

UNIVERSITY OF
WATERLOO



SUSTAINABLE
DEVELOPMENT
GOALS



**How Can Agroecology Contribute to
SDGs in China?**
Information Toolkit for Policy Makers

What are SDGs?

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity[1].

From ending poverty and hunger to responding to climate change and sustaining our natural resources, food and agriculture lie at the heart of the SDGs[2].



What is agroecology?

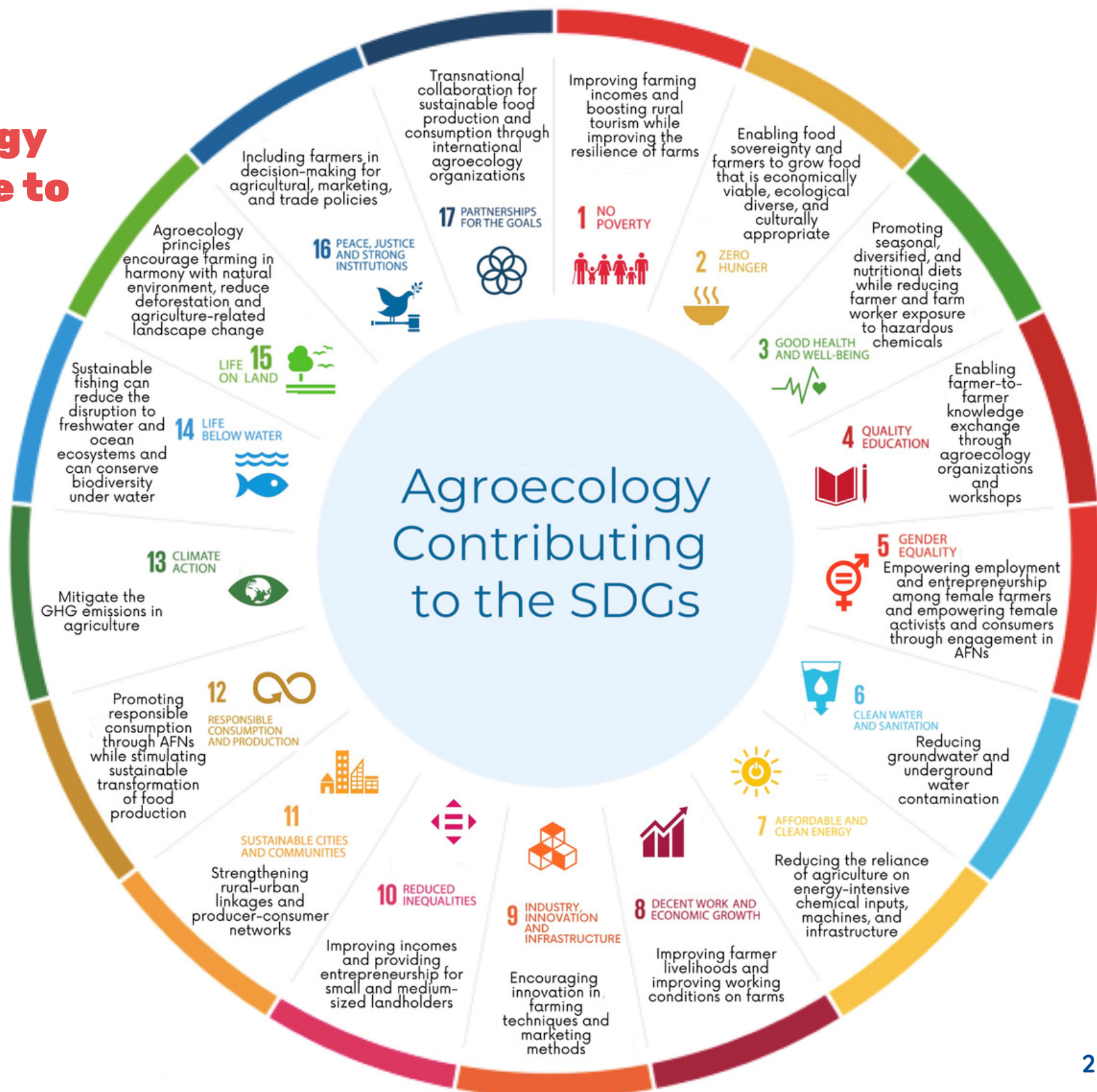
“Today, the term ‘agroecology’ means either a scientific discipline, agricultural practice, or political or social movement”[3]. The meanings of agroecology vary in different regions and contexts. In the 1930s, the term agroecology emerged strictly as a scientific discipline about agronomy and ecology. However, the definitions of agroecology evolved beyond a scientific discipline about food production.

