Science and Technology Commissioners Supporting High-Quality Development Project for Hundreds of Counties, Thousands of Towns, and Myriads of Villages in the Context of Rural Revitalization

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Abstract This paper discusses the important role of science and technology commissioners in the high-quality development of hundreds of counties, thousands of towns, and myriads of villages in the context of rural revitalization, including building bridges, accelerating the transformation of achievements, promoting the value-added of the whole agricultural industry chain, and promoting the rapid development of rural industrial economy. It also discusses the working achievements of science and technology commissioners, in order to promote further development of rural revitalization in Guangdong Province.

Key words Science and Technology Commissioners, Hundreds of counties, thousands of towns, and myriads of villages, Science and technology support

1 Introduction

In recent years, rural revitalization strategy has become an important national policy of China and has attracted a lot of academic attention. In this context, as an important force of rural revitalization, the role and value of science and technology commissioners have been gradually valued. Domestic research mainly focuses on the role orientation, working mechanism and practical effect of science and technology commissioners. For example, some studies have explored how science and technology commissioners can support rural revitalization by building long-term mechanisms, expanding service areas and innovating technology service models[1]. In addition, some studies have focused on the specific practices of science and technology commissioners in rural revitalization, such as how to help alleviate poverty and promote high-quality rural development[2]. There are also a series of studies on similar rural revitalization strategies and technical assistance models abroad, but most of them focus on agricultural technology extension and rural development strategies[3]. These studies provide an international perspective to help us better understand the role and challenges of science and technology commissioners in rural revitalization.

From the perspective of public policy analysis, China's science and technology commissioner policy can be subdivided into four stages: gradual pilot, demonstration and promotion, in-depth promotion and new development. The study shows that the dual dynamics of macro and micro and their interaction constitute the core driving force to promote the institutional change of science and technology commissioners. In addition, by building a community of interests composed of science and technology commissioners, farmers, and the main body of industrialization, The ultimate goal of the evolution of the science and technology commissioners system can be defined as increasing farmers' income and rural revitalization[4]. Under this institutional framework, promoting agriculture by science and technology presents a logical process of "research-diffusion-convergence", in which the collaborative innovation of science and technology and market has a significant positive impact on small farmers[5]. The characteristics of science and technology commissioners system can be summarized as: advanced modern concept, core position driven by science and technology, goal of cultivating modern agricultural industry system, organizational characteristics of adopting modern management mode to promote agricultural development, and humanistic characteristics of cultivating modern farmers[6]. In order to further implement the important instructions of the General Secretary Xi Jinping on the 20th anniversary of the science and technology commissioners system and his guidance on the work of science and technology commissioners during his inspection in Fujian, we explored how to more effectively direct innovative resources such as technology, research results and talents to the "three rural" fields to promote the high-quality of Guangdong Province Development Project for Hundreds of Counties, Thousands of Towns, and Myriads of Villages.

2 Important functions of science and technology commissioners

2.1 Building a bridge to accelerate the transformation of achievements The science and technology commissioners build a bridge between higher education institutions, scientific research institutes and rural areas and farmers. This not only accelerates the transformation of scientific and technological achievements, but also realizes the seamless connection between science and

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technology and agricultural and rural development. The numerous science and technology commissioners went deep into the rural areas and fields, and moved the laboratory to the field, thus enhancing the source supply of technology and breaking through the technical barriers in agricultural production. They have played a vital role in promoting the party's "three rural" policies, disseminating agricultural science and technology knowledge, and leading scientific and technological innovation and entrepreneurship.

2.2 Promoting the value-added of the entire agricultural industry chain According to the actual needs of industry and agriculture, science and technology commissioners and farmers jointly build a community of interests based on the principle of "risk sharing and benefit sharing", so as to deepen the scientific and technological innovation and entrepreneurship activities in rural areas. They not only teach advanced technology to help farmers improve their production skills, but also promote the value-added of the whole agricultural industry chain by introducing key production factors such as capital and management, so as to promote its development towards branding and high-end. Under the background of the new era, science and technology commissioners has not only become the key force of rural revitalization, but also the leader of promoting agricultural and rural modernization and the pioneer of rural revitalization in the comprehensive rural revitalization strategy.

2.3 Promoting the rapid development of rural industrial economy With the continuous efforts of science and technology commissioners, advanced agricultural science and technology innovation and modern agricultural production concepts have been deeply practiced in rural areas. Such change has made many rural areas shift from "relying on nature" to "relying on science and technology to develop agriculture", which has played a vital role in the growth of farmers' income, the prosperity of rural economy and the sustainable development of agriculture. The sustained growth of rural economy is not separated from the support of science and technology. According to the specific needs and actual situation of the rural economy, science and technology commissioners provide practical and effective support for the rural economy, which has far-reaching significance for improving the overall level of the rural economy.

