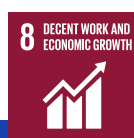


IMPACT SHEET: Supporting Scheme for MSMEs by Building Sustainable Agricultural Fresh Food Production and Logistics in China (SAFE)

Improving the quality and efficiency of fresh produce and promoting the green development of agricultural circulation systems



Empower farmers and MSMEs to enhance food quality, safety, and sustainable cultivation practices, reduce food packaging and resource waste, and improve the efficiency of agricultural supply chain circulation.



PROJECT BACKGROUND

Against the backdrop of China's comprehensive Rural Revitalization Strategy and the accelerating global agenda for sustainable agricultural development, improving the efficiency and sustainability of agricultural product circulation has become a critical priority. To advance the green transition of China's agri-food supply chain and enhance food safety and quality in the fruit and vegetable sector, the **China Chain Store & Franchise Association (CCFA)**, in collaboration with the **Swedish Environmental Research Institute (IVL)** and the **Institute of Agricultural Economics and Development of the Chinese Academy of Agricultural Sciences (IAED)**, jointly implemented the **Supporting Scheme for MSMEs by Building Sustainable Agricultural Fresh Food Production and Logistics in China**, under the support of the **EU SWITCH-Asia Programme**. The project focuses on improving the quality and efficiency of fresh food and fruit-and-vegetable supply chains in the retail sector. By leveraging the role of the market and downstream retailers, it empowers upstream **micro-, small- and medium-sized enterprises (MSMEs)**, cooperatives, and farmers to adopt greener production and better quality control practices. At the same time, the project promotes the development and upgrading of standards, the implementation of **food safety consistency certification systems**, and the wider use of **standardized reusable packaging containers for fruits and vegetables**. These actions contribute to building a more efficient, safe, and traceable agricultural circulation system, while supporting progress toward the **UN Sustainable Development Goals (SDGs)** on sustainable production and consumption.

CHALLENGE

Before the project's implementation, China's fruit and vegetable circulation system and its MSMEs faced a range of structural challenges. As the main suppliers, smallholder farmers generally had limited awareness and capacity for green production, with many production areas still relying on traditional farming practices that lacked systematic environmental and quality control measures. The existing agricultural training system was largely confined within the agricultural domain, without effective linkage to downstream retail market demands, making it difficult for producers to respond to consumers' growing expectations for product quality, safety, and sustainability. Meanwhile, the fresh produce supply chain remained complex and inefficient, with high post-harvest losses during transportation and storage, resulting in reduced farmer income and increased business costs. The incomplete cold-chain and standardized logistics infrastructure—particularly the insufficient use of standardized reusable crates and containers which resulted from lack of awareness of the reusable plastic crate (RPC) environmental benefits and the life cycle financial benefits—further constrained efficiency and food safety improvements, while the widespread use of single-use packaging materials exacerbated resource waste and environmental pressures. In addition, the lack of long-term, stable partnerships between farmers and enterprises weakened supply chain collaboration and resilience. As Chinese consumers increasingly demanded higher standards of quality, safety, and environmental-friendly products and also the governments higher request on green producing performance, the sector faced mounting pressure to undergo a systematic transformation toward greener production, standardized circulation, and more efficient coordination across the value chain.

PROJECT OBJECTIVES

The project aims to strengthen the sustainable production and management capacity of MSMEs, cooperatives, and farmers, and to enhance the standardization, efficiency, and environmental performance of China's fresh food supply chain, while promoting broader industry and policy engagement.

The specific objectives include:

- Establish a food safety consistency verification system to strengthen quality and sustainability management.
- Build capacity of cooperatives and farmers through training on sustainable production practices.
- Promote the use of standardized reusable crates to reduce product loss and single-use packaging, and to improve logistics efficiency and resource utilization.
- Contribute to standard development and policy recommendations to support green transformation.
- Expand outreach and industry engagement to amplify the project's systemic and policy impact.

TARGET GROUPS

- Cooperatives, family farms, and other micro, small, and medium-sized agricultural enterprises
- Farmers
- Retailers and distributors
- Logistics companies
- Research institutions and universities
- Policymakers
- Social organizations

PROJECT ACTIVITIES

Capacity Building and Demonstration Base Evaluation

The project developed systematic training materials, courses, and an online learning platform, delivering extensive capacity-building programs nationwide. Over 10,000 farmers and 2,000 agricultural enterprises and cooperatives received training on sustainable cultivation, food safety, and farm management. A food safety consistency evaluation system was established to enhance product quality and traceability, and more than 200 "Sustainable Planting Demonstration Bases" were evaluated and guided, fostering replicable good practices across regions.

