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Special Issue: Policy for Agricultural Development and Performance of National Agricultural Science Parks

- **2014 No. 1 Central Document Stresses "Deepening Rural Reform and Developing Modern Agriculture"**
- **Minister Wan Gang Talks about Agricultural Science Parks**
- **History of National Agricultural Science Parks**
- **Functions and Characteristics of National Agricultural Science Parks**

2014 No. 1 Central Document Stresses "Deepening Rural Reform and Developing Modern Agriculture"

China's first policy statement of the year, known as the No.1 Central Document, was released by Xinhua News Agency on January 19. The annual document usually guides the development of agriculture and the work concerning rural areas in China.

With the focus on rural reform and modern agricultural development, the No.1 Central Document consists of 8 parts, namely, to improve national food security system, intensify support and protection for agriculture, establish a long-term mechanism for sustainable agricultural development, deepen the reform of rural land system, establish a new agricultural management system, accelerate the innovation of agricultural financial system, balance rural and urban development, and improve rural governance.

There are 3 orientations emphasized in the Document: building a new agricultural management system with the focus on farming; deepening the transformation of agricultural development model with the focus on removing constraints in resource and

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environment, such as arable land and water deficiency; and developing high-quality agricultural products with the focus on nutritious and safe food. Thus the government and people will try to walk on a new path of modern agriculture with Chinese characteristics featuring advanced production technology, moderate scale of operation, strong market competitiveness and sustainable eco-environment.

According to the Document, efforts should be made to accelerate agricultural innovation in science and technology, deepen the reform of agricultural S&T system, implement the legal person responsibility system and the program executive system, as well as carry out the national S&T reporting system in agriculture.

The property rights of scientific achievements in agriculture should be clarified and protected, so as to promote the translation of the research results, and establish agencies and markets for transaction of agricultural S&T achievements. It will be encouraged in various methods to guide and support the joint R&D between research institutes and enterprises, and the greater efforts should be made to build platforms and bases for agricultural innovation, promote agricultural technological integration, facilitate the strategic alliance of collaborative innovation among national agricultural science parks, and support the building of a modern agricultural technology system. New requirements have also been raised about strengthening basic research and biotechnology development, building whole-process informatized and mechanized agricultural technology system, promoting R&D for technologies in emerging industries, popularizing advanced appropriate technologies, and providing technical training for farmers. In the future, the government at different levels will guide credit financing and venture capital into the area of agricultural innovation. It is also important to implement the Technical Task Force (TTF) in agriculture, and give full play to the role of research institutes and universities in carrying out agricultural scientific research and spreading of agricultural technologies.

The Document also proposes to speed up development of modern seeding industry and agricultural mechanization. An innovative breeding system will be built with enterprises playing the dominant role, so as to cultivate a series of new crop varieties featuring high yield, high quality and good disease-resistance, and realize mechanized agricultural production. The full mechanization in field crop production should be accelerated, promoting the integration of breeds, cultivation techniques and mechanized equipment. The socialized agricultural services should be greatly developed in using, maintaining and leasing farm machinery, and the agricultural machinery cooperatives and other service organizations should be encouraged and supported.

(Source: Science and Technology Daily, January 20, 2014)

Minister Wan Gang Talks about Agricultural Science Parks

The Ministry of Science and Technology (MOST), together with relevant departments, held a video conference on collaborative innovation of national agricultural science parks in late Dec. 2013. The conference declared the establishment of the strategic alliance of collaborative innovation among national agricultural science parks. Mr. Wan Gang, Vice Chairman of the CPPCC and Minister of Science and Technology, attended the conference. The minister stressed at the conference that national agricultural science parks should always be at the forefront of deepening the reform of agricultural management, and we should accelerate the transformation from a administrative one to a socialized one.