3 Working achievements of science and technology commissioners

3.1 Making clear actual needs and residing in towns to provide assistance technical support In response to the call of High-Quality Development Project for Hundreds of Counties, Thousands of Towns, and Myriads of Villages in Guangdong Province, consolidate and expand the fruits of poverty alleviation, and to energetically promote rural revitalization, the science and technology commissioners team goes deep into the grass-roots level, conducts detailed industrial demand research, comprehensively grasps the development status of the township (town), identifies key issues, and deeply studies the core problems that restrict the development of the township. They set food on the local actual situation, ensure that the support measures are highly matched with local needs, and provide strong support for rural development. Relying on the technological advantages of agricultural scientific research, the science and technology commissioner team selected two or three representative village groups to meet the specific needs of local agricultural production and rural revitalization, as well as the actual needs of agricultural enterprises and growers. Demonstration sites for new crop varieties and efficient cultivation techniques have been established, and assistance has been provided in various ways, such as physical objects and technology. Through the strategy of "using the experience of selected units to promote work in the entire area", the local crop planting structure was optimized, especially in the demonstration and promotion of new varieties and technologies such as rice, peanut, sweet potato, table core and southern medicine.

3.2 Combination of research and learning This project takes rural science and technology commissioners as a link, based on the cultivation of new varieties of crops and jointly organizes field observation of crop cultivation and research and learning activities of "farming inheritance, rural revitalization". Farming research and learning is the inheritance and innovation of China's profound farming culture and the traditional educational concept of "farming is not easy, all industries are hard", aiming to guide students from the small classroom environment to the vast field, so that they can understand the close connection between agriculture and nature in a more active, exploratory and practical way. In this process, students will experience the joy that "A grain of millet is planted in spring and thousands of seeds are harvested in autumn", so as to deeply understand the true value of labor. In addition, farming research and learning also aims to cultivate students' love for agriculture, inherit and promote our rich farming culture, and lay a solid foundation for their practical ability and innovative thinking, so as to help them develop physically and mentally healthy and all-round.

3.3 Scientific and technological training and services In order to improve the planting level and quality of crops, training courses on new varieties and technologies of crops are held in relevant village groups every year to train grass-roots agricultural technology extension personnel and new professional farmers. Through carrying out training courses on new crop varieties and new technologies, farmers will be encouraged to master modern agricultural technology, improve agricultural production level and efficiency, and promote farmers' income and high-quality industrial development. In addition, through the technical services of fertilizer reduction and efficiency enhancement and pest control, farmers are encouraged to master efficient and safe planting technologies such as fertilizer reduction and efficiency enhancement and biological pest control, which not only reduces land pollution and residues of agricultural products, improves land fertility and production capacity, but also improves the environmental protection level of

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4.2.4 Fishery should adopt intensive management strategy. Fishery is not the main economic industry in Changping District, but there are still some fishing activities because there are some lakes and reservoirs, such as Ming Tombs Reservoir and Xiaotangshan Reservoir. In order to optimize the development of fishery in Changping District, it is suggested to develop the aquaculture of famous, special and excellent aquatic products by adjusting the aquaculture varieties and modes. Secondly, Changping District should introduce and promote advanced aquaculture technology, such as recirculating aquaculture, to improve the efficiency of aquaculture. Finally, it is recommended to introduce diversified management modes such as fishery sightseeing and aquatic product processing to improve the added value and economic benefits of fisheries.

4.2.5 The service industry for these sectors should strengthen the development of leisure agriculture. The output value of planting, forestry, animal husbandry and fishery services in Changping District has increased, and the pulling effect of leisure agriculture is significant. According to the output value data recorded in Table 3, the output value in 2019 and 2020 was significantly higher than that in other years, because the development of leisure agriculture in Changping District was better in 2019 – 2020. Leisure agriculture reflects the versatility of agriculture, not only has the role of education and demonstration, but also can lead the development of science and technology. With the help of the location advantage of Changping District near the downtown of Beijing, it is recommended to strengthen the construction of surrounding infrastructure, such as tourist centers, experience facilities. Secondly, Changping District should pay attention to the innovation of leisure agricultural products and services, such as providing unique agricultural experience activities. Finally, Changping District should effectively use various marketing means, such as network marketing, social media promotion, *etc.*, to expand its visibility and influence.

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agricultural production, protects the ecological environment of agricultural production and reduces the adverse impact of agriculture on the environment.

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