

Capacity Building on Technology Transferring of Geographical Indications Environment & Sustainability (GIES) for One Country One Priority (OCOP) Initiative in Asia and the Pacific

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DOI: <https://doi.org/10.3974/geodp.2023.03.13>

CSTR: <https://cstr.escience.org.cn/CSTR:20146.99.2023.03.13>

The “Joint International Capacity Building Workshop on Technology Transfer on Geographical Indications Environment & Sustainability (GIES) for One Country One Priority Product Initiative implementation in Asia-Pacific Region” (hereinafter referred to as the “Joint International Capacity Building Workshop”), was closed on August 22, 2023, at the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR/CAS). Government officials and national representatives from Bangladesh, Bhutan, Nepal, Cambodia, and Papua New Guinea, who are responsible for the FAO-OCOP project, as well as officials from Australia, Germany, the FAO Asia-Pacific Regional Office, and Chinese experts and relevant authorities, attended this international conference. The conference was co-chaired by Dr. LI Xuan, Senior Policy Officer, FAO Regional Coordinator on OCOP in Asian and the Pacific, Regional Office for Asia and the Pacific (RAP), FAO, and Dr. LIU Chuang, Prof. of IGSNRR/CAS, Principle Investigator of GIES, and Vice Chair of Regional, Organizing Group of FAO-OCOP in Asian and the Pacific. The GIES concept, methods, and technology, founded in 2021 and applied in 17 cases in China, have received recognition from the China Association for Science and Technology (CAST), local governments, and the Food and Agriculture Organization of the United Nations (FAO) at the “Green Agriculture Forum: GIES for OCOP implementation in Asian and the Pacific”, during the on-site presentation of the Feng county case group in Jiangsu Province, and at the Joint International Capacity Building Workshop.

1 Background

FAO launched the Global Action (GA) on Green Development of Special Agro-Products (SAPs), themed as “One Country One Priority Product” (OCOP) in September 2021, with

Received: 30-08-2023; **Accepted:** 10-09-2023; **Published:** 25-09-2023

Citation: Li, L. M., Siddique, K. H. M., Wang, Z. B., *et al.* Capacity building on technology transferring of Geographical Indications Environment & Sustainability (GIES) for One Country One Priority (OCOP) Initiative in Asia and the Pacific [J]. *Journal of Global Change Data & Discovery*, 2023, 7(3): 334–340. <https://doi.org/10.3974/geodp.2023.03.13>. <https://cstr.escience.org.cn/CSTR:20146.99.2023.03.13>.

the focus on supporting the Members for the transformation of their agricultural sectors towards more efficient, inclusive, resilient, and sustainable agri-food systems through the green development of the SAPs. SAPs include all kinds of agricultural products, recognized as symbolic national or local agricultural products, but not having benefited from official support programs to the extent as commonly grown staple crops. Currently, more than 80 countries worldwide and 22 countries in the Asia-Pacific region have launched the OCOP program.

The GIES 2021–2030 Decade Action Plan was officially launched by organizations including the Institute of Geographic Sciences and Natural Resources Research (IGSNRR/CAS) and the Geographical Society of China (GSA) in September 2021 during the Beijing International Fair for Trade in Services (CIFTIS). During this event, they also introduced the principles, methodologies, and technological solutions behind the GIES case cluster. In the same year, this initiative was incorporated into the “Innovation China” program^[1]. In 2022, GSA took the lead in establishing the GIES professional science and technology service team. The main objective behind the development of GIES methodologies and technological solutions for the GIES Decade Action Plan is to provide a comprehensive toolkit supported by geographic science and cutting-edge technology, aligning with the idea that “preserving natural beauty is akin to safeguarding wealth”. The Geographical Indications Environment & Sustainability (hereafter, “GIES”) is a scientific and technological tool that identify, assess and monitor environmental sustainability of geographical areas where special agricultural products locate^[2]. It aims at balancing environmental protection and economic development. The SAPs and associated identified geographical areas that had passed the GIES scientific assessment will be conferred as GIES Case with traceable QR code^[3]. The scope of the GIES application includes: (1) Geographical Indications (GI) products; and (2) geographically specific products (potential GI products), including special geographical products and geographically traditional products.