Promotion of Supply Chain Innovation

An industry standard for standardized reusable fruit and vegetable crates was formulated and released, along with practical operation manuals for retailers, distributors, and farmers. Life cycle assessment (LCA) and life cycle cost (LCC) analyses were conducted to evaluate environmental and economic performance. In collaboration with China's Top 100 retail enterprises, the project facilitated the adoption of over 6 million standardized fruit and vegetable reusable plastic crates (FVRPC), significantly reducing packaging waste and product losses while improving logistics efficiency and resource utilization.

Standard and Policy Development

Several CCFA group standards were developed and published, including operational guidelines for the acceptance of agricultural products. Policy research and a best practices collection were completed to consolidate project outcomes. The project also enhanced China–EU cooperation and knowledge exchange on sustainable agriculture and submitted policy recommendations to promote the green transformation of the agri-food supply chain.

Dissemination and Long-Term Impact

Through multi-stakeholder collaboration among industry, academia, research, government, and enterprises, the project strengthened practical application and scaling of results. Research outputs and demonstration cases were widely disseminated to encourage replication, and enterprises were guided to integrate project practices into their internal operations. Public communication campaigns promoted healthy and sustainable consumption, extending the project's social influence and long-term impact.

LESSONS LEARNED

The project encountered several challenges during implementation. At the initial stage, the COVID-19 pandemic posed significant disruptions, as strict restrictions on travel and gatherings delayed planned in-person meetings, field visits, and training activities. More importantly, China's vast territory and highly diverse agricultural landscape presented structural challenges for project rollout. Differences in fruit and vegetable varieties, production modes, and farmer capacities across regions made it difficult to achieve uniform application of sustainable standards and food safety systems. Many MSMEs and cooperatives lacked foundational knowledge in quality management and supply chain optimization, requiring tailored capacity-building interventions. In addition, the project involved a wide range of stakeholders—enterprises, research institutes, and government agencies—demanding complex coordination and management efforts. The life cycle of the fruit and vegetables production and logistics are really long, with many stakeholders engaged in, it is hard to cover all data along the life cycles.

To address these challenges, the project team adopted flexible and adaptive strategies. During the pandemic, work plans were swiftly adjusted, with offline meetings, surveys, and trainings moved online. Digital tools were leveraged to maintain communication and ensure continuity of implementation at the beginning stage. To respond to regional and capacity disparities, the project applied a differentiated approach—designing localized technical solutions and providing region-specific guidance based on local crop structures and market conditions. This enabled farmers and cooperatives in different regions to enhance their green production and management capabilities along suitable pathways. Strengthened multi-stakeholder collaboration further ensured alignment among scientific institutions, the industry association, and enterprises, facilitating effective scaling of project outcomes across regions. The personalized customization of the project has also been recognized by many local governments, who propose green solutions tailored to different regions based on local conditions. The life cycle models were developed combining assumption, past studies and current investigation/surveys from our project, and conclusion and calculation were carefully looked into together with academic experts and industrial experts in logistics.

First, combining capacity building with on-site demonstration proved to be the most effective way to strengthen farmers' and MSMEs' practical competencies. Structured training, supported by hands-on field guidance, not only enhanced awareness of sustainable cultivation

but also led to tangible improvements in management and quality control among cooperatives. Second, given China's vast and diverse agricultural landscape, **a region-specific and phased implementation approach** was essential. Adapting training content and standard application to local contexts ensured both technical relevance and the replicability of outcomes, making the project scalable across regions. Third, **multi-stakeholder collaboration emerged as a key enabler** for advancing sustainable agriculture. The industry association played a central role in coordination, standard setting, and enterprise mobilization; research institutes provided scientific and technical support; and the engagement of major retailers helped drive upstream supply chain transformation—creating a strong synergy among government, academia, and business sectors. Finally, **continuous policy dialogue and feedback loops** proved vital for institutionalizing project achievements. Insights gained from standardization pilots and field implementation have already informed policy recommendations and industry guidelines, offering practical experience from China that can be replicated in other contexts to promote green agricultural transition.

