

13

CLIMATE ACTION



2019-2023
Publications

146



2019-2023
Percentage of all
Taiwan Publications

4.1%



Course Units

81



Student Engagements
with Units on SDG 13

2,004

Research

Roadside Slope Disaster Information Integration and Assessment System

In response to the increasing likelihood of various disasters due to extreme weather conditions, Professor Meng-Chia Weng, Associate Professor Yu-Ping Yuan, and Associate Professor Wei-An Chao from our university's Department of Civil Engineering, along with a cross-disciplinary research team composed of members from National Taiwan University, National Taipei University of Technology, National United University, and Sinotech Engineering Consultants, have made significant breakthroughs in the analysis and prevention of rockfall disasters. They have developed the "Roadside Slope Disaster Information Integration and Assessment System," which provides solutions to the potential disaster losses caused by Taiwan's fractured geology and extreme weather conditions. This research outcome supports the Taiwan Area National Freeway Bureau, Second Maintenance Office, building the foundation for enhancing the nation's climate resilience. The study has also been published in the international journal *Engineering Geology*.

The Importance of Prosumers in Clean Energy Development

Achieving net-zero emissions is not solely the responsibility of power companies; it also requires the cooperation of the demand side. Prosumers play a crucial role in increasing the flexibility of energy dispatch, creating new business opportunities in the net-zero era. Professor Jin-Li Hu from our Institute of Business and Management explores the shared model of energy prosumers from a management and policy perspective. The research delves into the energy prosumers in various fields, identifying their main differences and their respective relationships with energy. The study recommends that prosumers be legally protected to prevent misuse by large, information-rich corporations, ensuring that the legitimate rights and interests of all market participants are safeguarded. This research has been published in the international journal *Energies*.





Social Impact

Establishing the American Taiwan Climate Club

In December 2023, our university signed a memorandum of cooperation with the American Climate Club to establish the American Taiwan Climate Club together. Both parties will work together to develop an internationally aligned carbon standard and propose an ESG (Environmental, Social, and Governance) policy white paper aimed at helping Taiwan gain greater influence on the international carbon trading stage and creating more development value for Taiwan's green economy. Additionally, the collaboration will focus on five key areas: climate and carbon credit education promotion, international networking, carbon project investment, carbon consultancy services, and policy research and think tank initiatives, working together towards advancing climate protection efforts.

Signing the "University Sustainable Development Initiative"

On August 15, 2023, in the presence of over 200 in-person and online faculty members and sustainability experts, Ambassador Eugene Chien, Chairman of the Taiwan Institute for Sustainable Energy (TAISE), and President Chi-Hung Lin of our university signed the "University Sustainable Development Initiative." This initiative signifies our university's commitment to "enhancing university governance," "exerting social influence," and "implementing environmental sustainability." Together with the Taiwan Institute for Sustainable Energy and universities nationwide, we are dedicated to pursuing sustainable development.

Education & Cultivation

Incorporating EO4SDG Concepts into Course Teaching and Practice

Remote sensing allows for large-scale, repetitive data collection, making it suitable for observing various surface phenomena, such as oceans, floods, forests, water resources, agriculture, and land use monitoring. EO4SDG (Earth Observation for SDG) is an initiative proposed by the Group on Earth Observations. Professor Tee-Ann Teo from our university's Department of Civil Engineering has incorporated the EO4SDG concept into his course, enabling students to apply remote sensing techniques in hands-on projects that explore issues related to water resources, sustainable urban and rural development, and terrestrial ecosystem conservation.

Students Establish ESG Sustainability Foresight Society

To concretely implement sustainability actions and foster mutual encouragement among peers, our university students have independently established the "ESG Sustainable Prospect Club." The club includes undergraduate and graduate students from various disciplines across our university and partner schools. The club's activities cover corporate ESG development and engage with sustainable startups, international B Corporations, and NGOs, empowering members to become future green talents and sustainability leaders. Under the active operation of the society, multiple lectures have been held, and a simulated global climate summit workshop was organized. Additionally, the club has collaborated with the Hsinchu City Environmental Protection Bureau and Upcup to promote the "Reusable Cup Plastic Reduction Project." They have also released the "Sustainability News Report" and the "Hsinchu City Vegetarian Map" on social media platforms, influencing thousands of participants in sustainability actions both on and off campus. The club aims to instill the spirit and literacy of sustainable development deeply within the campus, ultimately driving the world towards sustainability in future careers.



Stewardship

Enhancing Sustainability Literacy

To enhance the sustainability literacy of faculty, staff, and students and their understanding of climate change concepts, various units within our university organized numerous events in 2023. These included activities such as the SDGs Cross-Dormitory Puzzle Activity, the Green Dormitory Carbon Reduction Workshop, the classic general education lecture "Super Typhoons, Oceans, and Global Warming - My Adventure," the liberal arts lecture "Empowering Women in Technology and Achieving Net-Zero Carbon Emissions - We're All Involved," the "USR & SDG Achievements Exhibition and Workshop" and "SDG Webinar" organized by the Office of Social Responsibility and Sustainable Development, three "Sustainability Series Lectures" hosted by the Global Citizenship Education Center and the ESG Sustainability Foresight Society, the "A System Approach to Sustainability" lecture by Prof. Bernard Amadei invited by the College of Engineering, and the "Algorithmic Carbon Reduction Series Lectures" organized by the Institute of Science, Technology, and Society.

Creating a Climate-Friendly Campus

Our university is actively responding to sustainability and climate change issues, prioritizing energy conservation and carbon reduction as key objectives. In 2023, we installed smart streetlights managed through automated artificial intelligence systems. Over 1,200 streetlights across our Taipei and Hsinchu campuses can now be controlled based on the Central Weather Bureau's sunrise and sunset times, preventing the inconvenience and energy waste caused by lights turning on or off too early or late during seasonal changes. Additionally, air conditioning systems, which consume the most energy, have been optimized with energy-saving algorithms estimated to reduce energy consumption by 30%. Furthermore, in 2024, our university will launch a greenhouse gas inventory and verification program to identify emission hotspots. The analysis will uncover areas with potential for emission reductions, leading to the development and implementation of related carbon management strategies to achieve the goal of net-zero emissions by 2050.