In May 2022, the FAO-OCOP Asia-Pacific Regional Launch Event took place both offline and online in Bangkok, Thailand. Dr. LIU Chuang was invited as a guest speaker during the launch event, where she delivered an online presentation on the application of GIES methods and technology in China. In September 2022, one year after the implementation of China’s GIES Action Plan, it was selected by FAO as a standout innovation case for the Asia-Pacific region’s “One Country, One Priority Product” initiative¹. In July 2023, Dr. LIU Chuang was invited to serve as the Vice Chair of the FAO-OCOP Asia-Pacific Regional Organization Group and attended the inaugural joint meeting of Chairs and Vice Chairs of the Asia-Pacific Regional Organization Group held in Dhaka, the capital of Bangladesh. During the meeting, she conducted research and proposed organizational and technical solutions for OCOP implementation in the Asia-Pacific region.

After multiple exchanges and consultations, FAO and the GIES expert group unanimously agree that they share a consensus on advancing the achievement of United Nations Sustainable Development Goals, particularly SDG 1 (no poverty), SDG 2 (zero hunger), SDG 6 (clean water), SDG 8 (economic growth), SDG 10 (reduced inequalities), SDG 15 (ecosystem) and SDG 17 (partnerships). FAO believes that the application of GIES methods and technologies in the Asia-Pacific OCOP implementation is a requirement of the OCOP project and will be beneficial to countries across the Asia-Pacific region^[4].

With the joint sponsorship of the CAST, CAS, IGSNRR/CAS, FAO, and with the support of government departments including the People’s Government of Huzhou city in Zhejiang province, the People’s Government of Feng county in Jiangsu province, and the People’s Govern-

¹ www.fao.org/one-country-one-priority-product/asia-pacific/good-practices/detail/geographical-indications-for-environment-sustainability/en.

ment of Bohai town in Huairou district, Beijing, the Joint International Capacity Building Workshop was successfully held from August 14 to 23. The workshop included three Parts:

(1) Part I: Green Agriculture Forum in Huzhou, Zhejiang province of China from 14 to 16 August 2023, on the occasion of “China Green Low Carbon Innovation Conference, GLCC” co-organized by Chinese Association for Science and Technology, Ministry of Housing and Urban-Rural Development and Government of Zhejiang province of China, 15–16 August, 2023;

(2) Part II: Show Case and *in-situ* field visit, Feng county case in Feng county, Jiangsu province of China from 17 to 18 August 2023;

(3) Part III: Capacity Building on Technology Transfer on GIES for OCOP Implementation in RAP in IGSNRR/CAS, Beijing from 19 to 22 August 2023.

2 Part I: Green Agriculture Forum and the Joint Exhibition

(1) Green Agriculture Forum: GIES for OCOP implementation in Asian and the Pacific

The China Association for Science and Technology (CAST), Ministry of Housing and Urban-Rural Development and Government of Zhejiang province of China has scheduled to co-organize The China Green Low-Carbon Innovation Conference (GLCC) from 15 to 16 August 2023 in Huzhou, Zhejiang province of China. The conference scheduled six forums on the topic of green development, among which, the one centered around GIES was designated as the Green Agriculture Forum: GIES for OCOP implementation in Asian and the Pacific.

This phase of the conference was jointly organized by IGSNRR/CAS, GSA, FAO, the Zhejiang Provincial Association for Science and Technology, and the People's Government of Huzhou City. The forum was moderated by Mr. LIAO Xiaohan, the Chief of the Team Leader of GIES S&T Services and Dr. LI Xuan, Senior Policy Officer of the FAO Asia-Pacific Regional Office, who also serves as the FAO Regional Coordinator on OCOP in Asia and the Pacific. Participants in the forum included over 70 representatives from Bangladesh, Bhutan, Nepal, Cambodia, Papua New Guinea, Australia, Germany, Thailand, the FAO Asia-Pacific Regional Office, representatives from the Science and Technology Service Team for GIES in Innovation China, and a Next-Generation Youth Forum team consisting of 11 high school students.

