadership and service processes for village leaders.
- The program of forming theme villages were based on developing the theme of discovering traditional culture and knowledge for the purposes of promoting harmony among rural people, reviving local communities, and vitalizing local economy.

○ As urban people's demand for tourism and their interest in rural Korea increased, the importance of various rural resources were highlighted and an effective usage of rural resources contributed in increased income and economic development of rural Korea.

- The Ministry of Agriculture and Forestry in 2001 came up with the "measures for increasing rural competitiveness and income" and adopted the strategy to increase income for rural people as the major strategy for achieving these measures to pursue the program.
- The purposes of the major program on rural resource development lied in utilizing rural resort resources and increasing rural income based on urban-rural exchanges in which major contents included the formation of farms for tourism purposes, resort complexes and bed and breakfast

villages.

○ On the other hand, the rural resource development research center of the Rural Development Administration conducted the program for “research on rural amenities resources” starting in 2005 in order to collection information, contents, pictures related with rural amenities resources and by doing so it pursued a systematic management of rural resources. And the center was lauded for contributing to increasing the quality of life in rural Korea and boosting income from non-farming related areas.

1.5. Strengthening of Rural Community Unity

○ As mentioned earlier, agricultural extension services were initiated at a full scale in the 1960’s, after which training centers for organized centering around farmers and collective education was provided through these centers.

- To achieve success in group-format training, it was important to boost the awareness among all participants including participating students who were farmers and trainers who leaders in rural Korea that they are under one community. And agricultural extension service took long time to boost this awareness.
- Major projects pursued to boost this awareness focused on the fostering of 4-H club leaders and rural leader communities, and research conferences for farmers.

○ The 4-H movement that kicked off in 1947 was a movement to enlighten rural people on their awareness to pursue responsibility and freedom, develop knowledge and capacity, foster communities, and produce people volunteering for others.

- The 4-H movement let the young to participate in the movement volun-

tarily, contributing for them to share community awareness being considerate of others and fostering magnanimous local leaders who could understand differences.

- The effort and investment for fostering future leaders who could work with others became a huge spirit booster for rural people in living a healthy and full life.
- Furthermore, the development of industrialization demanded rural young people to go to cities for jobs. And the 4-H movement fostered young people having community spirit who could play a leading role in conducive working atmosphere and increasing productivity in urban work places. Thus, the movement affected positively throughout the society.
- One of the most important factors that resulted in a successful Saemaeul movement in the 1970's was the 4-H movement that fostered leaders who could play a leading role in forming consensus among differences.
- In overall, young and able young talents who received training by and for community played an instrumental role in boosting agricultural productivity and improving lives and living conditions in rural Korea.

○ The rural leaders committee became active starting in the mid 1950's when the 4-H movement also kicked off. And rural leaders promoted cooperation and self-help spirit among rural people.

- Their activities played a central role in boosting community spirit among rural Koreans. And they organized and operated a collective training system and led various demonstration programs through cooperative agricultural activities with members under this system, contributing significantly to local development.

○ For research conferences among farmers, individual training efforts changed to collective training efforts in 1997 when the central government transferred much of its functions to the local level, initiating the efforts for the develop-

ment of production technology for high-quality agricultural goods and the development of region-specific technology.

- The main purpose of these conferences lied in boosting farm income by improving weak competitiveness of individual farm households. Their activities were based on the platform that included voluntary participation, information exchange and boosting cooperation among members.
- In other words, these conferences became active based on the thinking that consideration of others is vital in order to share individuals' knowledge with others and this type of consideration would eventually return as increased income for individuals.

○ It was clear that various factors played the successful settlement of agricultural extension services in Korea. But it is also important to realize that those who had participated in agricultural extension services voluntarily and actively pursued to boost community spirit.

