



GEOINFORMATICS CENTER NEWSLETTER

April 2025



Forest Management Seminar

Dr. Manzul Kumar Hazarika delivered a talk at the seminar titled “Forest management as Nature-based Solution (NbS): Towards disaster risk reduction by forests (F-DRR)” seminar. He presented “Risk Changes: A Cloud-based Open-Source Platform for Multi-hazard Risk Assessment” for the seminar. The seminar aimed to communicate the importance of utilizing forests’ multifaceted functions in regional development, considering the trend toward mainstreaming NbS.

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- Knowledge Sharing
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- Geospatial Product

International



AI-CCTV at Battambang, Cambodia



AI-CCTV at Can Tho, Vietnam

Two AI-powered CCTV were installed successfully in **Can Tho, Vietnam**, with technical support from our local partners ClearRivers and Delta Fly team. The GIC team has been providing backend support for training the pLitter CCTV model. This advanced CCTV system will monitor and track the movement of plastic waste flowing through the Rach Ngong Canal. Using computer vision, AI, and geospatial technology, the system can categorize five types of plastic waste: **styrofoam, plastic bottles, plastic bags, trash bags, and straws**. It provides continuous monitoring of floating plastic waste in rivers, offering real-time data and predictions.

In addition, **two more AI-powered CCTV** cameras have been installed in Battambang province, Cambodia, with support from our local partner COMPOSTED. **Four more AI-powered CCTV** cameras are now operational in Vientiane, Laos, installed by the National University of Laos, our local partner. These installations are part of the ongoing "Plastic Flow Mekong" project, funded by the Mekong-ROK Cooperation Fund.



AI-CCTV at Vientiane, Laos (location 1)



AI-CCTV at Vientiane, Laos (location 2)

National



AI-CCTV at Samut Sakhorn, Thailand



AI-CCTV at Samut Prakan, Thailand



AI-CCTV at Bang Bua, Thailand (location 1)



AI-CCTV at Bang Bua, Thailand (location 2)

Four new AI-powered CCTV cameras were successfully installed across three different locations in Thailand. Camera 1 has been placed at Samut Sakhon (top left) while Camera 2 (top right) is situated at the Samut Prakan. These were installed near the river mouths of two significant waterways: the Chao Phraya River Mouth and the Tha Chin River Mouth.

Additionally, two cameras were installed along the Bang Bua canal by the GIC team, near the Chai Klong Bang Bua and Roi Krong communities in Bangkok, Thailand. The selection of these locations was based on thorough site visits, taking into account factors such as optimal visibility, solar radiation exposure, bridge dimensions, and the positioning of the camera angle.

In total, 12 AI-powered CCTV cameras have been installed across national and international sites.

APFSD Side Event: Scaling Science-Based Solutions

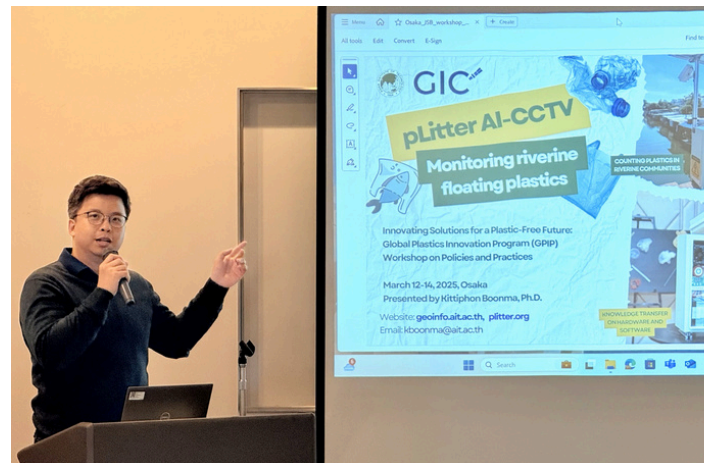


GIC Director, Dr. Hazarika (right end) at APFSD seminar

GIC Director Dr. Manzul Kumar Hazarika was invited as one of the speakers during the APFSD annual forum for the side event titled **“Scaling Science-Based Solutions for Sustainable Development: Regional Innovations in Technology and Data for Achieving the SDGs”**. Dr. Hazarika presented an open-source tool for understanding climate and disaster risks, focusing on the flood and tropical cyclone scenarios in Bangladesh in the next 20 to 100 years and their impacts on power sector infrastructures.

Global Plastics Innovation Program (GPIP) Recognition

The United Nations Development Programme (UNDP), in collaboration with the International Environmental Technology Center (IETC) and the Global Environment Centre Foundation (GEC), organized the Global Plastics Innovation Program from 12-14 March 2025. Our technology, **AI-powered CCTV**, was selected as the innovative solution for tackling plastic pollution, as represented by Dr. Kittiphon Boonma, Research Specialist, GIC. This recognition is a significant milestone for our center.



