

ASIAN INSTITUTE OF TECHNOLOGY SUSTAINABILITY REPORT 2019




**SUSTAINABLE
DEVELOPMENT
GOALS**



AIT
Asian Institute of Technology



ASIAN INSTITUTE OF TECHNOLOGY

TABLE OF CONTENTS

About this report	3
SDG 1: No Poverty	4
SDG 2: Zero Hunger	6
SDG 3: Good Health and Well-being	10
SDG 4: Quality Education	12
SDG 5: Gender Equality	14
SDG 6: Clean Water and Sanitation	16
SDG 7: Affordable and Clean Energy	20
SDG 8: Decent Work and Economic Growth	22
SDG 9: Industry, Innovation and Infrastructure	24
SDG 10: Reduced Inequalities	26
SDG 11: Sustainable Cities and Communities	28
SDG 12: Responsible Consumption and Production	30
SDG 13: Climate Action	32
SDG 14: Life Below Water	36
SDG 15: Life on Land	38
SDG 16: Peace, Justice and Strong Institutions	40
SDG 17: Partnerships for the Goals	42
Sustainable Development Goals Dashboard	44



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About This Report

The 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) adopted by all United Nations Member States in 2015 provide a shared blueprint for peace and prosperity for people as well as the planet, now and into the future. Universities have a critical role to play in achieving the SDGs. Education, research, innovation, and leadership will be essential in helping society follow pathways to sustainable development. This report provides a summary of the range of activities undertaken at the Asian Institute of Technology (AIT) during 2019 to meet the SDGs through its teaching, research, outreach and public engagement, and operations. AIT conducts a diverse range of activities across the Institute, and this report lists only some of many such initiatives. AIT continually strives to implement sustainability in all its core operations, including by creating a platform to showcase its efforts toward the SDGs in a comprehensive and detailed manner.

The motto for AIT is *"Social Impact with Innovation"*, which places a heavy emphasis on sustainability. For 2019—AIT's 60th Anniversary Year, *"Transforming AIT"* was the slogan, and AIT's strategies were outlined in the Roadmap, describing how AIT is going to transform itself by embracing innovation, by being international, by working with enterprises, by nurturing entrepreneurship, by caring for stakeholders, and by broadening support.

AIT President Eden Y. Woon



RESEARCH



TEACHING



OUTREACH AND PUBLIC ENGAGEMENT



OPERATIONS



1 NO
POVERTY



*End poverty in all its forms
everywhere*

AIT contributes to reducing poverty by collaborating with global research hubs and funding schemes focusing on developing and implementing creative multidisciplinary solutions to poverty-related conditions affecting the lives of vulnerable populations, including through river delta preservation and rice farming intensification in low-income Asian countries. The Institute partners with major international players such as Oxfam and the FAO in helping countries build up resilience and mitigate the effects of climate change through a range of farmer-participatory projects. With over 60% of its students coming from low- and lower-middle-income countries, AIT also provides financial aid to students who will go home to help their countries eradicate poverty.

THE LIVING DELTAS HUB

UK Research and Innovation has created 12 global hubs through its Global Challenges Research Fund, and AIT is partnering in two of these. One of these is the Living Deltas Hub, which is funded for five years (2019-2024) and operates across three delta systems: the Red River, the Mekong in Vietnam, and the Ganges-Brahmaputra-Meghna system in Bangladesh and India. These interdisciplinary hubs work across 85 countries along with governments, international agencies, the private sector, and NGOs to develop creative and sustainable solutions that will help make the world safer, healthier, and more prosperous.

River deltas comprise just 1% of global landscapes yet support over half-a-billion people. Deltas are vital socio-ecological systems and global food baskets, but the terrain and the livelihoods of those who rely on them are under threat from human exploitation, environmental degradation, and climate change. By focusing on three deltas in Asia, this Hub will promote a model of equitable partnership with delta dwellers and the research community, who will work together to develop new knowledge and policies. The aim is to safeguard the future of deltas through more resilient communities and sustainable development. The project also aims to help the delta countries achieve their SDG Voluntary National Review agendas. The Hub is truly interdisciplinary and brings together natural and physical sciences, social sciences, and arts and humanities on an equal basis in seeking new solutions to complex, intertwined issues by building on the research already being implemented in delta countries through capacity-building and knowledge co-production toward better futures.