Minister Wan pointed out that thanks to S&T advances

and innovation in management, national agricultural science parks have been constantly expanding over last 12 years and made great achievements. As important bases for developing new high-yield varieties and new technologies, the parks have played an active role in ensuring food security. As important platforms to boost agricultural innovation in science and technology and business incubation, the parks have pooled all the elements for innovation. As carriers of modern agricultural technology integration and transformation, they have sped up the translation of research findings. As bridges that connect industries, they have propelled the regional industrial restructuring. As a channel for farmers' employment and business starting, they have facilitated the professionalization as well as the employment in agriculture and increasing income of farmers. In a word, national agricultural science parks have effectively promoted the development of modern agriculture and the urbanization of rural areas.

Minister Wan stressed that guided by the requirements of national strategies, the parks should make greater contributions in maintaining national food security and food safety, serve as role models in developing modern agriculture, play a positive role in facilitating a new type of urbanization, and deepen reform of agricultural S&T system in line with the innovation-driven development strategy. The establishment of the strategic alliance symbolizes the government's exploration to transform its functions and increase the efficiency of agricultural technology services. Moreover, it is also a reform to give play to the "synergy drive" function of the market and the government. MOST and relevant departments should put the work of national agricultural science parks higher on their agendas. Governments at all levels need to give greater support to the parks, while the strategic alliance should play its due role.

The establishment of national agricultural science parks started in 2001. Up to now, there are totally 118 science parks in the whole country. According to incomplete statistics, the parks altogether introduced and cultivated 38,200 new varieties of crops, promoted 16,000 new technologies, built 3 million mu (200 thousand ha.) of agricultural new-tech core areas, 50 million mu (3.3 million ha.) of demonstration areas and 200 million mu (13.3 million ha.) of technology dissemination areas. The contribution rate of agricultural S&T in the parks has reached about 60 percent and the translation rate over 70 percent. The parks have accommodated 6,376 agriculture-related enterprises, with an annual output value of 482.7 billion yuan. Over 8 million farmers have been trained in the parks and 763,000 people from rural areas have found jobs in the parks. The average net rural income in the parks has topped 30 percent higher than that of neighboring areas.

(Source: Science and Technology Daily, December 30, 2013)

History of National Agricultural Science Parks

National agricultural science parks represent a model of a new type of agricultural development and the translation of scientific and technological achievements in the course of developing modern agriculture in 1990s. In 2000, the Central Rural Work Conference recognized the achievements of agricultural science parks in different areas, and explicitly pointed out that the greater efforts should be stepped up to develop agricultural science parks and formulate supportive policies. In the conference on agricultural S&T in 2001, the construction of national agricultural science parks was listed as a key initiative, and included in an outline for agricultural S&T development.

The years from 2001 to 2007 are the pilot period

for building national agricultural science parks. In light of the requirements of the general office of the Central Committee of CPC and the State Council, MOST, together with the Ministry of Agriculture, the Ministry of Water Resources, the State Forestry Administration, the Chinese Academy of Sciences (CAS), Agricultural Bank of China and other relevant departments, established an inter-ministerial coordination steering group for national agricultural science parks, formed the joint office of national agricultural science parks, formulated and issued a document on directive and manage for these parks. In 2001 and 2003, a total of 36 national agricultural science parks were respectively launched with two groups nationwide. Among them, 12 were located in eastern part of China, 11 in central part, and 13 in western part. With the principle of " being guided by government, operated by enterprises, joined by agencies and beneficial of the farmers", the parks gradually formed their own development and management models in accordance with the local conditions, including ones that the government plays a dominant role, ones that the enterprises take the lead, and ones jointly run by research institutes, local governments and enterprises.

From 2008 to 2011, national agricultural science parks have been comprehensively promoted. After years of development, national agricultural science parks as pilots have achieved a great deal, especially in integration of agricultural technologies and production, the transformation of technological achievements, modern agricultural production and the incubation of the local emerging industries. In 2008, MOST checked upon the delivery of the existing 38 national agricultural science parks according to the government document Index for Comprehensive Evaluation on National Agricultural Science Parks and the Regulations on Evaluation and Admittance of National Agricultural Science Parks, and officially admitted the parks and granted their names. In 2010 and 2011, the construction of 35 national agricultural science parks, newly selected in the third and fourth group, were launched, which marked the government work for the parks had advanced from construction of pilot to development in an all-around way.