- The agricultural extension services that had been pursued in Korea in most part feature the social movement aspect. And considering the fact that success and failure of a social movement depends on the level of community spirit, this spirit among rural regions contributed significantly to the success of these extension services.
- Korea sought for the community spirit unique to Korea through its long history. And the fact that these extension services were pursued by focusing on an effective realization of this community spirit has many ramifications for other countries that want to pursue and modify agricultural extension services in the future.

1.6. Development of Agricultural Professionals

○ Agricultural extensive services mean the expansion of education or training.
  - One of the ultimate purposes of education is fostering experts in the specific field and because of the unique nature of these services, the focus has to lie in boosting the level of education of regular farmers residing in rural areas.

○ Agricultural extension services in Korea also placed in fostering experts in agriculture through education and archived significant effects.
  - Education was pursued in all areas, and this paper discusses focusing on training and education for farmers, training and education on farm machines, and fostering of experts through the establishment and operation of Korea National College of Agriculture and Fisheries (KNCAF).
  - The former two pursued two purposes including increasing the level of education for regular people and fostered farm experts. But the last subject, i.e., pursued fostering of agriculture experts through the operation of KNCAF. In other the former two subjects and the last one differ slightly in their innate purposes.

○ The fact that Korea fostered agricultural experts through its extension services is dealt in depth in the previous pages.
  - The unique feature of various education programs under agricultural extension services related was that the fact that the purposes of training and education were classified by category and the method of education befitting a specific category was utilized.

○ Focus was placed on training and education for farmers early on and much effort was put into this area through such initiatives as the establishment and operation of KNCAF.
  - The contents and methods also included all aspects in which education

on overall areas of agriculture centered around the distribution of new technologies and many programs were pursued in a cooperative-format in order to promote farmers' active participation.

○ The major purpose of training and education on farm machines lied in fostering experts in farm machines by providing them with professional training by selecting core personnel from the area. This program contributed greatly in agricultural mechanization initiatives.

- Efforts were also made to set up education facilities and equipment needed for effective training on farm machines. Starting in 1982 the central and local government budgets were put into this area annually and as a result, most of these facilities could be well equipped.
- On the other hand, the effort was also placed in publishing training manuals. They were made by machine for easy understanding by farmers utilizing animation, graphs. pictures, etc. in the book, booklet, leaflet, map, slide, VTR, movie formats. These materials were utilized to draw farmers' interest for training at the city and Kun levels and evaluated to be a huge success.

○ The highlight of education related with agricultural extension services was the establishment and operation of Korea National College of Agriculture and Fisheries (KNCAF).

- It was true that education of farmers and farm machines played a large role in fostering agricultural experts. However, some aspects of this type of education had limitations based on the fact that the farming population and farm-related experts decreased drastically in the 1990's.
- In other words, special measures could have been needed to foster professional farmers.
- Considering these changes with time, the establishment and operation of KNCAF propose many ramifications for other countries.

- Above all, the fact that more than 95% of KNCAF graduates are in the agricultural industry suggests that this type of education has been very effective.
- Securing professional farmers in numbers promoted the development of rural Korea, which is also very encouraging.

1.7. Wide Use of Eco-friendly Agricultural Techniques

○ As discussed earlier in the developmental stage of agricultural extension services in Korea, agriculture in Korea attained self-sufficient supply of food through the policy of expanding crop production. However, during this process, the country also was faced with the problems such as increased uses of pesticides/herbicides and chemical fertilizers, pollution due to increased livestock manure, etc.

- At the same time, along with the continuous development of farming, the interest increased in the maintenance and preservation of the platform for farming, environmentally-friendly agriculture based on increased demand for safe farm products, etc.

○ The promotion of environmentally-friendly agriculture started in a full-scale at the national level in the mid 1990's.

- In 1994 the Ministry of Agriculture and Forestry set up the department for environmentally-friendly agriculture to actively pursue environmentally-friendly agriculture and proposed the policy for environmentally-friendly agriculture toward the 21st century in 1996.
- In December 1997 the Act on the Encouragement of Purchase of Environmentally-Friendly Products[4] was adopted and proclaimed, specifying the concept and purposes of environmentally friendly agriculture.