Around the 1980s, the meaning of agroecology was extended to imply a set of ecological agricultural practices promoting environmentalism and rural development. In this information toolkit, our discussions on agroecology focus on agricultural practices and social movements that contribute to environmental sustainability and farmer empowerment.

10 elements of agroecology by FAO [4]

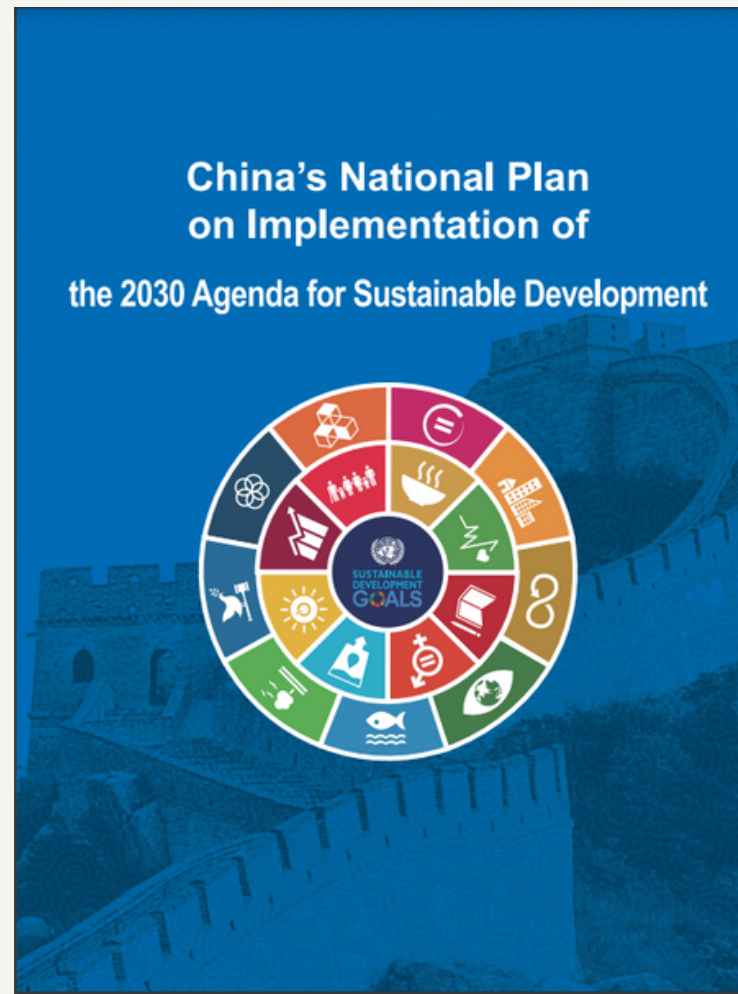


How can agroecology contribute to SDGs?



How do agroecology and SDGs feature in Chinese research and policy?