Since 2012, the national agricultural science parks have gone through a period of innovative development. In light of the Twelfth Five-Year Plan for National Agricultural Science parks, MOST decided to launch the "121 Project", namely, one city, i.e. Beijing National Modern Agricultural City for Science and Technology; two demonstration zones, i.e. national modern agricultural hi-tech demonstration zones in Yangling and the Yellow River Delta; and about one hundred national agricultural science parks in other areas. At present, the construction of modern high-end agriculture and modern service industry in Beijing National Modern Agricultural City for Science and Technology has begun to take shape; the fifth group, altogether 46 parks have been officially approved—making the number of such parks 118. Not long ago, the strategic alliance on collaborative innovation was established, which marked a new period for the development of national agricultural science parks.

(Source: Science and Technology Daily, December 26, 2013)

Functions and Characteristics of National Agricultural Science Parks

Over a decade ago, a new model of agricultural development and translation of agricultural research achievements—agricultural science park emerged in China. Now there are 118 such parks.

Over the years, national agricultural science parks have played a very important role in integrating agricultural technologies, applying research findings, pooling leading agricultural enterprises, incubating new

agricultural industries, promoting the standardization and industrialization of agricultural production, providing technical training in rural areas and facilitating the cooperation among enterprises, universities and research institutes. They have become important bases for modern agriculture demonstration and technical training for farmers, as well as important platforms for the regional governments to develop modern agriculture and promote the construction of new countryside.

As an important task assigned by the Central Committee of CPC and the State Council, the development of national agricultural science parks has shown the following characteristics: scientific planning with local features underlined; combined efforts of various departments under the guidance of local governments; integrated resources and supportive policies; dynamic management and improvement of systems; reform and innovation and sustainable development.

Pilot Region and Model of Modern Agricultural Development

Over the past 12 years, agricultural science parks have been thriving all over China, becoming important platforms for agricultural technology advancement and industrial upgrading. For example, the agricultural science park in Wuhan, Hubei province, has introduced and incubated a group of tech-based enterprises for seeding, processing and bio-technologies through its innovation center. With the support of these enterprises, local leading industries such as rice and vegetable cultivation and livestock breeding have been rapidly developing. In Huishan agricultural science park in northern Shenyang of Northeast China, the focus on the deep processing of agricultural products and the introduction of leading enterprises have gradually formed an industrial cluster of deep processing of agricultural products. In South China, Tong'an national agricultural science park in Xiamen focused on food processing industry and the development of industrial bases. In 2012, these two parks respectively accommodated 500 and 200 enterprises with their annual output at 60 billion yuan and 10 billion yuan.

By the end of 2012, there were altogether 6,376 enterprises in 72 national agricultural science parks with the annual output value of 482.7 billion yuan and tax of 9.55 billion yuan. There were 2,642 leading enterprises in the parks, among which 50 percent devoted themselves to agricultural product processing. The average proportion of output value of agricultural product processing industry in the parks had reached more than 40 percent. On average, each park accommodated about 70 enterprises annually from 2002 to 2012.

In Shandong province, the Shouguang agricultural science park, the largest vegetable industrial base in northern China, has been dedicating itself to breed improvement and technical innovation of vegetables, and paying great attention to the integrated development of all links before, amid and after production. In Chongqing, the most influential Citrus Industrial Base – Zhongxian agricultural science park has exploited the unique characteristics of the citrus industry to form an industrial chain of processing, distribution, planting and seedling cultivation. In Jilin province, the corn industry in Gongzhuling agricultural science park has formed an industrial chain from seeding to deep processing and become the local leading industry with full support of logistics, agricultural supply, financing, technology consulting and other services.

For many years, national agricultural science parks in various regions have optimized the agricultural structure and improved the production efficiency. By the end of 2012, the proportion of output value of seed, seedling and agricultural products in 72 national parks has been 20 percent higher than that of the local average, while the proportion for livestock husbandry, flowers and vegetables has exceeded 30 percent.