AIT Partners two UK Research Innovation Global Research Hubs

New Global Research Hubs to tackle complex development challenges

Living Delta's

SUSTAINING AND ENHANCING THE MOMENTUM FOR INNOVATION AND LEARNING AROUND THE SYSTEM OF RICE INTENSIFICATION (SRI) IN THE LOWER MEKONG RIVER BASIN

This EU-financed regional project aimed at enhancing the resilience of rainfed farmers confronting climate change variability in the Lower Mekong Basin). The project was implemented in four countries: Cambodia, Laos, Vietnam, and Thailand. The total period of implementation was 72 months, and the total cost of this action was approximately €3.4 million, with an 85% contribution from the European Union. The project was led by AIT's Asian Center for Innovation for Sustainable Agriculture Intensification and implemented in partnership with the FAO, Oxfam, the SRI-Rice Center at Cornell University, and the University of Queensland together with many national partners from ministries, national universities, and NGOs. The main outcomes were:

1. Capacity building and human resource development for sustainable rice intensification: 15,000 smallholder farmers trained (over 50% of them women), and 15,000 farmer-led trainings conducted.
2. Improved livelihoods: 52% higher crop yields per hectare along with 70% higher economic returns.
3. Improved resource use efficiency: 64% greater labor productivity, 59% greater water productivity, and 34% lower energy use per hectare.
4. Climate change amelioration and mitigation: 14% and 17% lower greenhouse gas (GHG) emissions from irrigated and rainfed cropping, respectively.

The results of this farmer-participatory research characterize climate-smart agricultural practices that can promote household food security and support market-oriented development at low cost, especially in rainfed areas, which have not figured prominently in national development plans.

System of Rice Intensification (SRI) in the Lower Mekong River Basin

SRI International Network and Resources Center

FINANCIAL AID TO STUDENTS

AIT provides education to students from countries where poverty is an issue and produces graduates who go home to help their countries eradicate poverty. AIT offers various financial packages to applicants who have been evaluated as outstandingly qualified for admission and who can show proof of financial need. Of AIT's 1,932 students in 2019, 1,185 were from low-income and lower-middle-income countries, with 866 of them receiving financial aid. Among students on scholarships, 237 received a bursary that paid for their living expenses, including a food allowance.



2 ZERO HUNGER



End hunger, achieve food security and improved nutrition and promote sustainable agriculture

AIT partners with research and funding institutions working on reducing undernutrition in Africa and Asia, including Myanmar and India as well as trade-related policies that hamper the availability of appropriate nutrition to populations in need worldwide. The Institute collaborates with international research organizations on schemes for freeing up food supply chains, influencing trade-related policies and practices, preserving ecosystems on which the poor depend for food security, and increasing nutritional diversification with the aim of reducing undernutrition. AIT also promotes on-campus teaching and learning across disciplines working on innovations, including improved statistics, with the potential to deliver a range of hunger-related benefits in its students' home countries.

REDUCING UNDERNUTRITION AMONG CHILDREN

AIT faculty contribute to initiatives aiming to reduce undernutrition among children in Tanzania, Malawi, and more recently Myanmar and India through the use of nutrition-dense grains such as pearl millet, finger millet, and sorghum followed by AIT-led impact assessments. The main donors are Africa RISING (USAID) for Tanzania, the McKnight Foundation for Malawi, Australian Aid for Myanmar, and the Akshaya Patra Foundation for India. The main implementing agency is the International Crops Research Institute for the Semi-Arid Tropics through its Smart Food initiative and under the auspices of the Agriculture for Nutrition and Health project led by the International Food Policy Research Institute. These projects implement hands-on capacity building activities focused on nutritional diversification and the impacts of trainings on mothers and school-meal operators for reducing the extent of undernutrition, including wasting, stunting, and low weight, among children in rural and peri-urban areas of these countries.

AIT PARTNERS THE UK RESEARCH INNOVATION IN TRADE, DEVELOPMENT, AND ENVIRONMENT HUB

AIT partners UKRI through its Global Challenges Research Fund and the Trade, Development, and Environment Hub led by the UN Environment World Conservation Monitoring Center and includes 51 partner organizations from 15 countries. This Hub works across supply chains to influence trade-related policy and practice. Thousands of species are threatened with extinction globally, there has been a swift decline in biodiversity and ecosystem resilience, and populations are being kept in poverty even though trade in agricultural commodities from low and middle-income countries has rapidly increased. This Hub includes economists, trade modelers, political scientists, ecologists, development scientists, large companies, UN bodies, and NGOs, who work together across supply chains to influence trade-related policy and practice. It also produces research to help ensure that trade becomes a driver of positive change in the world, with biodiversity loss halted and populations permanently lifted out of poverty.