○ The promotion of environmentally friendly agriculture in Korea was pursued by distributing environmentally friendly agriculture technologies through agriculture extension services. Examples included services for the reduction of pesticide/herbicide and chemical fertilizer usage, the system of direct payments to farmers, and certification for environmentally friendly farm products.

○ When environmentally friendly agriculture drew interest, the Rural Development Administration that oversees agricultural extension services restructured its organization in February 2004, when the agency restructured the office of rural support to the department of environmentally friendly technology and newly set up the department of environmentally friendly agriculture under the bureau of agricultural product safety at the National Institute of Agriculture Science and Technology. In other words, the Administration focused on research and extension services functions on environmentally friendly agriculture.

- In short, the major effort was placed in the development and distribution of latest technology needed for integrated management of pests (IPM), integrated management of crop nutrients (INM), integrated management of livestock waste (IWM), integration of latest engineering and biological technology.
- With the implementation of integrated soil nutrient management (INM) for the purpose of reducing chemical fertilizers, 148 labs for soil analysis were set up under agricultural technology centers throughout the nation. And more soil analysis labs were set up in some agricultural coopera-

4) The Act on the Encouragement of Purchase of Environmentally-Friendly Products states that environmentally friendly agriculture means farming that pursues sustainable farming by combining agriculture and environment to secure viable production, environmental protection and safe agricultural products at the same time.

tives to provide information on right fertilizer application.

- Furthermore, a web site was set up to provide soil environment information. And extension services were provided on technology for the preservation of soil environment and improvement of soil quality with the reduction of fertilizer usage.
- With the implementation of integrated management of pests (IPM), pest watch centers (1,043 site) and pest prediction centers (151 sites) were installed to reduce the usage of pesticides by guiding farmers for timely pesticide use. And natural enemies of pests were mass produced and distributed to farms.
- On the other hand, “environmentally friendly agriculture” manuals including the contents of demonstrative research on environmentally friendly agriculture and new technology on organic farming was published. And these manuals were distributed to farmers and related institutions.

○ The purpose of the direct payment program for environmentally friendly farm products that implemented for the first time in 1999 was to compensate for losses for those farms producing environmentally friendly farm products in order to promote environmentally friendly agriculture.

- To review whether the payment for the program of direct payment on paddy farming was conducted accordingly, soil sample analyses were conducted at city and Kun agriculture technology centers. Extension services were provided for the utilization of grain fertilizer testing, farmer training, on-site training, fertilizer usage.

Table 4-7. Results of Eco-friendly Direct Payment Program

Unit: ha

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Performance	10,269	10,459	10,480	5,274	10,459	12,354	20,780	34,896	45,434	72,444

Source: The Ministry for Food, Agriculture, Forestry and Fisheries, 2009

○ Certification on environmentally friendly farm products is pursued to preserve agricultural environment, reduce environmental pollution from farming, protect consumers from false marks of environmentally friendly farm products, and establish the production and supply system for environmentally friendly farm products.

- Certification on environmentally friendly farm products is based on the Act on the Encouragement of Purchase of Environmentally-Friendly Products and Enforcement Regulations of the Act on the Encouragement of Purchase of Environmentally-Friendly Products.
- Upon request by producing farms, the related agency inspects conditions of production and quality management status, notifies the farm of whether being certified, and investigates shipment process. And the farm that passed all these processes can place the mark of certification on their products before shipment.
- In 2008 the areas of environmentally friendly farm product cultivation and certified product volume was increased to about 10% of total agricultural products. Based on 9.9% of cultivating land used for certified products, 6.8% was low-pesticide used; 2.4%, no pesticide; and 0.7%, organic products.