- Overall, there has been a wide range of academic studies established on SDGs in China.
- Existing studies have discussed the **opportunities** and potential for China to contribute to the SDGs[5] by integrating them into domestic development strategies[6] and by connecting them to China's Belt and Road Initiative and promote SDGs collaboratively with other countries in this initiative[7].
- Studies have also pointed out **challenges** facing China in fulfilling SDGs, including overall challenges that China needs to overcome and provide policy suggestions[5][8], and specific challenges such as the disconnect between SDG indicators and the indicators for environmental conservation in China[9], sustainable land use[10], and rural sustainability[11].
- **The Chinese state has integrated SDGs with national development plans.** In 2016, China put forward “China’s National Plan on Implementation of the 2030 Agenda for Sustainable Development”[12].
- Few existing studies have systematically connected the concept of agroecology to SDGs. As this information toolkit will showcase, **agroecology initiatives have contributions to all 17 SDGs.**



SDGs

Agroecology's contributions to the SDGs in general

Agroecology's contributions to the SDGs in China

1 NO POVERTY



Agroecology improves farming incomes and boosting rural tourism while improving resilience of farms.

Short-chain agriculture provides market access and improves income for smallholder farmers in remote areas.

2 ZERO HUNGER



Agroecology enables food sovereignty and farmers to grow food that is economically viable, ecological diverse, and culturally appropriate.

Agroecology and CSA networks improve urban consumers' access to safe and nutritious food.

3 GOOD HEALTH AND WELL-BEING



Agroecology promotes seasonal, diversified, and nutritional diets while reducing farmer and farm worker exposure to hazardous chemicals.

Agroecology reduces the exposure of farmers and farm workers to hazardous chemicals while reducing consumer exposure to harmful chemical residues in food and water.

4 QUALITY EDUCATION



Agroecology enables farmer-to-farmer knowledge exchange through agroecology organizations, workshops, and school curriculums.

Community supported agriculture (CSAs) provide an inclusive and engaging learning space for consumers towards nutritious and low-carbon diets.

5 GENDER EQUALITY



Agroecology empowers employment and entrepreneurship among female farmers and empowering female activists and consumers through engagement in alternative food networks (AFNs).

Agroecology enables women to play a leadership role in food movements and empowers "left behind" women in rural areas by creating livelihood opportunities.

6 CLEAN WATER AND SANITATION



Agroecology reduces groundwater and underground water contamination.

Agroecology reduces the leaching of hazardous agricultural chemicals into the water systems.

SDGs

Agroecology's contributions to the SDGs in general

Agroecology's contributions to the SDGs in China

7 AFFORDABLE AND CLEAN ENERGY



Agroecology reduces the reliance of agriculture on energy-intensive chemical inputs, machines, and infrastructure.

Agroecology reduces agricultural reliance on fossil-fuel based farming inputs including the fertilizer overuse in China.

8 DECENT WORK AND ECONOMIC GROWTH



Agroecology improves farmer livelihoods and improves working conditions on farms

Agroecology helps de-stigmatize farming while improving working conditions for farmers and farm workers.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Agroecology encourages innovation in farming techniques and marketing methods.

Agroecology informs government policies supporting sustainable adaptation of agricultural industrialization.

10 REDUCED INEQUALITIES



Agroecology improves incomes and provides entrepreneurship for small and medium-sized landholders.

Agroecology initiatives reduce inequality by helping smallholder farmers earn premium prices.

11 SUSTAINABLE CITIES AND COMMUNITIES



Agroecology strengthens rural-urban linkages and producer-consumer networks and informs urban agriculture.

Agroecology promotes ecologically responsible diets and urban agriculture through engaging with urban consumers.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Agroecology promotes responsible consumption while stimulating sustainable transformation of food production.

Agroecology initiatives promote responsible food production while cultivating responsible food consumption through producer-consumer connections.

SDGs

Agroecology's contributions to the SDGs in general

Agroecology's contributions to the SDGs in China

13 CLIMATE ACTION



Agroecology mitigates greenhouse gas (GHG) emissions in agriculture.

Ecological agriculture has been highly regarded by the Chinese state as a pathway to reduce the application of chemical fertilizers and thereby cutting down agriculture-related emissions.

14 LIFE BELOW WATER



Sustainable fishing can reduce the disruption to freshwater and ocean ecosystems and can conserve biodiversity under water.

Ecological farming prevents and reduces the runoffs of agrochemicals into water and therefore mitigates China's lake water eutrophication challenges.

15 LIFE ON LAND



Agroecology principles encourage farming in harmony with natural environment, reduce deforestation and agriculture-related landscape change.