Trade Hub

AIT Partners in two UKRI-funded Global Research Hubs

New Global Research Hubs to tackle complex development challenges

AIT PLAYS A KEY ROLE IN INNOVATION IN REMOTE SENSING EDUCATION AND LEARNING

AIT is one of the partners in this EU project co-funded by the Erasmus+ Program, whose goal is to increase educational opportunities in this area. Expected beneficiaries from innovations include environmental protection, agriculture, forestry and fisheries, physical sciences, engineering, and trade, transport services, and security services. *Innovation in Remote Sensing Education and Learning*



AIT-GIC AND THE FOOD AND AGRICULTURE ORGANIZATION LEAD SERIES OF EXPERT GROUP MEETINGS FOR AGRICULTURAL STATISTICS

AIT's Geoinformatics Center has been collaborating with the Food and Agriculture Organization's Regional Office for Asia and the Pacific to facilitate a series of expert group meetings focused on the application of innovative technology for agricultural statistics. The meetings aim to deliver technical knowledge to Asia-Pacific agriculture and statistical experts who then implement new technology-based approaches in their home countries, thus benefiting local farmers and food producers. The first expert meeting took place in November 2019 and focused on digital survey techniques for agriculture censuses. Education and Learning

SUSTAINABLE MANAGEMENT OF WASTE ON CAMPUS AND AIT COMMUNITY FARM

Waste segregation at AIT is carefully carried out by the Office of Facilities and Assets Management, which separates wet waste from dry waste and segregated waste amounting to 89 tons (residential, cafeteria, and other dining areas) and was handed over to the municipality. Other waste such as green waste after lawn mowing amounting to 884.4 tons per year in 2019 was converted to organic compost and used to maintain the campus gardens and landscape. The compost is also used by the AIT Community Farm in producing organic vegetables on campus. The Farm is a member-led initiative that grows organic vegetables for their own use and for sale on campus.



AIT CAMPUS SUSTAINABILITY CLUB

The AIT Campus Sustainability Club conducts activities on water, waste, environment, energy, natural resources, and sustainable transportation management including banana leaf workshops, food and art festivals, tree planting, etc. Below are examples of some of the activities conducted by the Club in 2019, including the Food and Art Festival, Banana Leaf Workshop, and Fashion Show using recycled clothing.





3 GOOD HEALTH
AND WELL-BEING



Ensure healthy lives and promote wellbeing for all at all ages

AIT's Regional Resource Center for Asia and the Pacific supports the fight against all forms of pollution, including air pollution, promoting World Environment Day by planting trees on its campus and offering talks on pollution-related themes. The institute also encourages healthy living habits in its faculty, students, and staff by implementing a no-smoking policy, providing comprehensive sports facilities on campus, and taking part in inter-university competitions. It also works to upgrade the skills of health delivery professionals in countries such as Cambodia and to instill health and wellbeing habits in its students they will take back and pass on to their compatriots.

CELEBRATION OF WORLD ENVIRONMENT DAY - 5 JUNE 2019

AIT's Regional Resource Center for Asia and the Pacific spearheaded the celebration of World Environment Day with the theme of "Beat Air Pollution" at AIT on 5 June 2019. Activities started in the morning, when participants planted trees within AIT. During the event, the Resource Center also planted a special tree commemorating 30 years of operation. Halfway through the day, a talk

on "Beating Air Pollution" was given by an AIT faculty member. Finally, a Fun Run was held in the early hours of the evening in the vicinity of AIT. The celebration was attended by some 200 people from different nationalities, including faculty, students, staff, and visitors to the Institute.