Table 4-8. Changes of Certification of Eco-friendly Agricultural Products by Year

Year	1999	2000	2002	2004	2006	2008	National Share (As of 2008)
Number of farm households	1,306	2,448	11,892	28,985	79,635	172,553	14.2%
Uni(1,000ha)	0.9	2.0	11.2	39.0	74.9	174.1	9.9%
Certified amount (1,000 ton)	26	35	200	466	1,128	2,188	11.9%

Source: National Agricultural Products Quality Management Service, Kim et al, 2009

○ As reviewed, agriculture extension services on environmentally friendly agriculture are pursued through various venues and achieved sizable results.

- The number of farm households that are into environmentally friendly agriculture has increased to more than 30,000 as of 2005. The volume of certified environmentally friendly farm products has increased to over 460, 600 tons as of 2004.

1.8. Multi-functionality of Rural Regions

○ Multi-functionality of rural regions is producing market goods and non-market goods in combination within rural regions.

- In other words, if the production of agricultural goods produced is the major market goods, non-market goods may include the function other than the production of the market good such as the production or expansion of home land, rural employment promotion, environmental protection, food security, traditional cultures, etc.

○ Not only the production activities in rural areas, the fact people have created

a settlement system is important for multi-functionality, and this importance is being highlighted in modern society where multi-functionality is becoming more so.

- Settlement activities by people accompany many functions, in which spaces that allow severely limited functions bring about side the effects that limit human activities, playing a decisive role in bringing down the quality of life for humans within the living space.

○ Oh et. al.(2004) estimated the value of rural multi-functionality of Korea to be around KRW 28.37 trillion a year, which would be 1.4-fold of GDP from agriculture and 1.7-fold of GDP from the cultivation industry.

- In other words, this value suggests that non-economic effects of agriculture are much bigger than economic ones.

○ Other than agricultural production, multi-functionality of rural regions lies in the promotion of rural vitality, regionally-balanced development, preservation of environment and ecosystems, preservation of rural amenities, reduction of natural disasters. The details are as follows:

- Creating income and letting people live in rural regions by providing jobs in these regions through agriculture would vitalize local economy and develop the nation in a balanced way by maintaining and preserving local SOC.
- Rural regions not only conduct the function of various environment preservation functions through the production process of farm goods but also are the central points for environmental protection with their natural environment.
- Rural regions also have emotional, cultural and esthetic functions by providing green sceneries and resting and recreational spaces for urban people and being conducive to emotional development of urban children.
- At the same time, rural regions also contribute to the prevention of natu-

ral disasters by functioning as dams that soak water during rain.

○ Agriculture extension services also plays direct and indirect roles in the expansion of rural multi-functionality.

- They strive in the effort toward the distribution of technology for the purpose of promoting agricultural productivity and attempted and conducted various efforts at the multiple levels to conduct economic and public functions from the aspects of environmental protection, traditional cultures and living spaces.
- As discussed earlier, the major functions and roles of agricultural extension services in Korea, i.e., the distribution and education on farm technology, development of rural resources and living conditions, and education and fostering of farmers, affected in the expansion and improvement of rural multi-functionality.
- The market goods function of rural region has been emphasized through the distribution of technology, whereas The non-market goods function, through the development of rural resources and living standards. From a bigger perspective, the fact that human resources who could lead multi-functionality on their own through the education and development of farmers also improved this multi-functionality of rural Korea.
- The importance of rural multi-functionality is being highlighted through various advertisements, the Internet, events, etc.

○ Social awareness on the importance of rural multi-functionality was lagging in the 1950's when agricultural extension services were launched. And in recent years, its value and important are being highlighted.

- To meet this change with time, agricultural extension services in Korea are pursuing actual case studies and practical research and specific system to further boost multi-functionality to strengthen rural multi-functionality. And these efforts are reevaluated from various viewpoints.

2. Key to Success

○ In order to share Korea's experience and knowhow with developing countries, it is needed to deeply analyze the success of the Korean extension service.

- The key to success should be fist conceptualized, so that people would easily understand its distinctive features.
- With broad understanding of all aspects of the success, developing countries will be able to apply the lessons they learned to their actual policy making process.

