

The 44th Capacity Building Workshop on Big Data Applications was Held in Ilam of Nepal

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DOI: <https://doi.org/10.3974/geodp.2025.04.11>

On September 2–4, 2025, the 44th Capacity Building Workshop on Big Data Applications was held with the theme of “Geographical Indications Environment & Sustainability (GIES)” in Ilam of Nepal for supporting FAO One Country One Priority Product (OCOP) Initiative implementation in Nepal. The event was successfully held under the framework of the Memorandum of Understanding between the FAO and the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR, CAS) on GIES. The event was jointly organized by FAO-Nepal, IGSNRR, CAS, government of Rong County, Nepal, and Large Cardamom Research Center of Ministry of Agriculture and Livestock Development, Nepal.

The workshop was held in two sessions. The first session was held at the government of Rong County, Nepal. Representatives from the FAO-Nepal, the Chairman of Rong County, the Director of Agricultural Bureau, *et al.*, attended the meeting. The meeting was chaired by Dr. Sofina Maharjan from the FAO-Nepal. Professor Liu, Chuang, Director of World Data System of Global Change Research Data Publishing & Repository, from IGSNRR, CAS, Vice Chairman of the Asia-Pacific Regional Organization of the OCOP under FAO of the United Nations, and Mr. Mani Kumar Syangbo, the Mayor of Rong County, Nepal, delivered the speeches, respectively.

Nepal is a major exporter of large cardamom, which is the product of OCOP Nepal. As an important agricultural product of the country, Nepal produces the highest global yield of large cardamom and it has been selected for the FAO’s OCOP initiative. It is primarily used as a culinary spice in daily cooking and holds significant value as both a food and medicinal resource. Large cardamom commonly grows at elevations between 300 and 1,300 m, with plants reaching up to 2 m in height, and is widely distributed across various districts in the Himalayan region of Nepal. Ilam is the earliest area in Nepal to cultivate large cardamom, while Rong County is recognized for producing the highest quality large cardamom and providing the most suitable growing conditions in the country.

Received: 15-09-2025; **Accepted:** 30-10-2025; **Published:** 24-12-2025

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Citation: Ma, J. H., Maharjan, S., Acharya, S., *et al.* The 44th Capacity Building Workshop on Big Data Applications was held in Ilam of Nepal [J]. *Journal of Global Change Data & Discovery*, 2025, 9(4): 475–477. <https://doi.org/10.3974/geodp.2025.04.11>.

GIES is a comprehensive tool package about geographical products and their environment and culture, using open science and big data, the latest technology of the Internet of Things, making products and their original places identifiable, which will help the domestic and foreign trade of products and benefit both producers and consumers. The products of GIES include geographical indication products, geographical characteristic products, geographical traditional products. The GIES technology can bring better environment, and better life, which is one of major objectives of FAO OCOP proposed and advocated by FAO to enhance the sustainable development of special agricultural products in developing countries.



Figure 1 Large cardamom growing in Rong County of Nepal



Figure 2 Harvest of large cardamom of Rong County of Nepal

Professor Liu, Chuang introduced the connotation and significance of GIES and pointed out that GIES led by IGSNRR, CAS and the Geographical Society of China, was launched in September 2021 and included in the Science and Innovation plan of China in 2022. In February 2024, FAO of the United Nations and IGSNRR, CAS signed a Memorandum of Understanding on cooperation by GIES to support the OCOP project. Quinoa in Bhutan and coffee in Panama have already started the GIES case study according to this technical standard. Large cardamom, as a special agricultural product of the OCOP-Nepal, is a kind of product bred in unique geographical environment in Nepal, which is the first product in case study on Nepal's agricultural products included in the GIES. It will rely on the geographical conditions of Rong County to carry out the GIES case study, and provide scientific basis for the traceability and protection of the original place and the protection the large cardamom brand in Nepal.

Mr. Mani Kumar Syangbo, the chairman of Rong County, gave a comprehensive introduction to the special agricultural products of the local area. After joining the OCOP project, the local area has established a seedling breeding base of large cardamom and launched a digital plan with the support of the FAO. The planting area of large cardamom has doubled compared to before joining the OCOP project, and the yield per unit has also increased significantly. In addition, coffee and tea are also special agricultural products in Rong County, where the hilly landscape in this area is very suitable for the 2 crops. The planting quantity of coffee has been increased from 80,000 to 300,000. Rong County has a good tea planting environment, and the tea products are mainly organic green tea and organic black tea. The tea garden sightseeing significantly promotes the local economic development.

The second stage of the workshop was held at the Large Cardamom Research Centre, Nepal. Professor Liu, Chuang reported on "Data publishing process of GIES case study". She presented the key technical points of large cardamom case, and gave the guidance of the

research team. She made a full explain for the team on technical difficulties, data collection, and data publishing. The scientific data of GIES case study will be published in the data journals of the Global Change Research Data Publishing & Repository in China.

Ms. Anupa Subedi, Director of Large Cardamom Research Centre, and Principal Investigator (PI) of OCOP Nepal large cardamom team, will lead the team members of the research center to carry out the research work on GIES case study of large cardamom. In the meeting, the research team had heated discussion on the GIES station, the key data of GIES study, and download, preservation and analysis of real-time data, and so on.

The 44th symposium of the Capacity Building Workshop on Big Data Applications in 100 Universities/Towns has played an active role in promoting the application of GIES, the production and living of large cardamom farmers in the Rong County of Nepal, the dissemination of the FAO's "Four Better" concept (better production, better nutrition, better environment, better life, leaving no one behind), and the international cooperation in open science, data publishing, sharing, dissemination.

The Capacity Building Workshop on Big Data Applications in 100 Universities/Towns was officially launched by the Geographical Society of China and the IGSNRR, CAS in 2017. A total of 43 activities has been carried out in China, Indian, Madagascar and Kenya.



Figure 3 The first session of the 44th Capacity Building Workshop on Big Data Applications was held in Rong County, Nepal



Figure 4 Representatives from the FAO-Nepal, the Mayer of Rong County, the Director of Agricultural Bureau, *et al.*, attended the workshop



Figure 5 Mr. Mani Kumar Syangbo, Mayer of Rong County, explained the GIES functions with farmers



Figure 6 The second session of the workshop was held in Large Cardamom Research Centre, Nepal