RRC.AP Celebrates World Environment Day "#Beat Air Pollution"

AIT SUPPORT FOR THE CAMBODIAN HEALTH SECTOR WORKFORCE

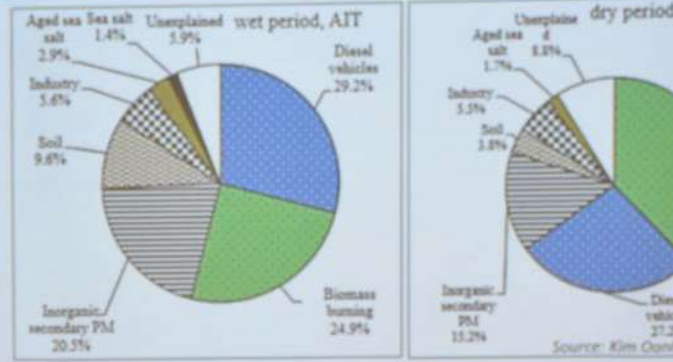
AIT and the University of Health Science, Ministry of Health, Government of Cambodia have developed a joint 10-year strategic plan for pre-service training to support health sector workforce development in Cambodia. The strategic plan is instrumental to health education transformation policy by adopting a competency-based health science curriculum and offering interventions to upgrade the skills of young health professionals and practitioners so as to improve health service delivery to Cambodian people, especially those living in rural areas (2019-2020).



AIT COMMUNITY HEALTH SERVICES

AIT has a 24-hour medical clinic to support the health and wellbeing of the AIT community. Employees and students have mandatory medical insurance to meet most of their medical needs. AIT strictly implements a no-smoking policy with designated smoking areas and a no-alcohol policy to ensure the wellbeing of the community. AIT has many sports facilities, including a swimming pool, tennis courts, multipurpose cricket and football fields, basketball courts, squash courts, and a gym. Inter-university competitions are also held at AIT on the multipurpose cricket and football fields.

Sources of PM_{2.5} at AIT



Site location: EEM Ambient laboratory (Sep 2015 – Feb 2017)
Air Pollution Model: Chemical Mass Balance (Receptor model)

Source: Kim Oon

4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

AIT contributes to quality SDG-related education by developing programs in Sustainable Energy Transition, Food Innovation, Regenerative Sanitation, Urban Sustainability Planning, and Environmental Sustainability Management. It encourages linkages between development economics and environmental studies from a multidisciplinary approach. It provides professional training in the natural and social dimensions of development and environmental management specially tailored for the present and future needs of low-income countries. It makes lectures, presentations, discussions, chats, and blogs on SDG-related topics widely available through its AIT Share e-learning platform, and through its AIT Extension supports educator capacity building to benefit low-income and marginalized groups in developing countries such as Laos.

DEVELOPMENT OF INNOVATIVE ACADEMIC PROGRAMS

AIT's three schools (School of Environment, Resources, and Development - SERD; School of Engineering and Technology - SET; and School of Management - SOM) have developed six new degree programs for introduction in the August 2020 semester.

- SERD** – Sustainable Energy Transition
Food Innovation, Nutrition, and Health
- SET** – Internet of Things
Bio-Nano Material Science and Engineering
- SOM** – International Finance
Business Analytics and Digital Transformation

Additionally, SERD will be launching three new 1-year masters programs in Urban Sustainability Planning and Design and one Professional Masters in Environmental and Social Sustainability Assessment and Management. SET will also be offering a new program in Data Science and Artificial Intelligence.

PROFESSIONAL MASTERS OF SCIENCE IN ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT PROGRAM

AIT has launched a Professional Masters of Science in the Environmental and Sustainable Development Program, which aims to train professionals with a primary interest in linkages between development economics and environmental management from a multidisciplinary approach. It provides professional training in the natural and social dimensions of development and environmental management within the context of developing countries for the attainment of the SDGs.

Professional Masters in Environmental & Sustainable Development

AIT also offers a course on Public Policy that provides students with in-depth understanding of concepts, processes, and analytical tools for public policy-making and focuses on critical sustainable development issues in the context of the current SDG agenda covering global, national, and local policy initiatives.

AIT SHARE

The AIT Share e-learning platform enables the digitization of knowledge assets in AIT and is now being used to offer professional masters programs, certificate courses, and short-term trainings. AIT Share enables students to access high-quality lectures and presentations, a calendar of courses and programs, live chat with instructors, comments on lectures, and instructors' blogs. AIT Share is a cross-sector digital platform in support of content and applications relevant to various stakeholders with the aim of empowering individuals and communities to improve access to knowledge by vulnerable groups and creating better and more inclusive growth while strengthening projects' last-mile engagement. With Application Programming Interface (API) support, AIT Share includes servers, analytics, maintenance, gamification, and educational kiosks based on the needs of each project with the aims of empowering vulnerable groups to reach new levels of participation in education and transforming education growth models by using digital, mobile, and decentralized technologies.