Dr. Boonma presenting on pLitter AI-CCTV

3rd Mekong-Korea International Water Forum Participation



Dr. Boonma presenting on PlasticFlow Mekong project

Dr. Boonma joined the **“3rd Mekong-Korea International Water Forum (MKWF)”** as a delegate from the Mekong-Republic of Korea Cooperation Fund (MKCF) team in Daejeon, Korea. He presented the Plastic Flow Mekong project, shared insights into its regional implementation so far, the challenges faced, and lessons learned from implementing a regional project, and proposed recommendations for the KOMEC’s “Knowledge Hub: Project Development One-stop Platform.”

JICA-DMCR Project



Final Workshop JICA-DMCR

A pilot testing to seek the possibility on the utilization of Closed-Circuit Television (CCTV) for plastic pollution monitoring at the river mouth of the Gulf of Thailand.

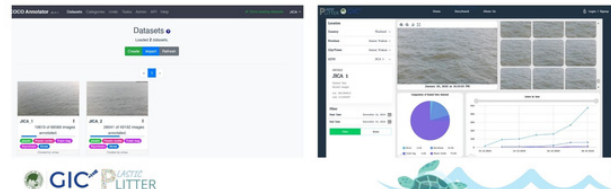
Geoinformatics Center, Asian Institute of Technology

20-21 February 2025



Output 1: Data Platform

- Back-end dataset management: COCO-Annotator
- Data (image) annotation: COCO-Annotator
 - <https://cctv.plitter.org>
 - Username: jica
 - Password: jicacctv
- Data dashboard: pLitter website (CCTV)



GIC's work for JICA-DMCR project

The workshop titled **“Development of a Methodology for Estimating Plastic Leakage Using Point Data Collected at River Mouths along the Northern Gulf of Thailand”** was held at the Department of Marine and Coastal Resources (DMCR) building. Dr. Boonma, Project Lead, GIC, presented an in-depth analysis of the pilot study conducted to assess the feasibility of CCTV technology for monitoring floating plastic debris in Thai rivers. As a part of this project, the GIC team installed two new AI-powered CCTV cameras in the river mouth of the Gulf of Thailand (Samut Prakan and Samut Sakhon), as shown on Page 3.



Output 2: Consultations/plan finalisation

- Meeting with General Director of the Chulachomklao Navy Fort to seek permission to implement the project (Chao Phraya river mouth).
- Sought permission from the head monk of Wat Kam Phra Temple, as well as the village leader, to install the AI-CCTV
- Adapt the plan and budget to address **unforeseen difficulties encountered during project implementation.**



Output 2: Installation of AI-CCTVs

- Installed on 10th December 2024

Chao Phraya (Chulachomklao Fort)



UNEP-Mekong Pacific Project

UNEP environment programme **Strengthening Plastic Pollution Management in Asia and the Pacific**

Session 3: Monitoring of Plastic Leakage at Regional Level

Moderator	Speakers			
 Chettiyappan Visvanathan Professor, Faculty of Engineering, Mahidol University	 Kittiphon Boonma Research Specialist, Geoinformatics Center, AIT (GIC-AIT)	 James Scott Executive Director, TerraCycle Thai Foundation	 Gwendalyn Sisior Ocean Advisor, Permanent Mission of Palau to the United Nations	 Dinithi Samarathun Programme officer – Integrated Water Resources Management IUCN, Sri Lanka

Expert panelist for session 3 at SSFA closing conference

The closing conference, held on 5-6 March 2025, focused on the future development and continued use of the Mekong Pacific Project's outputs, emphasizing collaboration on plastic pollution monitoring and management in riverine environments. Dr. Kittiphon Boonma, GIC, joined an expert panel to discuss key issues related to plastic pollution in the Lower Mekong River Basin (LMB).



Drone imagery of coffee plantation in Timor-Leste

The GIC team conducted field surveys with the support from the local team for the **Coffee and Agroforestry Livelihood Improvement Project (CALIP)** to collect and update coffee plantation data across six districts: Liquica, Ermera, Ainaro, Manufahi, Aileu, and Bobonaro from 17-21 February 2025. The survey aimed to enhance the accuracy and reliability of Earth observation data for coffee plantation mapping and monitoring. One hundred fifteen ground observation points across six districts in Timor-Leste were covered, and photographs of the locations and other details of coffee characteristics were documented.