PROJECT ACHIEVEMENT

Key achievements during the project period include:

- 10,032 farmers participated in training activities, improving knowledge and skills in sustainable cultivation and food safety management.
- 2,057 cooperatives, village collectives, and agribusiness representatives were trained as second-level trainers, enabling localized capacity building.
- 208 “Sustainable Planting Demonstration Bases” were successfully evaluated and guided, establishing replicable regional models.
- 184 retailers and distributors adopted or expanded the use of standardized reusable fruit and vegetable crates.
- Over 6 million FVRPC crates were deployed in agricultural supply chains, reducing packaging waste and post-harvest losses.
- Produced 34 academic papers, research reports, standards, and operational guidelines contributing to knowledge sharing and policy reference.
- Received 13 formal feedback letters from government departments acknowledging the project's positive policy contribution.
- Compiled a Best Practice Collection consolidating replicable experiences and sectoral insights.
- Strengthened China–EU collaboration through policy dialogue and knowledge exchange on sustainable agriculture.





Hongtao Wang
CCFA, Project Manager



This project represents a genuine effort to drive systemic improvement - not only through the development of standards but also through capacity building. It focuses both on the application of tools and technologies and on advancing policy recommendations and social awareness. Agricultural modernization is a complex and integrated endeavor. While optimizing the circulation system may seem like a small entry point, we firmly believe that it is precisely such focused, practical efforts that can truly catalyze deep connections between industrial efficiency, ecological value, and social consensus.



Long-term project sustainability

At the capacity and collaboration level, the project established an online learning platform and an expert knowledge network connecting farmers, cooperatives, research institutions, retailers, and local governments. This system will continue to serve as a permanent capacity-building platform under CCFA, enabling targeted responses to diverse regional training needs and extending the project's empowerment impact.

At the knowledge and industry practice level, the food safety consistency verification framework and standardized reusable crate model have been integrated into CCFA's ongoing standardization and certification work. The collection of best practices compiled from project experience provides replicable approaches and actionable references for green transition and sustainable operation within China's retail sector. The life cycle analysis models were published for further academic and practical reference, and one of the models (agricultural product logistics packaging life cycle cost optimization model) were developed into software publication.

At the policy and systemic level, the project combined European best practices with domestic implementation to develop a series of policy recommendations on rural revitalization, farmer capacity development, and circular packaging systems. The positive feedback received from government departments has laid a strong foundation for continued policy alignment and institutional transformation. CCFA and its partners will further sustain these achievements through ongoing dissemination, standard updates, and China-EU policy dialogue, ensuring the project's long-term influence across the agricultural and retail value chains.

Project contributions to Climate Change Mitigation and SDGs

The project made tangible contributions to climate change mitigation and the achievement of the Sustainable Development Goals through systemic interventions across agricultural production, logistics, and consumption. By promoting the use of standardized reusable fruit and vegetable crates (FVPRC), with over six million units adopted nationwide, the project significantly reduced the use of single-use packaging materials and related carbon emissions. Life Cycle Assessment (LCA) and Life Cycle Cost (LCC) analyses confirmed the environmental and economic benefits of reusable logistics systems. In parallel, farmer and cooperative trainings promoted low-input and eco-friendly cultivation practices, reducing fertilizer and pesticide use and mitigating agricultural emissions.

Beyond production, the project also supported the transition toward sustainable consumption and green supply chains, contributing directly to [SDG 12: Responsible Consumption and Production](#). By reducing post-harvest losses and improving logistics efficiency, the project minimized food waste, plastic waste and enhanced resource efficiency. The establishment of food safety consistency verification and green logistics standards improved transparency and accountability across the supply chain. Moreover, through extensive public awareness initiatives and China-EU knowledge exchange, the project fostered sustainable and low-carbon lifestyles, strengthened cross-regional collaboration on climate action, and provided replicable insights for global sustainable agriculture.

While directly advancing SDG 12 (Responsible Consumption and Production), the project created strong interlinkages with several other Sustainable Development Goals. Through standardization, digitalization, and capacity-building, it supported the green transformation of China's agricultural circulation system, enhancing productivity, traceability, and resilience while reducing environmental pressures and strengthening inclusiveness across the value chain.