AIT Scales Up to the Next Level of Knowledge Management with the Launch of AIT Share

HELPING TO BUILD CAPACITY

Through its AIT Extension, the Institute provides a comprehensive range of professional and capacity development services across a wide disciplinary range in support of the SDGs. AIT Extension is working for the Department of Policy and Planning of the Ministry of Education, Youth and Sports, Government of Laos in building the capacity of educators and education administrators to monitor and evaluate early childhood education programs in the country. The project supports the Ministry in evaluating the scalability and sustainability of the education programs for children from low-income families and marginalized groups through recommendations for government policy and innovative practices that enhance the relevance and impacts of early childhood literacy in school and at community level.

AIT Extension and the SDGs

Likewise, with support from German Development Aid, AIT has also helped the Royal University of Phnom Penh to develop the curriculum of its MSc in Climate Change.



5

GENDER
EQUALITY



*Achieve gender equality and
empower all women and girls*

AIT is a regional center of excellence in the field of gender-related development, integrating gender as a key teaching and research perspective as well as an ethical concern for everyone Institute-wide but also with a view to disseminating gender-related concepts and practices through its alumni when they return to their countries of origin. It collaborates with institutions in neighboring countries in introducing courses stressing women's participation in debates and highlighting the role of women in developing SDG-related policies and practices. The Institute implements on-campus policies on non-discrimination against women, maternity policies, and childcare facilities that may serve as models for comparable institutions in its students' home countries.

GENDER & DEVELOPMENT STUDIES AND RESEARCH PROJECTS

AIT's Gender & Development Studies academic program aims to work as a regional center of excellence in the field of gender, technology, and development studies while integrating gender as a key intellectual perspective and ethical concern at AIT.

Gender & Development Studies

Some of the projects undertaken in 2019 included the following:

- **Understanding Barriers and Working Pathways to Women's Political Participation In Myanmar**

- The project aims to assess the extent and forms of women's participation in the political sphere in Myanmar and to explore barriers and enabling factors. *Understanding Barriers and Working Pathways to Women's Political Participation In Myanmar*

- **Capacity Building in Gender and Development Studies at Yangon University of Economics** - This project contributes to capacity building at Yangon University of Economics. As a result of the project, the University now offers a course in gender and development studies. *Cities by Women: Embedding Climate Change Resilience in Himalayan Cities*
Capacity building in gender and development studies at Yangon University of Economics

TEACHING

AIT is one of the designated institutions administering the Asian Development Bank-Japan Scholarship Program in the Asia and Pacific region for studies in economics, business and management, science and technology, and other development-related fields, with preference given to women candidates among the criteria. Women candidates are also eligible for an array of other scholarships. In 2019, 740 AIT students (or around 40%) were women.

Scholarships - ADB-Japan Scholarship Program



ACCESS & PROGRESS MEASURES IN SUPPORT FOR WOMEN

AIT has policies on non-discrimination against women, maternity policies that support women's participation, and accessible childcare facilities through the AIT International School.

AIT International School (AITIS)





6

CLEAN WATER
AND SANITATION



Ensure availability and sustainable management of water and sanitation for all

AIT collaborates with Lower Mekong countries and elsewhere in Asia on projects studying the role of hydrology, especially under conditions of climate change and population growth, in supplying energy for development needs as well as greater food and water security. These include studies of land use policies and practices, changes in groundwater levels, wastewater disposal, and water conservation. Testing takes place in dedicated facilities on the AIT campus and have been applied to settings from Myanmar to Bhutan. AIT's Regional Regenerative Sanitation Hub provides industry with integrated sanitary solutions and supports capacity building in Southeast Asia in partnership with funding organizations such as the Bill & Melinda Gates Foundation.

LOCAL, NATIONAL, AND REGIONAL COOPERATION ON WATER SECURITY

AIT collaborates with local, national, and regional governments in the Lower Mekong and other countries in Asia through a number of projects. The overall goal of these projects is to improve water security in the region.

Connecting Climate Change, Hydrology, & Fisheries for Energy and Food Security in the Lower Mekong Basin – One of the goals of the project is to assess and compare the performance of local and global hydrological models to simulate the impact of climate change on hydrology in selected river basins in Asia.



Mapping Groundwater Resilience to Climate Change and Human Development in Asian Cities (GROUNDWATER-ASIA) – The aim of the project is to improve our understanding of the impacts of climate change and human development on groundwater resources and local demand. The project will develop policy recommendations for sustainable groundwater development and management that will support adaptation and build resilience.