Plastic Leakage Mapping Survey

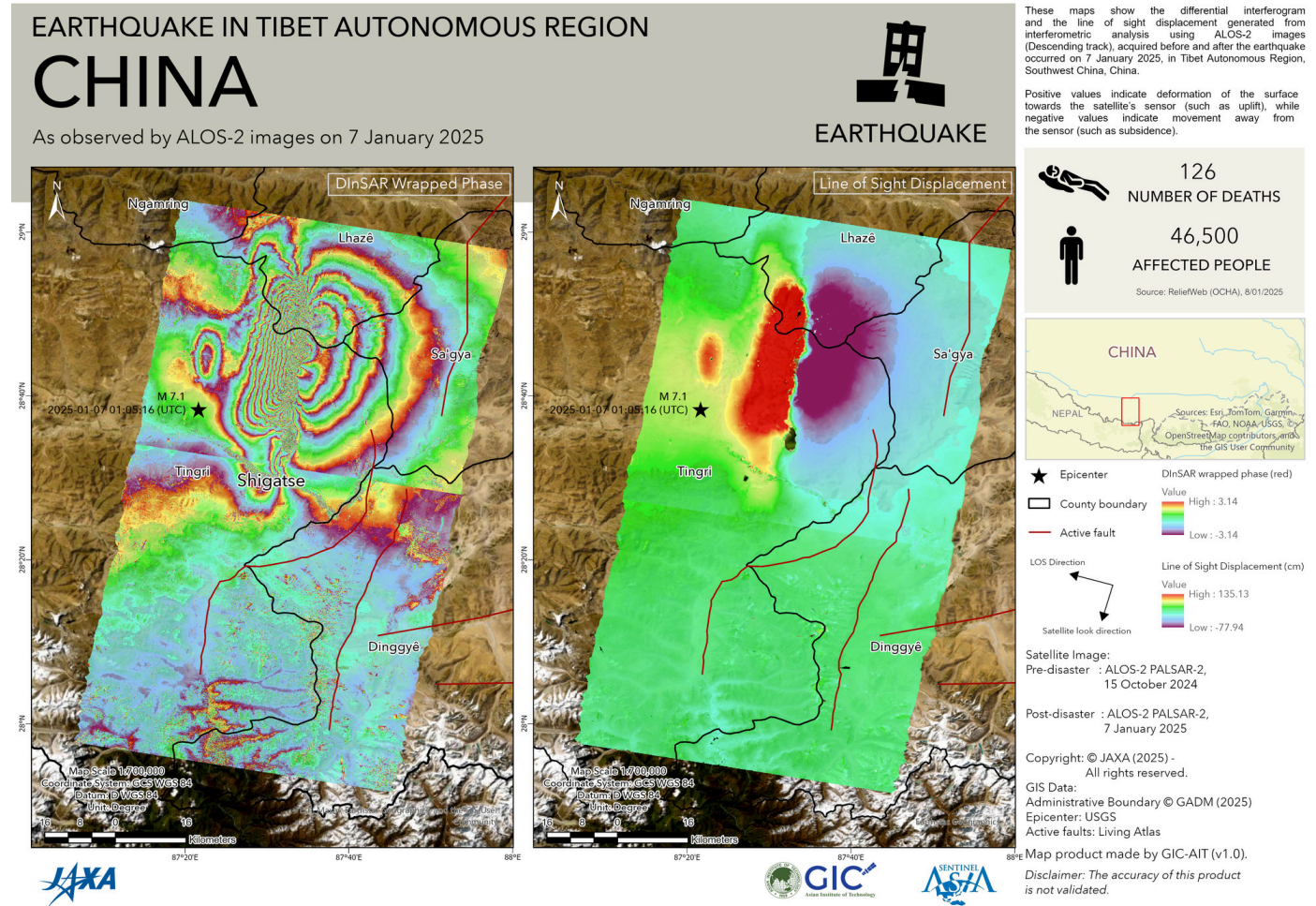


Group photo for field survey team at Bang Bua

The GIC team, along with volunteers from Kasetsart University, conducted a field survey on **plastic leakage mapping** in the Bang Bua community from February 22-23, 2025, as part of the Plastic Flow Mekong Project. A total of 4.43 sq. km was surveyed during this visit. The survey covered potential plastic waste leakage areas classified into three main types- artificial barriers, littering spots, and uncontrolled dumpsites.

Earthquake in Tibet Autonomous Region, China

(Sentinel Asia Activation, 570)



Map of pre and post earthquake of the Tibet Autonomous Region in Southwest China

On 7 January 2025, a **7.1 magnitude earthquake** struck Xigaze City in the Tibet Autonomous Region, China, causing 126 deaths and 188 injuries, with thousands of houses damaged. Tremors were felt in Nepal, Bhutan, and parts of northern India. The earthquake's epicenter was in Shigatse, a high-altitude county in Dingri, near Mount Everest.

As part of its emergency response contributions, GIC provided critical satellite-based analysis during the earthquake. GIC produced a ground displacement map from Advanced Land Observing Satellite-2 (ALOS-2) L-band Synthetic Aperture Radar (PALSAR 2) imagery to monitor the earthquake's impact through emergency observations.