Agroecology initiatives as such Farmer Seed Network facilitate seed sharing and protect genetic resources of traditional crops and animal breeds.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Agroecology initiatives include farmers in decision-making for agricultural, marketing, and trade policies.

Participatory plant breeding and farmer networks lend voice to farmers in decision-making.

17 PARTNERSHIPS FOR THE GOALS



Agroecology catalyzes transnational collaboration for sustainable food production and consumption through international initiatives.

Agroecology enables collaboration between the state, the private sector, and civil society initiatives and contributes to China's environmental and rural revitalization goals.



CASE STUDY ONE

XICHONG COUNTY, SICHUAN PROVINCE

Xichong county is an agricultural county located in a hilly area of northeastern Sichuan province. The area produces rice, wheat, corn, sweet potato, and other fruit crops such as peaches, and is known for its production of Xifeng navel oranges, walnuts, and Erjingtiao chili peppers.

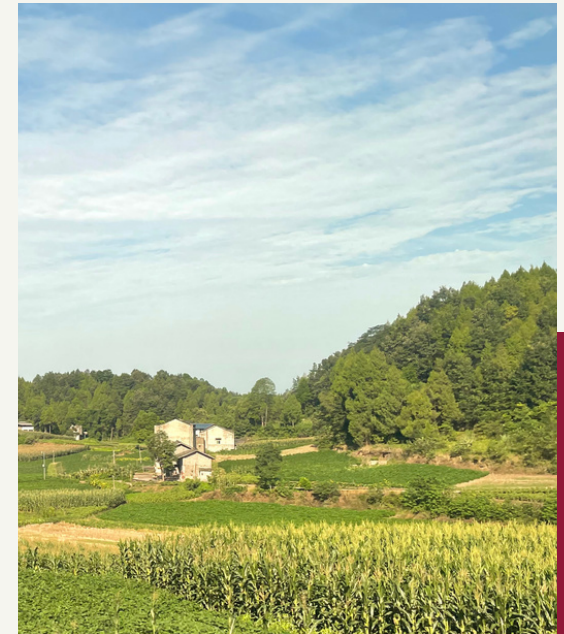
In 2008, the local government prioritized the “Developing Organic Agriculture Industry and Building an Ecological and Economically Strong County” as a strategy to build the “first organic food county in Western China”. By the end of 2020, the county has built 15,333 hectares of organic food production bases (18.5% of total arable land is organic), yielding grains, oil, fruits, vegetables, bamboo shoots, sericulture, livestock, and aquatic products.

Policy examples

- Designing and Implementing the Western China Organic Food County Construction Plan
- Establishing the Xichong Organic Industry Association and Organic Agriculture Development Funds to conduct training for organic farming, to subsidize organic certification, and to hold food exhibitions and summits in order to improve market connectivity and tourism incomes for local farms.

Contributions to SDGs

- SDG 8 Decent Work: Xichong county uses organic agriculture as a channel to market and promote eco-tourism, which has increased the visibility and attractiveness of the local eco-tourism industry.
- SDG 8 Decent Work: Organic agriculture has become the leading industry in Xichong County. In 2020, the total output of local organic agriculture exceeded 385 million USD, leading to improved incomes and livelihoods among local farmers.





CASE STUDY TWO

WANZAI COUNTY, JIANGXI PROVINCE

Wanzai county is located in the west of Jiangxi province, 300 kilometers west to the provincial capital Nanchang. The main crops grown in Wanzai county include rice, ginger, sweet potatoes, soybeans, peanuts, garlic, and radishes.