Specifically, the project contributed to multiple SDGs: by empowering farmers and cooperatives and promoting sustainable cultivation, it advanced [SDG 2 \(Zero Hunger\)](#); by improving productivity through standardized logistics and loss reduction, strengthening farmers' and MSMEs' technical and quality management skills, enhancing occupational health and safety through standardized crate operations, and improving MSMEs' access to markets, it supported [SDG 8 \(Decent Work and Economic Growth\)](#); by promoting reusable crates and reducing energy-intensive single-use packaging production, it contributed to [SDG 7 \(Affordable and Clean Energy\)](#); by lowering fertilizer and pesticide use and controlling waste discharge, it contributed to protecting water ecosystems and [SDG 14 \(Life Below Water\)](#); through circular resource use and emission reduction, it supported [SDG 13 \(Climate Action\)](#); and through continued China-EU cooperation and multi-stakeholder engagement, it strengthened [SDG 17 \(Partnerships for the Goals\)](#). The project thus demonstrated an integrated, cross-sectoral contribution to sustainable agricultural and environmental transformation.

Impacts at a Glance

Economic Impact	- Compiled three editions of the National Catalogue of Premium Agricultural Products, cumulatively recommending over 1,300 high-quality agricultural products. - More than 2,000 agricultural operators and retail enterprises involved in the project have gained new market cooperation and supply chain opportunities through the initiative.
Environmental Impact	- Engaged 60 retailers and 124 distributors in standardized reusable crate systems, deploying 6.114 million reusable logistics carriers in total. - Replaced approximately 440 million single-use carriers, significantly reducing plastic and paper waste generation.
Social Impact	- Implemented occupational health and safety training to reduce risks of pesticide poisoning, greenhouse-related illnesses, and other work-related health issues, improving labor conditions in agricultural production and logistics. - Addressed the economic and occupational conditions of women farmers during training and field research, encouraging female participation in cooperatives and training programs, and enhancing women's involvement and decision-making power in agriculture.
Climate Benefits	- Promoted the adoption of standardized reusable fruit and vegetable carriers, which reduced fossil energy consumption by 30–90% and waste generation by over 70% compared with single-use carriers, significantly cutting emissions in agricultural logistics. - Based on Life Cycle Assessment (LCA), the project reduced approximately 275,000 tonnes of CO₂ equivalent annually, totaling about 825,000 tonnes CO₂e over the three-year implementation period.
Target Group Engagement	- Over 2,000 MSMEs (including cooperatives, village collectives, and agricultural enterprises) and 10,000+ farmers participated in training programs on improving the quality and efficiency of fresh produce operations. - More than 300 partner organizations took part in the project, including retailers, distributors, government agencies, research institutes, industry associations, and international organizations. - A total of over 100 outreach and engagement events were organized, covering online and offline training sessions, field visits, forums, and awareness-raising activities. - Strong communication outcomes: over 1,000 media and communication pieces published in total, including 618 reports by mainstream media and coverage from 16 central-level outlets; social media posts reached 1.28 million+ views, and WeChat articles accumulated 134,000+ reads, achieving broad industry and public visibility.
Policy Development	- Engaged 71 policymakers and stakeholders and submitted 13 policy recommendations to different decision-making bodies. - Developed and released 1 industry and 2 group standards, promoting regulatory alignment in green logistics, sustainable agricultural production, and standardized operation of fruit and vegetable reusable plastic crates.
Europe-Asia Cooperation	- A total of two joint EU–China events were organized, including academic exchange sessions and thematic workshops on sustainable agriculture. - Conducted two study tours to Europe, engaging directly with EU institutions and relevant organizations to learn from European experience in sustainable agriculture, green supply chains, and food loss reduction. - Established three long-term partnerships, including with the Swedish Environmental Research Institute (IVL), GLOBALG.A.P., Wageningen University & Research (WUR), and several other European institutions working in agriculture and sustainable development.



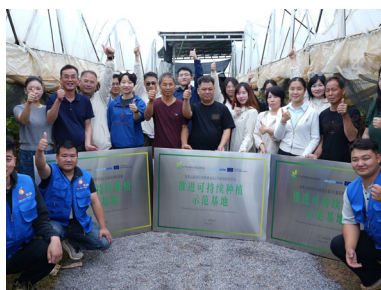
FUNDING

EUR 3,156,248.12
(EU Contribution: 79.2%)



DURATION

Mar 2022 - Aug 2025



PARTNERS



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This impact sheet is developed together with SWITCH-Asia Policy Support Component



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