| City | Conghua District |
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| Country | China |
| Population | 642,100 |
| Title of policy or practice | AIRICE's Ecological Artificial Intelligence |
| Subtitle (optional) | |
| URL video | |
| Category | Food Production |
| SDGs | SDGs: 2, 3, 9, 15. |
| Brief description | Nowadays, Chinese people are paying more and more attention to food safety, especially the staple food that Chinese people need every day. However, in the process of food production and circulation, there is no standardized process and transparent supervision in the field of rice. Many farmers still abuse chemical substances, such as chemical pesticides and herbicides, which are harmful to human body, and rely mainly on manpower for agricultural production. |
| | In order to promote the development of agriculture, rural areas and farmers, Guangzhou Conghua has introduced the Three-year (2018-2020) Action Plan for the Implementation of the Rural Revitalization Strategy Conghua Demonstration Zone in Guangzhou. Conghua Government A major attempt was made in food production and food supply to launch the AIRICE Ecological Artificial Intelligence Agricultural Practice Project, mainly to improve the current status of traditional agricultural cultivation with high pollution, low efficiency and low output value. |
| | The main practice of the project is in Conghua and an ecological planting base has been established in the local villages. From the positive impact on many ways, it proves its feasibility and good social benefits. First, it fundamentally changes the traditional planting patterns of agricultural substances abused for agricultural production. It requires environmentally friendly ecological rice cultivation, regulating the production and circulation process of the rice industry, allowing consumers to buy safe staple foods with guaranteed high quality. Second, it requires ecological upgrading of traditional agriculture, accelerating the process of unmanned planting of modern agriculture and creating a new team of professional farmers. Third, it activates the high-quality resources that are unused in the local area and promotes the integration and development of the local primary, secondary and tertiary industry with agriculture, realising in this way rural revitalization and allowing farmers to become rich. |
| Date of start and state (ongoing/completed) | 09/2014 Ongoing |
| Actors and stakeholders involvement | The project is led by the Agricultural and Rural Bureau of Conghua Distrihe. The organization that implements the project are Conghua Jiekou Street and AIRICE. AIRICE cooperated with experts and scholars from Guangdong Academy of Agricultural Sciences, South China Agricultural University, South China University of Technology to carry out research and development of ecological planting and artificial intelligence technology and drive the surrounding villagers to carry out ecological planting. |
| Approach | First, the government allocated funds for the construction of high-standard farmland and other production services. Second, AIRICE shared the artificial intelligence technology and ecological planting knowledge to drive local rice fields to achieve digitalization, branding and improve quality and efficiency. Third, AIRICE's artificial intelligence agriculture model is promoted to other places of Guangdong, providing a viable development path for rural revitalization. |

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| **Innovation** | First, the farmland is digitalized and intelligently transformed. AIRICE digitally upgrades the traditional rice fields in Conghua and uses the high-tech technologies such as artificial intelligence, internet and so on to realize the "intelligentization" of the farmland monitoring and the unmanned production operations, and greatly reducing the management difficulty and reducing labour costs of the agricultural production.<br><br>Second, focus is put on conservation and food safety. Ecological planting without using harmful substances is conducive to the sustainable development of ecological environment, the protection of biodiversity, and the safety and quality of rice from the source soil and water.<br><br>Third, build order-based brand agriculture. In the new consumption model of rice, the villages are oriented to the production of the rice for the city according to the needs of the city. There is no need to worry about product sales while avoiding wasting agricultural production efficiency.<br><br>Fourth, industrialized operations improve rural land use. In the agricultural production and planting, the integration of the primary, secondary and tertiary industries will be promoted to achieve rational planning and efficient use of rural resources through the development of upstream and downstream industries.<br><br>Fifth, new elements will be inserted into the traditional agricultural industry. AIRICE has created more jobs in the local area, attracting more and more young people back to the countryside and join the agriculture sector. |
| **Impact** | In terms of economic impact, it has promoted the "ecologicalization" and branding of local agricultural products, and the output value of rice units has been increased, which has increased the basic planting income of farmers. The integration of agriculture, tourism, education and other new formats has brought investment projects and jobs to the countryside. Farmers have realized annual household income of 100,000-150,000 Yuan, effectively driving rural economic growth.<br><br>In terms of social impact, high-tech promotes agricultural upgrading, improves farmers' planting patterns and working environment and raises farmers' employment thresholds and professional level. In addition, people's attention to food safety has promoted the standardised development of agricultural product supply and sales markets. At the same time, the countryside began to attract the urban population back, which greatly reduced social problems, such as the aging of the rural population and left-behind children.<br><br>In terms of environmental impact, the green planting method makes Conghua more ecological, which is beneficial to the habitats of many endangered birds such as egrets. |
| **Inclusion** | The ecological artificial intelligence agriculture project mainly involves two major efforts in the food sector. In food production, it pays attention to the improvement of planting methods, changes the traditional planting mode of low efficiency and low output value and implements high-tech unmanned production. In food supply, AIRICE builds a whole industrial chain of rice production to operate and make transparent the regulatory processes with enterprise standards, to ensure that consumers can buy safe, fresh and nutritious rice.<br><br>Relevant government departments in all parts of the Country pay close attention to the development of projects in Conghua District of Guangzhou and actively go to investigate and research. At present, the Emi Daohuaxiang Ecological Planting Base in Northeastern Wuchang and the Emi Rural complex in Wenzhou Caocun have successfully replicated the experience of Guangzhou Conghua District. |
| **Adversity coefficient** | The first is the education of farmers. At the beginning of the project, there were no successful cases in China to prove the feasibility of ecological agriculture and artificial intelligence agriculture application. Some local growers were suspicious and resistant to ecological artificial intelligence |

agriculture. However, highly educated young people went to the countryside to carry out propaganda and technical assistance, help local villagers to survive the agricultural upgrading period and win the local people's recognition through the economic, social and ecological benefits obtained during the project development process.

The second is the lack of professionals. Ecological artificial intelligence agriculture is a multi-disciplinary field that requires complex talents to carry out multi-faceted knowledge support. However, there are currently a small number of professionals who have mastered agricultural knowledge and have a certain understanding of high technology. At present, the Conghua District Government actively supports and guides non-official organizations, such as enterprises and universities, to carry out ecological planting and agricultural technology development. The high-tech talent training programs of major universities are recognized by the government. In the professional setting, tuition reduction, agricultural skills competition and other projects have been established, and there are many rewards and subsidies from the government to encourage more people to participate.

The third is that the application of domestic artificial intelligence technology in the agricultural field is still in its infancy, and most of the rice fields have not yet completed the technological upgrading. However, a group of modern high-tech agricultural enterprises, such as AIRICE, has completed the construction of the basic agricultural data map database, and now the field robot and data application system are being debugged. It is expected that the software and equipment that can be popularized will be introduced in the next few years.