In Jiangxi province, Xinyu national agricultural science park, by encouraging innovations on operating mechanism, has developed the industrial cluster and established financing platforms. In line with the principle of marketization, the park has implemented an interactive mechanism by "company operation system, investor and owner system, technology contracting system, joint contracting for farmers" and has established technological cooperation with China Agricultural University and Chinese

Academy of Forestry. It has encouraged investment for shares with scientific achievements and built industries such as grape cultivation and wine processing. Meanwhile, it brought in a new model of land transfer, which would clarify land ownership, stabilize the contracting rights for land use and make flexible use of land so that the land would be linked and transferred to the park, and the agricultural land resource would be better allocated to shift from a decentralized operation to a scale management.

This park in Jiangxi is just a typical example. In recent years, many national agricultural science parks have accelerated element pooling to promote the transformation of agriculture business model. By the end of 2012, the total financing for 72 national agricultural science parks has reached 243.881 billion yuan, among which 12 percent came from government investment, 10 percent self-raised by the parks, and 78 percent from corporate investment. This showed that social investment has become the major source of capital for the construction and development of the parks.

During the past 12 years, national agricultural science park has become an effective practice of exploring the production and business model of modern agriculture by relying on science, technology and innovation, and has constructively promoted the healthy development of modern agriculture in China.

Promotion Center of Agricultural Hi-tech Achievements

In recent years, strengthening the synergy of enterprises, universities and research institutes, and the integration of agriculture production, scientific research and professional education, as well as building stable technical source and support for agricultural development, have been prioritized in the construction of scientific and technological supporting systems in national agricultural science parks. For example, Yangling Agricultural Hi-tech Industries Development Zone has collaborated and coordinated with universities and research institutes in carrying out scientific research and developing technologies in order to combine research, experiment, production and sales. Besides, Beijing National Modern Agricultural City for Science and Technology has invited top international and domestic talents to participate in the projects there and introduced cutting-edge technologies into the City. Another example is Ya'an agricultural science park in Sichuan province, where the local government takes a guiding role to build an inter-disciplinary and trans-department consortium with participation of scientific personnel from research institutes and universities, agricultural departments, and rural professional and technological associations, serving for the local agricultural development.

Various forms of research, development and technological communication have prospered in national agricultural science parks, such as joint application for scientific projects, building key laboratories, post-doctoral stations in enterprises, R&D centers and other platforms for innovation. These activities have helped introduce international and domestic professionals, promote international exchanges in agricultural science and technology, give full play to the role of universities and research institutes with their strength in talents, technologies and achievements, and effectively accelerate the transformation of research results and cooperation with industries.

In addition, it is also an important function for national agricultural science parks to provide incubation for emerging enterprises and improve industry capacity for innovation. All the activities provided a platform for speeding up the commercialization and industrialization of research achievements and cultivating entrepreneurs in agriculture. For instance, Yangling Agricultural Hi-tech Industries Demonstration Zone has established the first alliance of technological business incubator for modern agriculture and the alliance of venture capital for modern agriculture, which are working with 40 incubators and 26 venture capital investment companies. In 2012 alone, national agricultural science parks have incubated 704 hi-tech enterprises.

In recent years, the Agricultural Technical Task Force (TTF), serving as a driving force, has been playing an remarkable role in promoting technological businesses and enterpreneurship in rural areas. Against this context,

national agricultural science parks have also become important working bases for TTF. In 2012, the number of TTFs in national agricultural science parks has reached 4,982, among which 1,001 were legal persons for business, 1,112 were in business groups. They have carried out 860 technological projects for agricultural development with the annual gross investment of 9.5 billion yuan and annual profit of nearly 1.2 billion yuan, forming 1,453 cooperative economic organizations and professional associations, with 348,000 members and 184,800 rural households as direct participants.

After years of development, national agricultural science parks have become important platforms for agricultural innovation with science and technology as driving force, as well as for technology transformation. The parks are also playing a role as promoting centers for use of agricultural hi-tech achievements, and as the incubators for modern agricultural tech-based enterprises.