○ The Korean extension service is composed of various elements such as the government policy measures, the introduction and development of agricultural technologies and sound infrastructure which brought these efforts into a reality.

- In this respect, how the various elements worked together is prerequisite to understanding the success of Korea.
- In this research, what kinds of efforts have been made regarding these elements are throughly examined.

2.1. The Government's Strong Will to Develop Policy Measures

○ As mentioned in previous sections, one of the key aspects behind the Korean success is the government's efforts to develop proper policy measures,

- In fact, the Korean government's role in executing the agricultural policy was very critical. Most of measures were developed and implemented by the central government.

- This is well evidenced by the fact that the establishment and the operation of budget and the organizational structure of Rural Development Administration, a leading organization for the extension service, has been led by the government.

○ The government-led agricultural extension service since the 1950s is composed of a large number of projects and it is no doubt that the government was very proactive in developing and executing those projects.

- The success of all the development process of the extension projects including the implementation system, extension methods, organizational structures, and hiring of extension workers as well as its major functions and roles such as the distribution and training of agricultural technologies, rural resource development and living improvement, and farmers education were mostly attributable to the government's concrete policy measures.
- Considering the fact and the main policies mentioned above along with other specific measures cover a variety of aspects, the government's policy is very extensive and broad-based.

○ Such measures pertaining to the rural extension well reflected the characteristics of the Korean society of the time.

- Since western countries like the European nations and US experienced democratization for a long period of time, solidifying localized administration, the municipal government's played a bigger role in conducting the extension services.
- By contrast, due to the colonization by Japan and the Korean War, before having enough time to establish localized administration policy, the country should enhance rural development and farmers' welfare through the extension service. Therefore, it was inevitable for the central government to play a leading role for the project.

○ However, since 1997, in line with the localization of the country, there has been a comprehensive change in the extension service. And the central and local governments established efficient cooperation system which is still in place.

- While the central government strives to develop and decide policy measures, the municipal governments act both as a coordinator who adjusts the measures for different conditions of each region and as an subsidiary organization for implementation of them.

○ Although the government has made various efforts for the project, its strong desire to change rural areas was the most important one.

- As the previous statistics shows, increases in agricultural production was a very distant goal with the decreasing rural population and the lack of infrastructure.
- Despite these difficulties, the Korean government did everything it could do to increase agricultural production and improve rural living conditions, which would lead to stronger competitiveness. To be specific, the government tried to understand the changing environment and learn from advanced countries so that it could develop policies suitable for the Korean situation.
- In addition to that, it worked hard to increase efficiency of policies and tired to listen to various opinions of farmers who were in fact the users and operators of policies.

○ In a nutshell, the government played a determinant role in establishing a successful extension structure where the peculiar characters of the Korean rural areas were reflected and was undoubtedly a cornerstone of the extension service.

2.2. The Community Members' Participation

○ Other important aspect behind the Korean success is the fact that the agricultural project was implemented by communities's own organizations.
  - The good examples are 4-H movement, agricultural extension workers association, farmers' study groups, and Saemaeul Movement, which significantly contributed to the successful execution of the service.

○ Traditionally, Korean rural communities have been organized based on social organizations
  - Since most of peopled lived in one community for a long time, they naturally formed various social organizations within their community. In this respect, those organizations are democratic and progressive.
  - Various types of groups based on families, marriages, commercial interests were formed and members of the groups helped each other.

○ Since the Korean government was well aware of the distinctive nature of the Korean communities, it pressed ahead with region or village-based projects. That is, farmers who were the final operators and beneficiaries of the rural extension service were encouraged to play a leading role.
  - Between the 1960s and 1970s, agricultural improvement clubs, living improvement clubs and 4-H clubs were formed. And similar types of village-based groups were continuously created for the extension project.