Building Capacity and Strengthening Community Participation for Water Resources Management and Wetland Ecosystem Restoration in the context of Climate Change in the Lower Songkhram River Basin – The project aims to contribute to an integrated approach of water and land use policies for climate change adaptation.



REGIONAL REGENERATIVE SANITATION HUB AT AIT

In cooperation with AIT, the Bremen Overseas Research and Development Association (BORDA) established a competency center for integrated sanitary solutions in 2017. This Hub supports capacity building and strengthening of the enabling framework for integrated sanitation approaches in Southeast Asia. The Hub engages with local and regional organizations for capacity building purposes and works for wider impact in partnership with international organizations such as the Bill & Melinda Gates Foundation and the UN Economic and Social Commission for Asia and the Pacific.

[BORDA-AIT AIT – The Regenerative Sanitation Hub](#)



ESTABLISHMENT OF TESTING CENTER FOR WASTEWATER TREATMENT PRODUCTS

On 20 February 2019, AIT and the Bremen Overseas Research and Development Association (BORDA) launched the AIT Center for testing performance of prefabricated wastewater treatment products. The testing center began offering its services late last year, with the first two products undergoing tests using a method developed by the Institute. After the official launch at the Fifth International Fecal Sludge Management Conference, more manufacturers have expressed interest in testing their products' performance against a standard.

Testing center for wastewater treatment products takes shape at Asian Institute of Technology

ECONOMIC AND SOCIAL IMPACT ASSESSMENT OF MUNICIPAL WATER SUPPLY SYSTEM IMPROVEMENT IN THE SLUM AREAS OF MANDALAY, MYANMAR

The Japan International Cooperation Agency (JICA) Research Institute has requested to act as a technical advisor to the impact assessment of urban water supply in Myanmar project, which was initiated by the JICA Research Institute and Kobe University in 2017. JICA has supported the effort of the Government of Myanmar in expanding access to safe water and improving the water

supply system in a managerial and a technical manner. The project was implemented for the introduction of the water supply system in Pyi Gyi Tagon Township and disinfection facilities for the existing water supply systems in other parts of Mandalay. Data analysis is currently underway, and results will be reported to the Mandalay City Development Council and a wider scientific audience in due course.

Economic and Social Impact Assessment of the Municipal Water Supply System Improvement in the Slum Areas of Mandalay, Myanmar

