Scaling Science-Based Solutions for Sustainable Development: Regional Innovations in Technology and Data for Achieving the SDGs

28 February 2025
10:45 - 12:00 Bangkok Time
Meeting Room G, UNCC, Bangkok and online

Organizers:

- Asian and Pacific Training Centre for Information and Communication Technology for Development
- Asian and Pacific Centre for Transfer of Technology
- Asian and Pacific Centre for the Development of Disaster Information Management
- Centre for Sustainable Agricultural Mechanization
- International Center of Big Data for Sustainable Development Goals (CBAS), Chinese Academy of Sciences, China
- National Research Council of Thailand (NRCT), Ministry of Higher Education, Science, Research and Innovation, Thailand
- Statistical Institute for Asia and the Pacific

Minutes of the Meeting

Opening Remarks & Introductory Statements

The session commenced with an opening address by Dr. Preeti Soni, Head of the Asian & Pacific Centre for Transfer of Technology (APCTT) who highlighted that science-based solutions offer critical evidence, technologies and strategies that help harmonize the need of society, the economy and the environment. She emphasized that these solutions are integral to achieving the Sustainable Development Goals (SDGs) and in fostering a more sustainable, equitable, and resilient future. Dr. Soni further stressed that mainstreaming technology and data-driven solutions in policymaking is essential for formulating informed, efficient, and sustainable policies capable of addressing the multi-dimensional challenges of sustainable development. With this context, she opened the floor for discussion and deliberations.

In her keynote remarks, Ms. Lin Yang, Deputy Executive Secretary, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) , reiterated the important role of ESCAP's regional institutions in strengthening Member States' capacity in areas such as innovation and technology transfer, ICT, agricultural mechanization, disaster information management and statistics.

She noted that regional institutions have been making substantial contributions towards advancing technology and data-driven sustainable development in the Asia-Pacific region , thereby creating significant opportunities to address challenges as we progress towards achieving the SDGs. Ms. Ying further underscored that technology and data play a crucial role

in enabling enhanced decision-making, improving access to and efficiency of resources, accelerating innovation, empowering people and communities, promoting collaboration and partnerships, and addressing global challenges.

She said she was confident that this event would generate meaningful discussions and produce concrete recommendations for countries to integrate innovative technology and data solutions to achieve sustainable development.

A. Summary of discussions

1. The side event brought together experts and stakeholders from across the Asia-Pacific region and provided a platform to strengthen cross-border cooperation to promote the use of scientific evidence based approaches for achieving the Sustainable Development Goals (SDGs). The event was attended by over 40 participants including academicians, students and representatives from relevant institutions.

2. Dr. Shailja Sharma, from the Statistical Institute for Asia and the Pacific (SIAP/ESCAP) highlighted the expanding role of Artificial Intelligence (AI) in official statistics. She noted that AI supports the generation and integration of Big Data through technologies such as web technologies, remote sensing, and other digital tools. It assists statistical organisations in leveraging new data sources and enhances their capacity to conduct data analysis, detect anomalies enable faster data-driven decision making. She emphasized that AI techniques including machine learning, task automation, and data visualization, are transforming statistical processes. These technologies are being applied in environmental statistics - for instance, in measuring the extent and changes in ecosystems over time, estimating carbon stocks and cycles, identifying vulnerable areas, and supporting post disaster recovery efforts. These applications are directly contributing to the achievement of SDG13.

3. Prof. Fang Chen from International Center of Big Data for Sustainable Development Goals (CBAS), emphasized that digital technologies and big data infrastructure serve as powerful tools to accelerate the SDG implementation. She noted that data cloud storage and cloud computing services not only facilitate data sharing and storage but also play a crucial role in advancing the 2030 Agenda. The world's first science satellite for SDGs, SDGSAT-1 is already in anthropic interaction with the environment of earth. It encourages scientists around the world to contribute to the 2030 Agenda by accessing shared data through the SDGSAT-1 Open Science Program (OSP). More than 420,000 SDGSAT-1 images are shared with scientists from over 100 countries through this OSP. The Alliance of Sustainable Development Goals Satellites (ASSA) established in September 2022 is a non-profit and academic group working on scientific research and technological innovation, aiming to provide data services and sci-tech support for the implementation of UN 2030 agenda and GDI. The Annual reports on Big Earth Data in support of the SDGs are also available for six consecutive years fully leveraging the global data acquisition advantages of Earth observation technologies. The Beijing declaration on accelerating sustainable development through digital technologies advocates overcoming pressing challenges and accelerating progress towards the 2030 agenda by harnessing digital technologies and Big