○ If the government's policy is favorable to certain groups of people, it is likely to cause conflicts between groups, so it is not easy to implement policies in an efficient way.
  - For this reason, the government's measures should be well understood among regional groups and farmers and implemented only with an agreement of them. In other words, such measures will reap positive results only when conflicts are minimized.

- The government's focus on village-based groups was a very adequate way of conducting the service in that it allowed for efficient implementation.
- The essence of the rural extension service is improving the quality of life and welfare for individual farmers. In this regard, the fact that farmers were in the lead for the projects contributed to inspiring them to work harder and enhancing their pride.
- It is fair to say that the success of the rural extension service was possible since the government's strong will was combined with the people's active participation.

2.3. Introduction and Development of Advanced Technologies

○ The major element of Korea's extension project was to introduce and develop advanced technologies.
  - This is because advanced techniques were vital to improving agricultural productivity and the qualify of life in rural areas.

○ However, those technologies are meaningful only when they are applicable to actual farming.
  - If farmers cannot apply the up-to-date technologies to their actual life, it is useless to invest in those techniques.

○ While striving to adopt various useful technologies through its extension project, Korea also made great endeavors to develop more proper ones for the country's rural conditions.
  - One of the distinctive features is that most of them were reviewed by domestic research institutes for actual application and then tested by regional research and application centers before being introduced to farmers.

○ When it comes to the rapid spread and development of technologies, several research institutes under Rural Development Administration, regional administration, and municipal governments' researcher centers played a vital role for that.

- The organizations were devoted to turing new technologies into practical ones. Without their efforts, it might have taken much longer to make them widely used in the nation.

○ In particular, one of Korea's great success over the last 60 years in terms of development and spread of up-to-date technologies is undoubtedly Tongil rice.

- With the development of the new variety, incomes of rural communities had remarkably increased, which are unrivalled by other techniques.
- Increases in rural incomes are estimated to be around 11~14%.
- In addition to that, it is beyond question that while only 7.5% of the population was engaged in agriculture as of 2005, Korea's rice self-sufficiency were kept high, mainly thanks to Tongil rice.

○ Aside from Tongil rice, Korea also developed various types of rice and new technologies through its agricultural extension project. As a result, the country's agricultural productivity and production capacity have considerably enhanced.

- The successful development of new techniques not only gave momentum to the government-led extension project but also solidified the public trust in the government. In addition to that, the value of scientific agriculture received great attention.

2.4. Building of Infrastructure

○ Building infrastructure for the development of agriculture and rural areas is very critical in that it strengthens the agricultural foundation and increases the possibility of success.

- Without proper infrastructure in place, it takes long to achieve a goal and it is almost impossible to make results even with good policies and competent human resources.

○ Korea's extension project focused on laying foundation for agricultural production and establishing sound social infrastructure.

- Production-based infrastructure refers to the basic facilities required for farming such as water, irrigation facilities, roads, living environment, arable land management.
- Social infrastructure indicates the policy measures in support of agricultural production and rural development, implementation organizations, and human resources.

○ This is well evidenced by the fact that Korea's basic environment for agricultural production had been poor until the 1970s and the percentage of arable land under control was only 11%.

- The core program for building infrastructure for agricultural production was improving farmers' living resources, and regional development project.
- The two projects played a pivotal role in establishing sound infrastructure. Specifically, they made a significant contribution to improving and developing the overall production environment by laying the foundation for agricultural production through arable land management, river construction, and by improving living and working environment, and agricultural products processing techniques.

○ In addition to the basic infrastructure, proper social infrastructure is also very essential to the growth of rural areas.

- What kind of efforts Korea's extension projects have put in to establish social infrastructure has been already dealt with in previous sections.
- Such efforts clearly show that the Korean government has worked very hard to build social infrastructure and continued to advance relevant policy measures.
- In addition to building the physical environment, it is well known that the government also strived to foster human resources with capability to administer the measures and develop necessary educational programs with financial support.
- The rural infrastructure building and expansion was a core element of the government's measures for the success of the agricultural extension project, and the government still is continuing its efforts.
- Such the government's dedication is recognized as one of the greatest contributors to the early stabilization and success of the extension project.