Representatives from the organizers, including Mrs. LUO Hui, Director General of International Cooperation Department of China Association for Science and Technology, Mr. JIN Kai, Deputy Mayor of the People's Government of Huzhou city, Mr. WANG Shenglin, Deputy Director of IGSNRR/CAS, and Mr. ZHANG Guoyou, Vice President and Secretary General of Geographical Society of China, delivered speeches. They congratulated the forum's convening and expressed their wishes to further strengthen international cooperation and promote green, high-quality, and sustainable development on this basis.

Former FAO Associate Secretary General and Academician of the Eurasian Academy of Sciences, Mr. HE Changcui, delivered the keynote presentation on “Promote Smart and Green Agricultural and Food System Transformation in Support of UN SDGs”. Presentations and recommendations were also provided by eminent figures including Mr. GONG Ke, Founding Fellow of International Science Council and former President of the World Federation of Engineering Organizations (WFEO), Dr. LIU Chuang, Principle Investigator



Figure 1 Joint international capacity building workshop on technology transfer on GIES for One Country One Priority Initiative implementation in Asia-Pacific region

of GIES and Prof. of IGSNRR/CAS, Prof. Kadambot H. M. Siddique, Chair and Director of Institute of Agriculture in the University of Western Australia, as well as government officials and national representatives from Bangladesh, Bhutan, Nepal, Cambodia, Papua New Guinea, who are responsible for the FAO-OCOP initiative, case representatives from “Science and Technology Service Team for GIES” (Mr. HAN Yizhen, Deputy County Magistrate of Feng County in Jiangsu Province, Mrs. ZHOU Lei, Deputy Mayor of Yucheng City in Shandong, Mr. ZHANG Mingxin, Associate Prof. at Ningxia University, and Chen Shengbo, Prof. at Jilin University), and a Next-Generation Youth Forum team consisting of high school students.



Figure 2 Mr. HE Changcui, delivering the keynote presentation on “Promote Smart and Green Agricultural and Food System Transformation in Support of UN SDGs”



Figure 3 Group Photo of Some Representatives Attending the Green Agriculture Forum: GIES for OCOP Implementation in Asian and the Pacific

(2) Joint Exhibition of FAO-OCOP & GIES Products

The second part of the conference is the joint exhibition of GIES and FAO-OCOP products. A total of 23 sets of products and one set of equipment were displayed. The cases and products participating in the joint exhibition include:

- 1) Yanchi Tan Sheep Huamachi Township Case in Dry Grassland;
- 2) Baoshan Coffee Xinzhai Village Case in Dry-Hot Valley;
- 3) Panshi Rice Lanjia Village Case in Permanent Basic Farmland;
- 4) Fengxian Burdock (*Arctium lappa*) Fanlong Township Case in Ancient Yellow River Flooding Area;
- 5) Yang County Black Rice Caoba Village Case in Crested Ibis (*Nipponia nippon*) Habitat;
- 6) Panshi Chinese Cherry Apple Baoshan Township Case in Low Mountains and Hills;
- 7) Panshi Fishing Qiantang Case in Reservoirs and Fresh Water Bodies;
- 8) Conghua Litchi Jiangpu Street Case in Subtropical Low Hills;
- 9) Yuchang Wheat-Maize Double Cropping Field Fangsi Township Case in Yellow River Irrigation Environment;
- 10) Zezhou Millet (Danchuan Millet) Gaodu Township Case in Red Clay Soil;
- 11) Panshi Large *Corylus Futai* Township in Low Mountain and Hills;
- 12) Panshi Rice Qiantang Case in Permanent Farmland;
- 13) Suining Sweet Potato Qingfeng Village Case in Subtropical Hills;
- 14) Korla Fragrant Pear Kongque River Oasis Case in Dryland;
- 15) Fengxian Pear Ancient Yellow River Floodplain Case;
- 16) Fengxian Apple in the Ancient Yellow River (Dashaha) Case;



Figure 4 The joint exhibition of FAO-OCOP & GIES products

- 17) Lipu Taro-Rice Rotation Permanent Farmland Case;
- 18) Midong Rice Yangmaogongzhen Case in Oasis Wetland;
- 19) Bangladesh Jackfruit Case;
- 20) Papua New Guinea Vanilla Case;
- 21) Nepal Large Cardamom Case;
- 22) Cambodia Mango Case;
- 23) Bhutan Quinoa Case.

