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Strategy for Creative Economy, and Vitality in Agriculture and Rural District

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- “KREI Agricultural Policy Focus” relates to analysis and description of the trend of and policy issues of agriculture and rural districts.
- This is also provided at the KREI website (www.krei.re.kr).

◇ **Abstract** ◇

The Korean government announced the ‘Scheme for creative economy-plan for creating a creative economy eco-system jointly with related ministries on June 4 this year. This scheme has 3 goals of creating new jobs and markets, enhancing global leadership with creative economy in the world, and implementing the society where creativity is respected and demonstrated.

Korea’s and global economic depression continues to result in low added value from agriculture and low farmer’s income to expand the income gap between urban workers and farmers. People expect great outcome from the strategy for creative economy suggested by Park’s government. The strategy for growth through the base of creative economy will be a scheme for new jobs and enhanced added values by consolidating innovative ideas from agriculture and rural districts into natural resources, science and technology.

The sixth industry of agriculture is one of important strategies for enhancing added values and creating new jobs through integration and consolidation between primary, secondary and tertiary industries by connecting processing, distribution and services centered at production of agricultural products. Added values are enhanced by processing raw agricultural products produced by farmers. Stable distribution bases are constructed to be beneficial to consumers to enhance surplus values between producers and consumers and will contribute to new jobs in the process of creating added values and connection between industries.

Recent integration of agriculture with ICT results in changing agriculture to a high value-added integration industry. Creative combination with ICT in all processes of agricultural product production, distribution and consumption enables smart agriculture to be shaped with precise production, efficient distribution and streamlined management. Agriculture integrated with life engineering becomes a new industry ‘life industry’, and will develop to be centered at the value of humans to contribute to consumers’ healthy living and welfare.

For creative economy in agriculture and rural districts, it is necessary to support creative human resources, to improve investment in and loans for R&D, to build a governance system for integration, cooperation and solidarity, to build a base for creative economy (regulation reformation, system overhaul, vitalized venture capital investment, expansion of management recovery system).

1. Current agriculture and rural economy, and necessity for new strategy

☐ Shrinking agriculture due to continuing free trade agreement

- Continuing free trade agreements (FTA) between Korea and EU, Korea and the US, and Korea and China for agricultural products inevitably accompanies shrinking agriculture together with the expectation of greater opportunities to go to the global market and more agricultural product export. It is necessary to seek a new growth engine and a complementary device so that agriculture and rural districts can effectively cope with FTA.

☐ Small farming scale in spite of improvement policy for agricultural structure

- It is revealed that the cultivated land per household was 1.46ha(1.163 million households, 1.698 million ha for cultivated land) in 2011. Since 1990, the number of farm households is reduced annually by 2.1%, and the cultivated land by 1.0%. Although the cultivated land area per household is slightly more than before, it is still small scale farming.
- Fast progress to large scale farming results from specialization and large scale farming by specialized farmers. In spite of worse trade conditions and lower profitability across agriculture, more and more capital-intensive agricultural entrepreneurs perform agricultural management for tackling adverse situations.
- Because specialized large scale agricultural entrepreneurs are the key group who owns or produces creative ideas in the agricultural field, a

scheme is needed to drive new growth in agriculture focusing on the group.

□ Poor quality of labor and low vitality in rural economy due to aging farming population

- Rapidly aging population is an important signal on a national basis, and rapid aging in agriculture and rural districts lowers the quality of farming labor and is a major factor to hinder the vitality in rural economy.
 - The age group of 65 years or older in farm household populations has changed fast from 16.2% (1995) → 21.7% (2000) → 29.1% (2005) → 33.8% (2011).
 - The age group of 50 years or younger in the farm household population has dropped from 74.1% → 66.9% → 60.7% → 55.8% in the same period.
- As a result, the aging population is a factor to hinder the vitality of agriculture and rural districts, for example, shrinking farming, and no investment in agriculture for the future. It is necessary to develop a scheme to encourage farming by attracting new workforce and combining science and technology with farming technology.

□ Low increase rate of employees in rural districts and smaller number of jobs in farming sector

- The increase rate of employees in rural districts is 0.32% which is even lower than 2.61%, the annual average employees in urban areas. The number of employees in rural districts is 4.82 million as of 2010, which accounts for 24.7% in the nationwide employees. Among the workers, 32.1% (1.55 million workers) are from the rural sector.

- Jobs in rural districts are created from the manufacturing business, and the service sector, for example, medical and welfare service. This implies the feasibility of the 6th industry based on local characteristics while jobs in the agricultural sector tends to be reduced.