Service Center and Training Base for Modern Agriculture

As the service center and training base for modern agricultural producers, managers and operators, national agricultural science parks serve as a strong support for scientific personnel, entrepreneurs, farmers and other social forces to participate in S&T activities for agricultural development. The operation and administration of the parks have undergone reforms and innovations revolving around technical service, information-oriented service and profession-oriented service, so that comprehensive and highly efficient public services can be provided to boost modern agricultural development and regional innovation.

For example, Yangling Demonstration Zone has built a long-distance information service platform for agricultural S&T as well as a call center of "three agricultural issues", i.e. agriculture, rural areas and farmers. Beijing and other parts of the country have gained access to S&T service resources through the five centers of the Beijing National Modern Agricultural City for Science and Technology. Similarly, the scientific and technological innovation service center in Yangling and the company Zhongke Leading Innovation and Development in Binzhou were established respectively, providing information services. A national Agridata service center, resource center and the service center for production and control in Shandong agricultural science park have all come into operation.

In Xiaoshan of Zhejiang province, Xuchang of Henan province, national agricultural science parks have strengthened informatization and construction of the internet of Things. Networks that connect domestic and foreign markets are gradually taking shape in respect of agricultural S&T information, agricultural marketing platform, agricultural product-market information, etc.

So far, 72 national agricultural science parks have basically established and improved their information service networks. Consequently, information regarding production, sales and other links of agricultural products can be shared among different parks. Therefore, information has flown better among these parks.

By 2012, expert teams in 35 parks have set up their own domestic websites, among which, 6 have their international websites.

According to statistics, from 2003 to the year 2012, national agricultural science parks have altogether held over 16,000 lectures by experts with an attendance of 1.873 million people, organized over 45,600 technical workshops with an attendance of over 3.476 million people, launched 28,000 training courses of various kinds with an attendance of 2.754 million people and received over 120,000 visiting groups with 7.62 million people.

Being centered on the national agricultural science parks, the regional bases for agricultural innovation and the service system for information and technology promotion have taken an initial shape nationwide.

Bridge for Coordinated Development between Urban and Rural Areas

In recent years, the national agricultural science park in Wuhu, Anhui province, has adopted new measures and tried new ways for requisition of land, promote the building of new countryside, improve social security system, provide allowances for those living on Minimum Living Standard, encourage people to buy medical insurance of the

New Rural Cooperative Medical Care System, build new residence zones for farmers and complete such supporting infrastructure as schools, hospitals, sewage treatment plants, etc.

This is a typical case of the parks' efforts to coordinate the development between rural and urban areas and promote urbanization of rural areas. In fact, since the Eleventh Five-year Plan period, all the parks have given top priority to the promotion of rural urbanization and explored such development models as "integration of the park and the city", "integration of the park and the town" and "integration of the park and the village" based on individual characteristics and advantages. In 2012, 72 parks provided job opportunities to 763,100 people in total, almost four-fold increase compared with that in 2002.

All parks have integrated tourism into their development by combining land reclamation, ecological construction and landscape construction with industrial development. As a result, an agricultural layout and production model that enjoys an ecologically beautiful landscape and is suitable for sight-seeing and tourism has been set up. Moreover, coordination of urban and rural development has been further promoted through carrying out cultural innovation, expanding agricultural functions and serving urban residents as places for holidays and agricultural sight-seeing.

The national agricultural science park in the Changping District of Beijing put forward that it will build a high-end R&D incubation zone, a demonstration zone of scientific achievement transformation, a promotion zone of special fruits development and a pioneering zone of urban and rural coordination, so that these four zones can achieve such five functions as management service, scientific research and technological innovation, exchange and exhibition, demonstration and promotion as well as training and sight-seeing, and that industrial chains like special flowers, quality fruits and greening seedlings can be built.

The national agricultural science parks have flourished during last 12 years. At present, construction of the parks is deepening with innovation and development as the policy objective. In the future, the parks will deepen the reform, encourage innovation and continue to play its role as the base and platform for accelerating agricultural industrialization and new-countryside construction and for guiding farmers in sharing the scientific achievements of agricultural modernization.

(Source: Science and Technology Daily, December 26, 2013)

(Editor's Note: All news in the issue are translated from Chinese texts for your reference. They are subject to checks and changes against official release of original Chinese or English texts.)