3 Part II: Show Case and *in-situ* Field Visit, Feng County Case in Feng County, Jiangsu Province of China

The second part of the conference took place on the 17th and 18th in Feng county, Jiangsu province.

Accompanying the visit were Mr. LU Fei, Deputy County Magistrate of Feng county; Mr. HAN Yizhen, Deputy County Magistrate of Feng county; Mr. CHI Xingxing, Head of the Public Data Center of Feng county, and Mr. FANG Jun, the Leader of the Enterprise Team for the Science and Technology Service Team for GIES. The main agenda of this phase of the conference included visits to the Undercity Museum of Xuzhou city, the Feng County Han Culture Exhibition Hall, on-site inspections of case studies in Feng county related to ancient Yellow River flood areas, including Fengxian Burdock (*Arctium lappa*) Fanlong Township Case in Ancient Yellow River Flooding Area, Fengxian Pear Ancient Yellow River Floodplain Case, and Fengxian Apple in the Ancient Yellow River (Dashahe) Case, as well as tours of online and offline exhibition halls showcasing GIES products.

The efforts of the people of Feng county in transforming the ancient Yellow River flood areas into the birthplace of high-quality geographical products, a result achieved over generations of hard work, received high praise from international delegates. They expressed that Feng county's case serves as an example for regions worldwide affected by natural disasters, demonstrating how to capitalize on natural conditions for the development of green and specialty agriculture. International experts and FAO officials also commended the establishment of the "Global Change Scientific Data Publishing System World Data Center High-Quality Geographic Product Habitat Protection and Sustainable Development Application Sub Center" for its focus on promoting digital economic development. They expressed their wishes for the timely release of the outcomes of this work and its role in FAO's Asia-Pacific OCOP program cooperation.

4 Part III: Capacity Building on Technology Transfer on GIES for OCOP Implementation in RAP in IGSNRR/CAS



Figure 6 Representatives from the workshop conducting hands-on research at IGSNRR/CAS

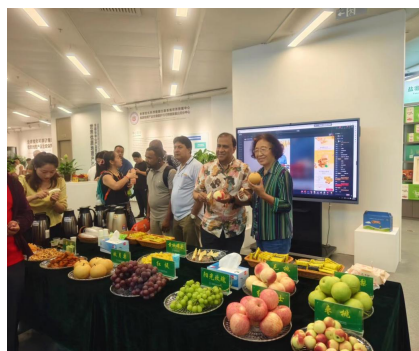


Figure 5 Conference delegates visiting the GIES case product pavilion in Feng county, Jiangsu province

The third part of the conference took place from the 19th to the 22nd at the IGSNRR/CAS, in Beijing. The central focus of this phase was on how the principles of open science in GIES could be applied to the FAO-OCOP initiative using big data and IoT (Internet of Things) technology. Dr. LIU Chuang provided a comprehensive overview of GIES, covering its overall design, the requirements for GIES cases, the review process, core scientific issues, practical technologies, openness,

risk management, intellectual property protection, and a summary of issues encountered and potential solutions during the implementation of the 17 GIES cases. Prof. Siddique from the University of Western Australia, Prof. ZHU Yunqiang from IGSNRR/CAS, Deputy Editor SHI Ruixiang, Associate Prof. LV Tingting from the Aerospace Information Research Institute, Chinese Academy of Sciences, and Prof. LIU Yizhuo from the International Trade and Economic Cooperation Institute of the Ministry of Commerce, addressed various topics, including green development of specialty agricultural products, data center construction, quality assessment of GIES case data, the application of geographic information systems and remote sensing data, and international trade of Chinese agricultural products.

Under the guidance of Dr. LI Xuan and Dr. LIU Chuang, all conference participants engaged in practical discussions. Ms. Sabnam Shivakoti, Joint Secretary of the Ministry of Agriculture in Nepal, mentioned that GIES covers not only FAO-OCOP but also all high-quality specialty agricultural products. She highlighted that Nepal has several plateau-specific agricultural products, in addition to soybeans, that are worth promoting using the GIES methodology.