□ Scheme for stimulating stagnant added value in agriculture and increasing farmer's income

- The impact of free trade agreement for agricultural products, aging, small scale farming and increasing management costs for farming contributes to stagnant added values in agriculture and farmer's income. The gap between urban workers and farmers continues to be greater.
- It is necessary to find a scheme for raising added values in agriculture and increasing farmer's income. Although the government continues to promote investment in R&D, the technology is not so advanced in comparison with developed countries and people say the technology dissemination system is yet refined. It is necessary to raise the level of technology by various steps of re-training and with specialized curriculum.

2. Strategy for growth based on creative economy

☐ **Scheme for using various and valuable resources in agriculture and rural districts**

- Although agriculture and rural districts own diversified and precious resources including natural resources and scenery resources, they are scattered, and even innovative ideas are not organically connected or connected with effective diffusion systems.
- It is time to develop a strategy of new growth based on creative economy originating from creativity through integration of new technology into agriculture by setting goals of each unit project including enhancing productivity, large scale, and workforce training.
- While bio-engineering, IT technology, science and technology develops fast, the resources of agriculture and rural districts are scattered and thus do not have an efficient integration and diffusion system. The synergy effect should be created through integration of resources in agriculture and rural districts with science and technology.

☐ **Creating new growth engine and higher values of agriculture and rural districts by integration and combination**

- The value of agriculture is enhanced by integrating the natural and local resources and creative capability of agriculture and rural districts with external innovative IT technology and bio-engineering.
- Connect agriculture with processing, distribution, tourism and service industries while agriculture is not just a primary industry for producing

agri-food and agricultural products. This contributes to creating jobs and vitalizing the rural economy.

- New growth possibility in agriculture and rural districts can attract people who want to create income therefrom. The value of agriculture and rural districts can be centered at the value of humans, not just a role for supplying agri-food to people.

□ Sixth industry of agriculture contributing to more jobs and vitalized rural economy

- The sixth industry of agriculture to connect processing and distribution with the service industry on the basis of production of agricultural products is one of the important strategies for enhancing added values and creating jobs through integration and combination of primary, secondary and tertiary industries.
- The first step is to process raw agricultural products produced by farmers to enhance added values, and to build a stable distribution basis to provide the products to consumers. This aims to enhance the benefit of both producers and consumers, and to create more jobs in the process of inter-industry connection and creation of added values.

□ Smart agriculture and new values through connection of agriculture with science and technology

- Combination of natural resources in agriculture and rural districts with IT technology enables new high-value added products to be developed and new markets to be sought.
- Fruits and vegetables available all year round is the outcome of integration of agriculture with bioengineering. Integration and combination of agriculture with bioengineering enables future agriculture to be facilitated and new values to be created.

Figure 1. Resources in agriculture and rural districts, and creative capability

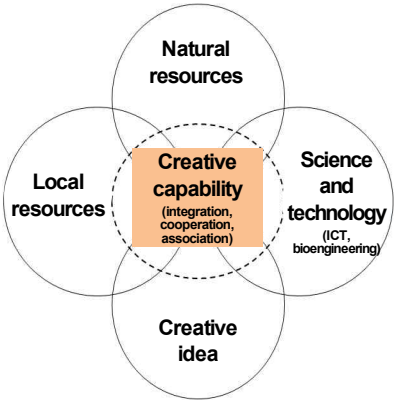
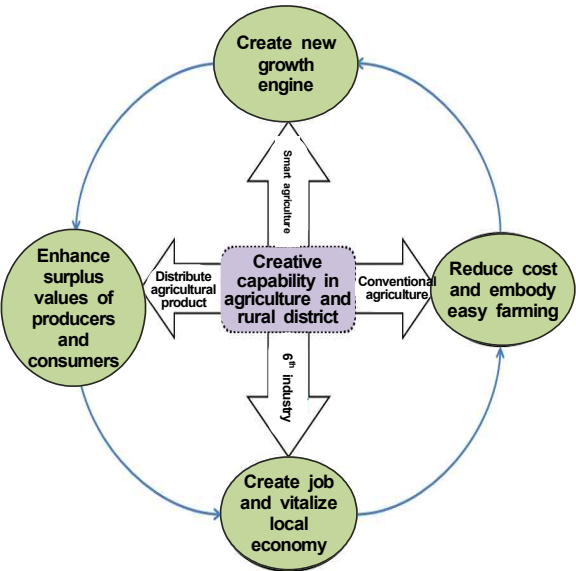


Figure 2. New growth strategy and effect thereof



[Reference] Project for each strategy to embody creative economy

(Ministry of Science, ICT and Future Planning. Scheme for embodying creative economy

- June 4, 2013)

Strategy 1: Create an ecological system to compensate creativity and to implement easy opening of new business.