Earth Data. A proposed international science programme under the International Decade of Sciences for Sustainable Development aims to apply advanced digital technologies and planetary Earth science to reinvigorate SDG progress using data-driven evidence-based methodologies, and promote open science and novel solutions for collective sustainability.

4. Dr. Venkatachalam Anbumozhi, from Economic Research Institute for ASEAN and East Asia (ERIA), highlighted that in mega cities like Jakarta, traffic management is powered by AI. Digital technologies are taking stock of disaster resilience in cities like Jakarta through satellite image and sensory images which is supporting in achieving SDG 13. Emerging scientific solutions are increasing day by day, but significant challenges and digital divide exist. Countries such as Myanmar and Cambodia are lagging in achieving the SDGs due to lack of digital literacy and skill in cybersecurity and data. Data security is also increasingly challenging in mid-income countries due to low public trust in data usage. In both agriculture and industries, the infrastructure systems are not in scale as they should be, which has led to huge infrastructure gaps. Dr. Anbumozhi emphasized that strengthening policy and regulatory frameworks, along with a collaborative approach is essential to overcoming these challenges.

5. The representative from Asian Institute of Technology, Thailand, Mr. Manzul Kumar Hazarika emphasized the varying interpretations of risks and hazards and noted that risks as defined by sociologists and by engineers are different. He highlighted that open-source data and tools are used for multi-hazard risk assessment for understanding climate and disaster risks. Risk reduction activities can happen through engineering, nature-based solutions and relocation. The analysis of the impact of climate change in the power sector in Bangladesh revealed that power demand is expected to grow by 5.7% per annum until 2050. Exposure of power plants, substations, and transmission lines is increasing climate-related risk in the country.

6. Mr. Habib Jabari, representing the Plan and Budget Organization, Islamic Republic of Iran, highlighted the country's science-based technological initiatives supporting the achievement of the SDGs, particularly in the area of health systems, poverty reduction and decent work and economic growth. One key initiative is the *Health Electronic File System of Iran*, which aims to centralize citizen's health records nationwide. This digital system enables the archiving of health records from childhood to adulthood, regardless of specific health conditions, and is overseen by the Ministry of Health's Center for Statistics and Information Technology. Additionally, the Iranian Welfare Information Database serves as a socio-economic database on household in Iran for providing subsidies. Mr. Jabari emphasized that pressing challenges such as water scarcity, climate change, air and water pollution, deforestation, desertification can be effectively addressed through innovation and creativity, and the strategic use of technology, knowledge systems, and regional collaboration.

7. Dr. Wu Caicong, representing the Key Laboratory of Agricultural Machinery Monitoring and Big Data Applications, Ministry of Agriculture and Rural Affairs, Republic of China, shared insights on the implementation of Global Navigation Satellite System (GNSS)

technology on agricultural machinery in China to improve data collection and management, by enhancing both the technological infrastructure and operational components. The application of GNSS-based Big Data has improved after-sales service, government monitoring and regulation, and increased working hours and income for machinery operators. Big Data Application in wheat harvesting are also widely deployed in China to monitor and optimize wheat harvesting, including real-time tracking and refuelling strategies to enhance efficiency. However, challenges persist in Agricultural Machinery Operation and other issues faced collectively by manufacturers, operators, and governments agencies.

B. Conclusions

The event highlighted the increasing adoption of innovative tools such as digital regional platforms for data-sharing and AI applications for strengthening climate adaptation efforts. It also showcased the use of big data by countries to strike a balance between environmental sustainability and economic resilience.