Concept Note
International Conference on
"Technology and Innovation for Climate Resilient Agriculture and Bioeconomy"
Wednesday December 2, 2026, Changsha, People's Republic of China
Venue: Changsha, People's Republic of China, and online
Jointly Organised by
The Ministry of Science and Technology, People's Republic of China
The Administrative Centre for China's Agenda 21, People's Republic of China
and
Asian and Pacific Centre for Transfer of Technology (APCTT) of the
United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

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Background

Agriculture across the Asia-Pacific region is increasingly vulnerable to climate change. Rising temperatures, erratic rainfall, droughts and floods are affecting agricultural productivity, food security and rural livelihoods. At the same time, countries must meet growing food demand while transitioning to sustainable, low-carbon and resource-efficient production systems. Technology and innovation are therefore central to building climate-resilient agriculture and achieving sustainable development.

Bioeconomy offers a promising pathway to address these challenges by promoting the sustainable use of biological resources to produce food, bio-based materials and energy. Emerging technologies—including climate-smart and precision agriculture, agricultural biotechnology, digital agriculture, artificial intelligence, remote sensing and circular bio-based value chains—can improve productivity, strengthen resilience, enhance resource efficiency and create new opportunities for green growth and rural livelihoods. Realizing this potential, however, requires supportive policies, investment, technology transfer and stronger regional cooperation.

The conference is aligned with **ESCAP Resolution 82/2, "Supporting the transition towards a sustainable bioeconomy in countries in Asia and the Pacific"** adopted in April 2026. The resolution calls on member States to strengthen research, innovation, human capacities and financing, promote digital technologies and artificial intelligence, foster public-private partnerships, and enhance regional cooperation to accelerate a sustainable and inclusive bioeconomy transition.

Against this backdrop, the ***International Conference on Technology and Innovation for Climate Resilient Agriculture and Bioeconomy*** on December 2, 2026, at Changsha in China will provide a regional platform for knowledge exchange and policy dialogue on climate-smart agriculture, agricultural biotechnology, digital technologies, artificial intelligence, financing and regional cooperation. The conference will bring together policymakers, researchers, industry leaders, innovators and development partners to share experiences, showcase technological solutions and strengthen partnerships for advancing climate-resilient agriculture and a sustainable bioeconomy across the Asia-Pacific region.

Target audience

Representatives of government ministries and departments, experts, representatives of relevant scientific organizations, leading practitioners in the field of climate resilient agriculture and bioeconomy, technology providers and innovators from Asia-Pacific.

Objectives

1. **Enhanced knowledge:** Participants will gain insights into the latest advancements in emerging technologies and their applications in climate resilient agriculture and bioeconomy.
2. **Collaborative networking and regional cooperation:** The conference will encourage new partnerships and cross-border collaborations among scientists, technologists and policymakers.
3. **Policy recommendations:** The conference will help develop useful recommendations for enabling policies to support the integration and application of emerging technologies in climate resilient agriculture and bioeconomy and foster cross-border technology cooperation.

TENTATIVE PROGRAMME

Date: 3 December 2025, Hybrid

OPENING SESSION

- **Welcome address** – Mr. Zhang Yongtao, Deputy Director General, the Administrative Centre for China's Agenda 21, People's Republic of China
- **Opening Address** – Ms. Preeti Soni, Head, Asian and Pacific Centre for Transfer of Technology of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
- **Special Address** – Executive Secretary / Deputy Executive Secretary, ESCAP
- **Special Address** –Senior official(s) of The People's Republic of China （Governor of Hunan Province to be confirmed)

Technical sessions – may be plenary or parallel sessions

TECHNICAL SESSION: Technologies for Climate-Smart and Precision Agriculture for Climate Resilience

This session will examine technologies and approaches that help farming systems withstand and adapt to climate shocks, from resilient crop genetics to precision water and risk management.

Academician Liu Zhonghua — Hunan Agricultural University

Academician Bai Lianyang — Hunan Academy of Agricultural Sciences

Academician Luo Xiwen — South China Agricultural University

Professor Hu Fengyi — Yunnan University

Presentation topics (suggested):
1. Stress-tolerant and climate-resilient crop varieties, seed systems
2. Precision farming, digital tools and water-efficient/climate-adaptive irrigation
3. Climate risk monitoring and early-warning systems for farm-level decisions

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TECHNICAL SESSION: Agri-Biotechnology, Digital Technologies and AI for a Sustainable Bioeconomy

This session will explore how biotechnology, digital tools and artificial intelligence are driving innovation, transparency and circularity across bioeconomy value chains.

Dr. Changboem Choi – Hanbat University, Replublic of Korea
AHA guided AI and Location-based Distributed Ledgers for Agrifood Traceability: An Early Implementation in the Republic of Korea.

Dr. Thallada Bhaskar - CSIR-Advanced Materials and Processes Research Institute

Sustainable strategies for effective utilization of Agricultural residues for economic and environmental benefits

Academician Zhang Youming — Shandong University

Professor Wang Jing — Stanford University

Dr. Cai Xiaohua — Hunan Sinocare Co., Ltd.

Professor Liu Dongbo —Yuelushan Laboratory

Presentation topics (suggested):
1. Agricultural biotechnology, seed innovation and bio-based products/biomanufacturing
2. AI and digital tools for traceability, transparency and quantifying bioeconomy across value chains
3. Circular, waste-to-value and bioenergy technologies

TECHNICAL SESSION: Policy framework for Bioeconomy Transition

This session will discuss the policy frameworks including financing instruments and investment strategies needed to mobilize capital for a sustainable, inclusive bioeconomy transition.

Professor Li Weidong — Tsinghua University

Wang Shitao — Beijing 21st Century Research Institute Co., Ltd.

Asso. Prof. Luo Weiwei — Yunnan University

Li Qingrong — Xuanrong Intellectual Property

Presentation topics (suggested):
1. National policies and policy instruments
2. Blended finance, green bonds and public-private partnerships
3. De-risking and investment facilitation instruments
4. Prioritizing MSMEs, smallholders, community enterprises and start-ups

PANEL DISCUSSION: Regional Cooperation for a Sustainable Bioeconomy Transition

This session will address the policy, standards and cooperation mechanisms needed to scale bioeconomy solutions equitably across the region. Member State representatives will be part of this panel discussion.

CLOSING SESSION

- Representative of The Administrative Centre for China's Agenda 21
- Representative of APCTT

A summary document capturing key recommendations, policy insights and proposed collaborative actions (if any) from the International Conference will be circulated to all participants,

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member states and will feed into APCTT's future regional cooperation and capacity-building initiatives.

Note: Above is a tentative list of speakers from China. Speakers from other countries are in the process of finalisation.

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