○ In the meantime, the important issue relating to social infrastructure that should not be overlooked is to organize individuals and social groups within farming communities which are the basic units for the implementation of agricultural extension project policy.

- That is why the Korean government which was well aware of the significance pressed ahead with 4-H and Saemaeul Movement and worked hard to make them successful.
- Self-control and independent decision-making of villages and clubs were achieved thanks to strong trust and cooperation among community members, which is one of the most valuable advantages of Korea's rural communities.

- In the international stage, the government-led 4-H and Saemaeul Movements are highly evaluated as a successful model for poverty elimination and rural development.

Chapter 5

Summary and Conclusions

1. Summary and Conclusions

○ The goal of this study is to analyze the development process of Korea's agriculture extension services from the 1950s, its results, and the key to success in a comprehensive manner, so that it would help strengthen policy cooperation with advanced countries while sharing Korea's knowledge and experiences with developing countries.

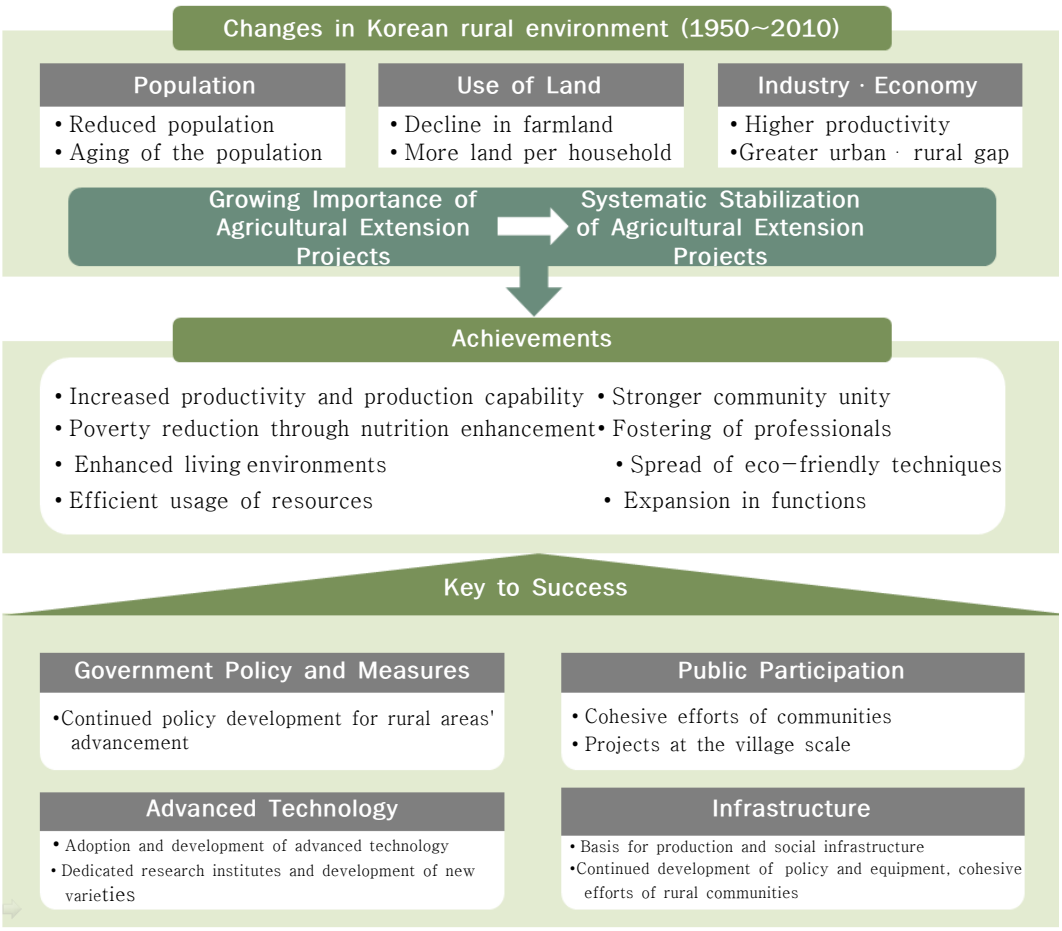
- In line with its purpose, this study first defined the concept of agricultural extension and the unique features of Korea's agricultural extension service while looking into the changes of Korea's rural areas.
- As for the development process of Korea's agricultural extension service, the process was divided based on the core functionalities such as the overall organizational structure, education methods, personnel, budget management, distribution of agricultural technologies and extension, agricultural resource development and living improvements, educational programs for farmers, while performance and results of the service were examined based on important periods.