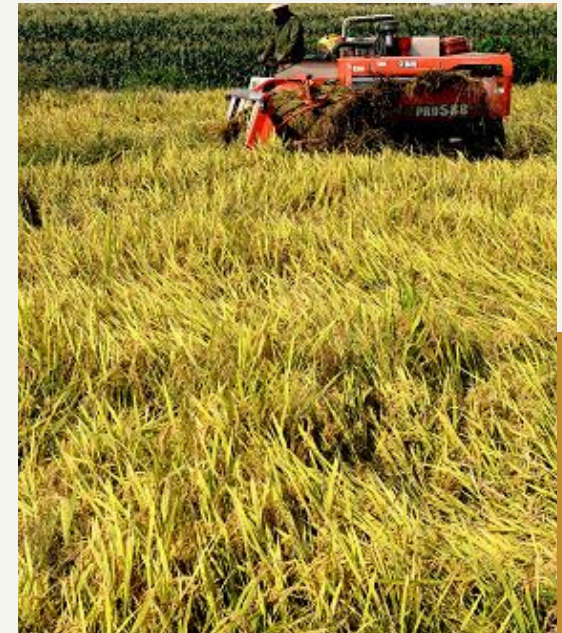
Although Wanzai county is rich in natural resources, historically it has been a poor region due to its mountainous geological conditions. After years of development, organic agriculture has become the main strategy for increasing farmers' incomes, strengthening environmental protection and regional development. In 2015, Wanzai county became one of the "National Organic Product Certification Demonstration Zones".

Policy examples

- Building organic food production demonstration park
- Establishing the Wanzai County Organic Food Industry Association to coordinate between local governments and organic farms
- Issuing direct subsidies and agricultural loans to organic companies and cooperatives while awarding certified products

Contributions to SDGs

- SDG 6 Clean Water: Organic farmers maintain and improve soil fertility by increasing the application of green manure, livestock manure, and crop rotation. They use green manure and livestock manure to substitute chemical fertilizers. These measures protect local soil and water resources.
- SDG 15 Life on Land: Nearly 70% of organic farmers believe that biodiversity has improved. For example, the population of beneficial insects has increased.





CASE STUDY THREE

DAI VILLAGE JIANGSU PROVINCE

Dai village is located in Jurong city, approximately 70 kilometers away from and to the southeast of Nanjing, the provincial capital.

Dai village underwent a thorough transition from conventional farming to organic farming and installed modern farming infrastructure while adopting new farming techniques and marketing channels. Its organic production focuses on rice, vegetables, fruits (predominately peaches and strawberries), and poultry. The transition started with the uptake of organic farming by just a handful of farms, which later evolved into an organic farmers' cooperative joined by 812 member households (all households who practiced farming at the time).

Policy examples

- Providing hands-on consulting on organic farming through working together with local farmers
- Connecting organic products to fair-priced market through public procurement and e-commerce
- Promoting eco-tourism to diversify the local economy while providing entrepreneurship programs to attract young talents.

Contributions to SDGs

- SDG 1: Dai village used to be one of the poorest villages in peri-Nanjing region with resource constraints. Its extreme poverty and environmental degradation were alleviated with the introduction of organic farming. After nearly 20 years of practice in organic agriculture, Dai village has significantly alleviated poverty. Its per capita income is 25% higher than the average of Jurong city, meaning that it now is one of the better-off villages in the jurisdiction.



Policy recommendations

On agricultural production

1. Innovating and experimenting with policy options for small-scale organic farmers and rural youth entrepreneurs

Despite the fact that most existing agricultural policies have favoured large-scale agribusinesses, mobilizing resources for small-scale farmers can allow wider adoption of organic farming and farmers rather than agribusinesses can benefit from improved incomes and environment.

2. Restructuring current agricultural subsidies and leveraging them to encourage the uptake of ecological farming

In order to leverage the leading role of agribusinesses in agricultural development, the state can motivate agribusinesses to take on ecological farming by providing marketing support and by improving existing subsidies on organic fertilizers and on machines for small-scale farms.

3. Incentivizing agribusinesses to train local farmers and to promote ecological farming

Most ecological agribusinesses employ local farmers as farm workers. The state can enable farmers to undertake ecological farming by encouraging ecological agribusinesses to train farm workers on the principles, techniques, and management of ecological farming.

4. Strengthening the leadership of village officials and entrepreneurial leaders to lead the development of ecological agriculture and to customize ecological products based on market demand and local ecological conditions

The state could create incentives for village officials to engage with ecological farming by incorporating this contribution into the assessment of their political performance.