- (Project 1-1) Expand investment in creative ideas and technology.
- (Project 1-2) Create the environment for easy opening of new business.
- (Project 1-3) Embody, protect and use ideas and technology as intellectual property.
- (Project 1-4) Vitalize commercialization of creative assets.
- (Project 1-5) Build a re-challengeable safety network.

Strategy 2: Venture, small and medium companies as a creative economy leader and advance to the global market

- (Project 2-1) Provide a basis for growing venture, small and medium companies.
- (Project 2-2) Support venture, small and medium companies to advance to the global market.
- (Project 2-3) Promote mutual cooperation between large, small and medium companies.
- (Project 2-4) Address difficulty of venture, small and medium companies, for example, workforce recruitment.

Strategy 3: Create a growth engine for finding new industry and new market.

- (Project 3-1) Create vitality for new growth of existing industries by integrating science and technology with ICT.
- (Project 3-2) Support SW and Internet-based new industry and high-value added contents industry.
- (Project 3-3) Create new markets through human-centered technology innovation.
- (Project 3-4) Seek new markets by finding and supporting emerging new industry.

(Project 3-5) Facilitate industry integration and advance to new markets through fair regulation.

Strategy 4: Train global creative human resource with dream and challenging spirit.

(Project 4-1) Train multidisciplinary ingenious human resources.

(Project 4-2) Provide training for challenging spirit and entrepreneur spirit.

(Project 4-3) Invite ingenious human resources into Korea and train them for overseas markets.

Strategy 5: Enhance the capability for science, technology and ICT innovation which is a basis for creative economy.

(Project 5-1) Improve the R&D system for expanding potential and facilitating commercialization.

(Project 5-2) Enhance the capability for ICT innovation for accelerating creative economy.

(Project 5-3) Enhance cooperation between industry, universities, research and local communities focusing on job creation.

(Project 5-4) Enhance the role of science, technology and ICT to address global issues.

Strategy 6: Embrace the creative economy culture supported by people and the government.

(Project 6-1) Embrace creative culture in which creativity and imagination is developed.

(Project 6-2) Integrate public resources by Government 3.0 with people's idea.

(Project 6-3) Innovate the method of government operation for embodying creative economy.

3. Cases and potential of creative economy in agriculture and rural districts

3.1. New income and job creation by sixth industry of agriculture

☐ Concept and possibility of sixth industry of agriculture

- Sixth industry of agriculture is that the rural districts are in charge of the secondary industry including processing and development of specialized products, and additionally the tertiary industry including farmers' markets, restaurants, accommodations, and tourism. The secondary and tertiary industries are based on the primary industry, that is, production of agricultural products.
- The goal of sixth industry is to connect production of agricultural products with processing and sales thereof, or to combine it with rural tourism to increase income and to create jobs. This aims to vitalize agriculture and rural districts. That is, the local agriculture is integrated and combined with tangible and intangible rural resources including local culture, tradition, scenery, and impression as well as agricultural products.

☐ Cases of vitalized rural economy through sixth industry of agriculture

- 'Bansi and Persimmon Wine Tunnel in Cheongdo-gun: Cheongdo has mainly produced furry-tasting persimmons, but supported the secondary-tertiary processing industry for persimmon wine as the sixth industry in connectin with processing and tourism, and built old railroad tunnels (not in operation) as a persimmon tunnel to be

connected with tourism. The continued sales amount increase contributes to job creation and vitalizing local economy.

- ‘Dahanuchon’ in Yeongwol: it was an ordinary mountainous village, but built a Korean beef restaurant tourism site in connection with Korean beef dishes, surrounding tourism sites, tourism programs and restaurants. This contributes to job creation and vitalized local economy.
- ‘Protect Camellia Society’ in Jejudo: The camellia colony in the village is used to promote the community project in connection with processing of camellia oil and rural tourism to create jobs and to vitalize local economy.

3.2. Smart agriculture integrated with ICT

☐ Agriculture integrated with advanced technology including ICT changes to high-value added industry.

- Agriculture integrated with advanced technology including ICT (information and communication) · BT (bio) · ET (environment) · NT (nano) is developing to be a high-value added integrated industry. Integration of agriculture with ICT technology contributes to precise production, efficient distribution and fair management through smart agriculture in the entire process of production, distribution and consumption of agricultural products.
- Integration of agriculture with ICT is the key to embodying creative economy, and is emerging as an alternative to address the insufficient workforce issue due to aging, global warming and abnormal weather,

high cost structure due to complicated distribution structure, and consumer's taste changing fast.

