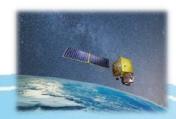# AETA2025

The 10th International Conference on Advanced Engineering – Theory and Applications

GSF (Global Smart Future) International Cooperation Platform
GSF Expert Activities & Future Development Strategy

Dec. 11. 2025

Introduction

The **GSF Platform** is an international cooperation ecosystem connecting Vietnam, Korea, and ASEAN through:

- ✓ **Digital transformation**

- ✓ **Smart agriculture & water management**

- ✓ **Smart energy systems**

- ✓ **Climate technology**

- ✓ **Regional development and community engagement**

It supports cross-disciplinary collaboration among universities, enterprises, and governments.

Vision of the GSF Platform

GSF aims to become a leading regional platform for:

- ✓ **Cross-border academic and industrial cooperation**

- ✓ **ClimateTech innovation**

- ✓ **Pilot technology demonstration**

- ✓ **Sustainable regional development models**

- ✓ **Training and human resource development**

Core Structure of the GSF International Cooperation Platform

❑ **GSF–APE Expert Network**

❑ **Multi-sector digital collaboration ecosystem**

❑ **Technology based pilot projects**

❑ **Regional development and tourism models**

❑ **Industrial and enterprise support systems**

GSF−APE Expert Network

Main Roles:

- ✓ **Facilitating expert collaboration across sectors**

- ✓ **Providing technical guidance for ClimateTech, SmartWater, SmartEnergy, TerraChar**

- ✓ **Coordinating multinational research initiatives**

- ✓ **Supporting international proposal development**

- ✓ **Disseminating research through conferences such as AETA**

Functions of the GSF Digital Ecosystem

The digital ecosystem enables:

    ✓ **Real-time knowledge exchange**

    ✓ **Continuous cooperation among institutions**

    ✓ **Joint project formation**

    ✓ **Training and capacity building**

    ✓ **Technology demonstration and documentation**

IP and technology cooperation ecosystem

Anyfive enables:

- ✓ **AI-supported management of IP(Intellectual Property) across Korea–Vietnam–ASEAN universities**

- ✓ **Secure technology transfer and joint commercialization**

- ✓ **Creation of cross-border research clusters**

- ✓ **Development of ESG and Carbon-related IP Standards**

This IP-driven structure serves as the value chain backbone connecting: AETA 2025 → technology validation → joint research → industry application → commercialization.

Smart Energy Management System (SEMS)

❑ **AI-powered energy optimization**

- ✓ **Reduces energy** consumption and emissions

- ✓ **Supports smart campus transformation**

- ✓ **Demonstrates** modern energy-efficiency applications

- ✓ **Scalable to municipal and industrial sectors**

SmartWater Plus

❑ **Key Features:**

- ✓ **Long-range IoT water quality monitoring**

- ✓ **AI-driven environmental prediction**

- ✓ **Applicable to agriculture, aquaculture, and urban water systems**

- ✓ **Forms an integrated Water, Soil, Carbon management approach when paired with TerraChar**

Carbon (Blue/Green Carbon)

AETA 2025 features sessions on environmental engineering, blue carbon ecosystems, and ESG frameworks.

- ✓ **TerraChar-based agricultural carbon reduction solutions**

- ✓ **Coastal ecosystem monitoring (mangroves, seagrass)**

- ✓ **AI-based carbon emission prediction and verification**

- ✓ **Multi-institution ESG data integration**

- ✓ **Technology transfer via IP platforms**

TerraChar Green Carbon Project

❑ **Biochar**-based soil regeneration

  ✓ **Long-term carbon removal capability**

  ✓ **Improved crop productivity for highland coffee, pepper, and cocoa**

  ✓ **Biochar material development (e.g., bricks)**

  ✓ **Training and demonstration programs in Highland region**

Digital Health and Bio-Sensor AI Integration

❑ **Biomedical engineering, bioinformatics, and healthcare innovation sessions in AETA 2025 align with GSF's medical cooperation model, including:**

- ✓ **AI-powered health monitoring**

- ✓ **Bio-sensor IoT systems**

- ✓ **Clinical Big-data analytics**

- ✓ **University–hospital–enterprise collaboration**

- ✓ **Medical device commercialization via IP ecosystems**

Tourism – Digital Art, Smart Cultural Tourism

GSF extends this into a Korea–ASEAN cooperative model integrating:

- ✓ **VR/AR-based smart tourism content**

- ✓ **Regional Cultural–Ecological tourism platforms**

- ✓ **Joint Digital art & Creative content development**

- ✓ **Tourism entrepreneurship and startup cooperation**

This supports cultural diplomacy and City-to-City collaboration between Korea's provinces and ASEAN tourism hubs.

Lam Dong Collaboration Network

❑ **Key partners include:**

✓ **Tourism Association**

✓ **Farmers' Union**

✓ **TDTU Bao Loc Campus**

✓ **Agriculture and biotechnology enterprises**

✓ **Local eco-tourism operators**

Their roles support agriculture modernization, TerraChar adoption, and wellness tourism.

Jecheon Collaboration Network

❑ **Contributions include:**

✓ **Regional wellness strategy**

✓ **Development of natural product industries**

✓ **Tourism route planning**

✓ **Advisory for Park-golf and resort development**

✓ **Cultural exchange and community programs**

SIYB & RITAB Industrial Ecosystem

❑ **SIYB**
  – **Strengthens SME capacity**
  – **Develops new business models using GSF technologies**
  – **Provides training and entrepreneurship support**

❑ **RITAB**
  – **Conducts industrial and technology needs assessment**
  – **Supports technology deployment**
  – **Bridges universities, enterprises, and local governments**

Together, they anchor GSF's industrial scalability.

Conclusion

❑ **The GSF International Cooperation Platform is a comprehensive model connecting:**

- ✓ **Research and innovation**

- ✓ **Climate and environmental technologies**

- ✓ **Industrial ecosystem development**

- ✓ **Tourism and cultural integration**

- ✓ **Regional and international cooperation**

GSF will continue expanding its impact through AETA 2025 and future global initiatives.

GSF–APE Expert Kim Do Kyong   dokyong@gmail.com