Ms. Kuenzang Om, Deputy Director of the Agriculture Division in the Ministry of Agriculture and Forests in Bhutan, considered GIES methods and technology to be practical and replicable, suitable for application in Bhutan. She mentioned that Bhutan is planning to quickly initiate the use of these methods and technology for buckwheat cultivation.

Representing Papua New Guinea, Mr. Lazarus Dawa, the OCOP National Representative, presented physical displays of vanilla and expressed that GIES methods and technology are highly applicable to Papua New Guinea. He stated his intention to launch the implementation of these methods and technology immediately upon returning home.

Mr. Taing Koungeveng, Deputy Head of the Plant Protection Office in the Ministry of Agriculture, Forestry, and Fisheries in Cambodia, pointed out that Cambodia exports a significant quantity of mangoes. He highlighted that using GIES methods and technology can help international consumers gain a better understanding of Cambodia's agricultural products, thereby benefiting Cambodia's international trade.

Jackfruit is one of the products included in FAO-OCOP for Bangladesh. Mr. Md. Jillur Rahman, Chief Agricultural Scientist at the Bangladesh Agricultural Research Institute, mentioned that this workshop provided valuable insights into the specific details of applying GIES, making it highly practical for Bangladesh, which recently launched its national OCOP project. Officials and experts at the conference also discussed detailed timelines and processes for each country to implement OCOP work using GIES.

To reinforce the knowledge and techniques acquired by the conference participants during this capacity-building workshop and to facilitate the initiation of their respective projects upon returning to their home countries, with the support of the government of Bohai town, Huairou district, Beijing, all conference attendees conducted a field exercise on how to develop a GIES case using the Huairou Chestnut Mountain Front Alluvial Fan case located on the southern slope of Yan Mountain in Beijing's Huairou district.

The closing ceremony of the workshop was held in the afternoon of the 22nd, with Dr. Liu Chuang presiding over the event. Attendees at the closing ceremony included Mr. GAO Boxuan, Head of the International Organizations Section at the International Cooperation Bureau of the Chinese Academy of Sciences; Mr. ZHANG Ming, Deputy Director of the Office of International Cooperation at IGSNRR/CAS; and Mr. HE Shujin, Deputy Secretary-General of the Geographical Society of China. They expressed their appreciation for the collaboration between the Chinese Academy of Sciences, the Institute of Geographic Sciences and Natural Resources Research, and FAO. They also welcomed the cooperation between Chinese experts, scholars, and leaders with the Chinese Academy of Sciences and voiced their continuous support for the work of GIES.

Prof. Siddique stated that the University of Western Australia is eager to establish a cooperative relationship with the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, to promote the application of GIES methods and technology in Pacific Island countries.

Dr. LI Xuan summarized by emphasizing FAO's high regard for the application of GIES methods and technology in the FAO-OCOP flagship project. FAO greatly appreciated the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, for freely transferring GIES methods and technology to FAO-OCOP project applications and for providing information technology infrastructure services and technical training. She expressed heartfelt gratitude to all the units, organizations, and individuals who supported the workshop.

5 Consensus and Follow-up Plan

Representatives from the FAO Asia-Pacific Regional Office and delegates from Bhutan, Nepal, Cambodia, Bangladesh, and Papua New Guinea, who are among the pioneers in launching the OCOP initiative in the Asia-Pacific region, reached consensus on the following topics:

(1) The portable applicability of GIES methods and technology for the implementation of FAO-OCOP programs in their respective countries.

(2) Bhutan, Nepal, Cambodia, Bangladesh, and Papua New Guinea expressed their commitment to expeditiously developing specific national implementation plans for cooperation in applying GIES under the framework of the FAO-OCOP program.

(3) Representatives from these countries expressed their desire to use the "Global Change Science Research Data Publishing System" as the foundational infrastructure for implementing OCOP programs with the application of GIES, and extended invitations to GIES experts from China to provide guidance in their respective countries.

(4) Dr. LI Xuan, summarizing the discussion, stated that FAO would coordinate the work of these countries in the second half of this year, with the aim of showcasing the outcomes at the FAO Ministerial Summit early next year.

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