WORKSHOP ON PLANNING, IMPLEMENTATION, AND MANAGEMENT GUIDELINE FOR INCLUSIVE PUBLIC TOILET DEVELOPMENT IN BHUTAN

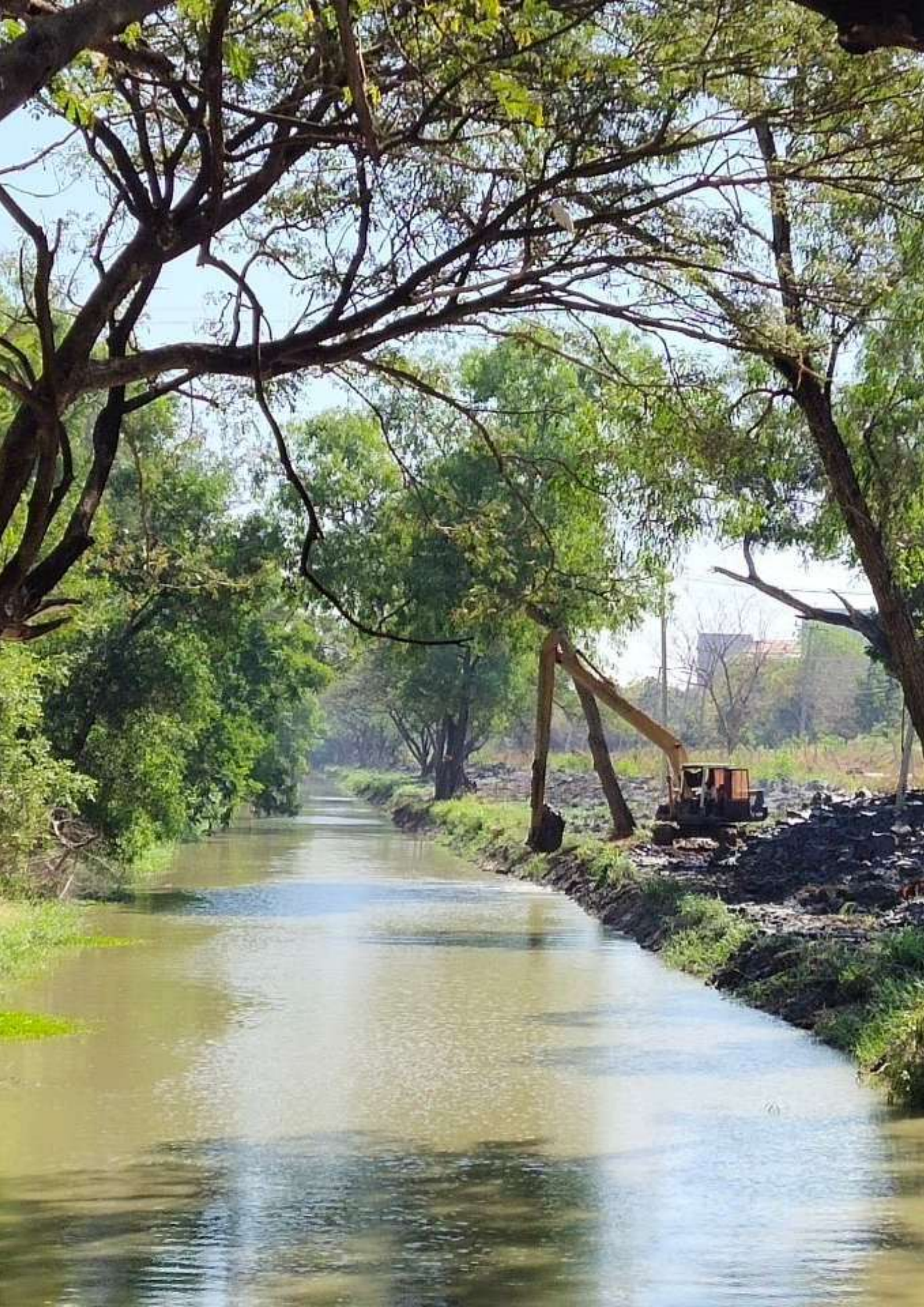
AIT organized a customized workshop for officials from the Water and Sanitation Division, Department of Engineering Services, Ministry of Works and Human Settlement, Kingdom of Bhutan. The aim of this workshop was to enhance participants' knowledge on guidelines and practical assistance for planning, maintenance, and operation of the public toilet network along with the sustained management of public sanitation facilities.

Workshop on Planning, Implementation and Management Guideline for Inclusive Public Toilet Development



SUSTAINABLE USE OF WATER ON CAMPUS

AIT has its own wastewater treatment plant that collects all the sewage water, which amounted to 190 million cubic meters (m³) in 2019, and all the treated water was released back to the canal system of AIT and reused for garden use on the campus. The AIT has a closed-loop canal system, with rainwater stored for the summer and all landscaping and greenery maintained using this canal water. This helps save clean water in accordance with and support of Thai Law. In addition, AIT has its own reservoir within the campus, with an area of 92,893m², which stores rainwater to be used during the dry season.





7 AFFORDABLE AND
CLEAN ENERGY



*Ensure access to affordable,
reliable, sustainable and modern
energy for all*

With the support of both international and domestic funding agencies, AIT is engaged in research on a range of innovative renewable energy technologies as well as energy conservation. The Institute's Youth Energy Academy aims to equip young leaders from across Asia with the skills they will need to promote wider energy access and sustainable energy solutions in their own countries. The Institute also leads from the front by gradually increasing solar power generation for its own on-campus use and by coordinating with local partners and companies over the feasibility of eventually generating the major part of its power consumption from renewable solar energy.

AIT'S DEPARTMENT OF ENERGY, ENVIRONMENT, AND CLIMATE CHANGE IS ENGAGED IN THE FOLLOWING RESEARCH PROJECTS 🔍

Development of a Database of Technology and Policy Measures and Best Practices to Support the Achievement of SDG7 Targets - Sponsored by the UN's Economic and Social Commission for Asia and the Pacific (ESCAP) (September 2019-February 2020)