□ **Type and application of smart agriculture**

- **Precise production:** The case of protected paprika cultivation integrated with ICT is to provide the best growing environment by controlling cooling and heating devices, fans, and fertilizer suppliers. It is expected that this implements reduced production costs, and creation of best growing environment to result in enhancing production efficiency, reducing working hours, reducing heating energy, inhibiting diseases and harmful insects and increasing income.
- **Efficient distribution:** A new distribution model for agricultural products is needed to cope with increasing small amount purchase and diversified demands due to consumer household change. The ICT-based supply network management system provides direct sale delivery and direct shop information to consumers, and the volume of production and marketing and payment information to farmers for more efficient logistics and stable prices. This will be beneficial to both consumers and farmers.
- **Fair management:** Using ICT for farming plans, process and marketing enables a smart management system based on fair management and data to embody fair and creative management. The program for pig farming enhances productivity of pig farms, and supports pig farmers to improve management to contribute to fair management and farmer's income increase. This is implemented by close data management for pregnancy rate, delivery rate, the litter size, the number of weaned piglets, the number of marketed pigs, raised rate, and feed efficiency.

3.3. Creating new value by integrating agriculture with bioengineering

☐ History of agricultural development = history of integration of agriculture with bioengineering

- The history of agricultural development since the first agricultural revolution is the history of continuous integration with bioengineering. That is, because agriculture is the industry of producing products with a life including agricultural products and livestock products, it is a key industry that can be integrated with bioengineering. Integration of agriculture with bioengineering is an important method of applying and practicing creative economy to agriculture.
- The feasibility is implied for changing agriculture to ‘life industry’ through integration of agriculture with bioengineering newly developed. The life industry is a new industry that can grow to address issues involved in people’s health and welfare, agriculture, environment and energy to cope with the aging society problem.

☐ Outcome from integration of agriculture with bioengineering and potential of future agriculture

- The integration of agriculture with bioengineering are found in our daily living, for example, change of consumption of seasonal agricultural products in the past to consumption of agricultural products available all year round. Newly developed seeds and seedlings, and storage technology are highly beneficial to consumers who consumes agricultural products.
- Future integration is predicted to be very different from current integration of agriculture with bioengineering which aims to meet the

requirements of consumption of agricultural products, to increase farmer's income and to reduce royalties.

- Because of income increase and prolonged average life expectancy, integration of agriculture with bioengineering will be implemented to achieve the higher goal than health and happiness by consuming agricultural products. That is, it is predicted that new values are created from agriculture so that development and supply of agricultural products based on personal health information can enable people to live healthy mentally and physically on the basis of bioengineering information.

4. Suggestion for creative economy in agriculture and rural districts

☐ **Embody creative economy as a positive scheme for agricultural policy.**

- The new growth strategy based on creative economy is not a solution for current issues in agriculture and rural districts, but an active scheme for finding a new growth engine by integrating and combining new science and technology with natural resources in agriculture and rural districts, and creating jobs by finding new markets to enhance added values for continuous growth of national economy.
- It is a strategy for integrating agriculture and rural districts with ICT technology and bioengineering, creating new jobs through connection between primary, secondary and tertiary industries, enhancing added values, creating new values in agriculture, guaranteeing safe food for people who are consumers, and contributing to healthy living.
- It is essential to build an ecological system for creative economy to aim at right performance of the new growth strategy based on creative economy. It is essential to embody job creation and continuous growth while holding onto the continuous virtuous cycle by integrating and combining internal resources in agriculture and rural districts with innovative ideas in the field, science and technology.

☐ **Details of scheme for embodying creative economy in agriculture and rural districts**

- First, train ingenious human resources to gather and practice creative capability in agriculture and rural districts. Develop a scheme for

supporting human resources who participate in various training organizations in the field of agriculture and rural districts to vitalize the foundation of creative economy so that they can be reborn as creative human resources.

- Second, switch the method of agricultural R&D to a method of embodying the growth strategy for creative economy. Improve the budget input led by the government to establish a system of sharing roles between the government R&D and the private R&D to address difficulties in the field and to contribute to creating added values.
- Third, build a governance system to embody integration, cooperation and association between bodies for embodying creative economy. Establish a virtuous cycle so that the research outcome by universities and research institutions can be integrated with the agriculture and rural district industry and indigenous ideas in the field used as research resources to create jobs, and to enhance added values. This aims to unify industry, universities, the government and research institutes to build a Creative Agro-Enterprise Network.
- Fourth, build a basis, for example, reform regulations for supporting the creative economy in agriculture, overhaul systems, vitalize investment of capital into venture companies, and establish a management recovery support system. Develop a scheme for reforming regulations which can be a barrier against new products and ideas, overhauling systems, establishing management recovery support systems, and supporting agricultural enterprises who make new attempts with venture capital.

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