5. Supervising the revenue redistribution among members of farmers' cooperatives and increasing farmers' participation in decision-making at cooperatives

In order to assimilate farmers into ecological cooperatives, the local government should ensure transparent, fair distribution of collective income and engage farmers in decision-making for collective affairs in the cooperatives.

6. Leveraging the spill-over effects of new farmers to support the transition by small-scale farmers from conventional farming towards ecological farming

In order to appeal to new farmers as a force of future agricultural development, the government can address the most pressing challenges facing new farmers including difficulty in accessing land and in connecting to the market.

Policy recommendations

On agricultural production

7. Researching and developing farming machinery and equipment specifically for small-scale and medium-scale farming in order to reduce the labour costs of ecological farming

Rising labour cost is one of the most serious challenges to ecological farming, and the government can ease this challenge by further investing in the research and development for machines suitable for small-scale agriculture.

8. Diversifying urban green space and city landscape through urban agriculture

By re-purposing abandoned land in cities as community gardens, the municipal government will be able to improve food education and food self-sufficiency at the city-level while reducing the unauthorized use of urban land for farming.

9. Exploring multiple pathways to ecological agriculture through learning and comparing different methods for innovating ecological agriculture

To advance the development of ecological agriculture in China, the government can integrate farming traditions with proved organic farming methods abroad, such as biodynamic farming, natural farming, and permaculture.



Policy recommendations

On marketing support for ecological products

10. Supporting the engagement of non-profit organizations in the development of ecological agriculture and in the dissemination of knowledge and networks for ecological farmers

Several non-profit organizations such as Beijing CSA Alliance, Beijing Farmers' Market, and Guangzhou Fertile Ground Workshop have promoted communication between farmers and improved ecological farmers' market connectivity. Official collaboration between the government and these organizations can further empower small-scale ecological farmers.

11. Strengthening the supervision of organic certification agencies and reducing the certification costs

The government can reduce the bureaucratic procedure for organic certification and reduce the certification fees will motivate farmers to practice organic farming and for organic farmers to be certified.

12. Formalizing and institutionalizing public procurement as well as e-commerce in order to alleviate rural poverty through ecological farming

Marketing is a common challenge for ecological farmers and reasonable food procurement from public institutions and schools could provide strong market support for organic farmers, if the government provides supervision and guidance on public procurement.



Policy recommendations

On education for ecological agriculture

13. Regulating the use of eco-sounding terms in food marketing, such as "ecological food" and "natural food" to reduce the misinformation and misunderstanding on the consumer end

The multiple unauthorized labels in the ecological food market led to confusion and mistrust among consumers, and the government can strengthen the regulations on food marketing and labelling to prevent irresponsible use of terms including "natural" and "ecological".

14. Integrating food education in primary school and middle school curriculums in order to encourage students to learn about food and nature

The government can include food education in school curriculums to nurture the future demand for ecological food products and to improve the food knowledge among future generations for a healthier and more sustainable life.

15. Implementing hands-on practices and farming courses for post-secondary students at agricultural programs in order to strengthen the practical application of academic research in ecological farming

Currently the agricultural programs at universities focus more on theories than practices and the government could facilitate with collaborations between universities and ecological farms to train students hands-on skills and to encourage entrepreneurship in ecological farming



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Visit our website
<https://uwaterloo.ca/chinas-changing-food-system/>

Partner organizations

Food and Agriculture Organization in China
(FAO China)



The Centre for Sustainable Food Systems at the University of British Columbia (CSFS)



The International Federation of Organic Agriculture Movements (IFOAM-ASIA)



Partnerships for Community Development in Hong Kong (PCD)



Organic Food Development and Certification Center of China (OFDC)



Community Supported Agriculture Coalition (CSA Coalition)

Sources for Action (SFA)
co-organized by PCD and Beijing Cihai Environmental Foundation



Farmers' Seed Network in China

农民种子网络
FARMERS' SEED NETWORK(CHINA)

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