- The last part of the research addresses the significant achievements of Korea's extension service based on the aforementioned examinations together with the key to success.

○ In conclusion, the outline of this research is as follows. (<refer to Figure Ⅴ-1>)

- The importance of agricultural extension service in Korea continued to grow in order to develop Korea's agriculture industry and enhance its competitiveness. And it is fair to say that Korea's extension service has well responded to the demands of the changing environment while focusing on increasing efficiency.

<Figure 5-1> Summary of the Research



- By continuing its efforts for a long period of time, Korea succeed in improving agricultural productivity and increasing production capacity. At the same time, it has been making real progress in terms of poverty reduction in rural areas and better living environments.
- Besides that, the country also achieved positive results which include more efficient usage of agricultural resources, stronger unity of communities, fostering of agricultural professionals, spread of eco-friendly technologies and expansion of farming villages' functions.
- At the center of Korea's success was the central government's massive support which continued to advance policy measures, together with the proactive participation of people in rural areas.
- At the same time, a lot of efforts were made to adopt and spread advanced technologies as well as to build robust infrastructure necessary for the expansion and the success of agricultural extension projects.

○ As mentioned above, the comprehensive study of Korea's agricultural extension service is of high value in sharing the best practices with developing countries. It will be also used as practical reference for the countries in formulating more concrete policy measures.

- Sharing its knowhow and experiences with other countries will also be beneficial to Korea.

2. The Limitations of the Research and Issues for Future Study

○ This research is focused on analyzing the achievements of Korea's extension service and the key to success. From a broad perspective, this research has two limitations.

- One is that there were some restrictions in its examination into Korea's agricultural extension service while the other is it failed to do a broad-based analysis and examination due to limited materials.

○ Korea's extension service has been expanded to cover a variety of fields since the 1950s, mainly due to the extensive scope of the projects.
- For this reason, it is almost impossible for this research to examine all of the programs implemented over the last 60 years.
- Besides that, considering that the objective of this research is to strengthen policy cooperation with other countries, it is better to put an emphasis on the best practices of the country.
- However, the possibility cannot be ruled out that some elements of the projects which are not covered in this research are actually very useful information for some countries.
- Since every country is in a different situation, they may need different assistance in terms of the policy measures or have different purposes.
- Therefore, in order to share Korea's experiences, it may be necessary to make up for its weaknesses based on different situations of different recipient countries.

○ Although this research examined the details of Korea's extension service since 1950s, which underwent many changes, in a thorough manner, the data collected for this research is not sufficient.
- While the data relating to the service since the 1990s are well organized, those for between 1950s and 1980s are not properly collected.
- Due to the limitation, this research failed to provide extensive and detailed data.
- In fact, there are some weaknesses in the analysis on the achievements of Korea's agricultural extension service.
- For future researches, it seems necessary to add more data especially on

the results of the extension service and to conduct a practical and quantitative assessment.

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Establishment and Operation of Agricultural Extension System in Korea

등 록 제6-0007호(1979. 5. 25)
인 쇄 2010. 12.
발 행 2010. 12.
발행인 오세익
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