- *Mastering Energy Supplies Focusing on Isolated Areas - Sponsored by the European Union (November 2018-November 2021)*
- *Technology Needs Assessment Phase 3 - Sponsored by UNEP-DTU (Denmark) (June 2018-May 2021)*
- *Biofuel Production from Innovative Algal Bioreactor Treating Domestic Wastewater - Sponsored by Bangchak Petroleum under the Bangchak Initiative and Innovation Center at AIT (January 2018-December 2019)*
- *Evidence-based Policies for the Sustainable Use of Energy Resources in the Asia-Pacific Region - Sponsored by the Economic and Social Commission for Asia and the Pacific (November 2018-December 2019)*

[AIT - Department of Energy, Environment and Climate Change_Newsletter](#)

YOUTH ENERGY ACADEMY, AIT, PATHUM THANI, 28 OCTOBER TO 2 NOVEMBER 2019 🏆

The first Youth Energy Academy in Asia was held at AIT between 28 October and 2 November 2019. The program was sponsored by the Konrad Adenauer Stiftung Foundation and organized by AIT's Regional Resource Center for Asia and the Pacific in close collaboration with other AIT units and convened 28 young participants from 13 countries across Asia selected from a pool of nearly 800 applicants. The Academy aimed to equip young leaders from Asia with soft and practical skills to help address climate action, energy access, and other cross-cutting sustainable development challenges via community renewable energy solutions.

Youth Energy Academy

SUSTAINABLE ENERGY CONSUMPTION ON CAMPUS 🏡

In 2019, AIT's overall electricity consumption was 11,060,280 kWh, of which 30% was used for chiller operation, 51% for academics, and 19% for residential purposes. AIT has an installed capacity of 50 kw rooftop photovoltaic (PV) units with an average solar electricity generation capacity of 200kWh/day, which supplies power to the Institute's library. In 2019, the PV system generated 64,550.7 kWh of electricity. AIT has also extended its solar energy generation of 4.2 KW to a 12-KW rooftop PV in October 2019 in one of the academic buildings, with average solar electricity generation of 50 kwh/day. In 2019 the PV system generated 8,762.63 kWh of electricity.

Currently, AIT is coordinating with local partners and companies over the feasibility of generating the major part of its power consumption from renewable solar energy by installing PV rooftop systems throughout the campus.





8

DECENT WORK AND
ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

AIT collaborates with international development researchers and institutions over the impact on job creation of Special Economic Zones, a growing tool in promoting economic development across Southeast Asia, with a special focus on increasing the chances of employment of women migrant workers. The Institute is also engaged in projects promoting economic growth through increased supplies of sustainable hydropower in low- and middle-income countries such as Laos, Myanmar, the Philippines, and Thailand. With a special focus on tropical climatic conditions in the context of climate change, other projects include work on floodwater management and its impacts on vulnerable populations across the region.

JOBS AT THE BORDER: WOMEN'S EMPLOYMENT IN ASEAN'S ECONOMIC ZONES

Special Economic Zones (SEZ) have emerged as foreign investment-capturing instruments and a prominent strategy in the pursuit of regional economic integration in the Greater Mekong Sub-region. From 2016 to 2019, the *Mekong Migration Network* and AIT supported by *Canada's International Development Research Center* jointly implemented the project titled Jobs at the Border: Promoting Gender-Sensitive Policies for Special Economic Zones in the Mekong Region, a research and advocacy project investigating labor and migration issues in Mekong SEZs through a gendered lens. Guided by the question as to whether the jobs being created within these zones are promoting decent work for women migrant workers, this study developed four case studies: Thilawa SEZ (Yangon Region, Myanmar), Phnom Penh SEZ (Phnom Penh, Cambodia), Manhattan SEZ (Svay Rieng Province, Cambodia), and Tak SEZ (Tak Province, Thailand), with a particular focus on the garment industry.

Jobs at the border: Women's employment in ASEAN's economic zones

AIT'S CONTRIBUTION TO SUSTAINABLE HYDROPOWER

AIT is conducting physical model studies of the Luang Prabang Hydropower Project (Laos), the Dedoke Hydropower Project (Myanmar), and the Aya Pumped Storage Project (Philippines) among others, which help promote inclusive, sustainable economic growth.

The projects titled Mapping Groundwater Resilience to Climate Change and Human Development in Asian Cities Connecting Climate Change, Hydrology, & Fisheries for Energy and Food Security in the Lower Mekong Basin and Building Capacity and Strengthening Community Participation for Water Resources Management and Wetland Ecosystem Restoration in the Context of Climate Change in the Lower Songkhram River Basin are examples of some of the work undertaken by AIT's Water Engineering & Management, which can be viewed at:

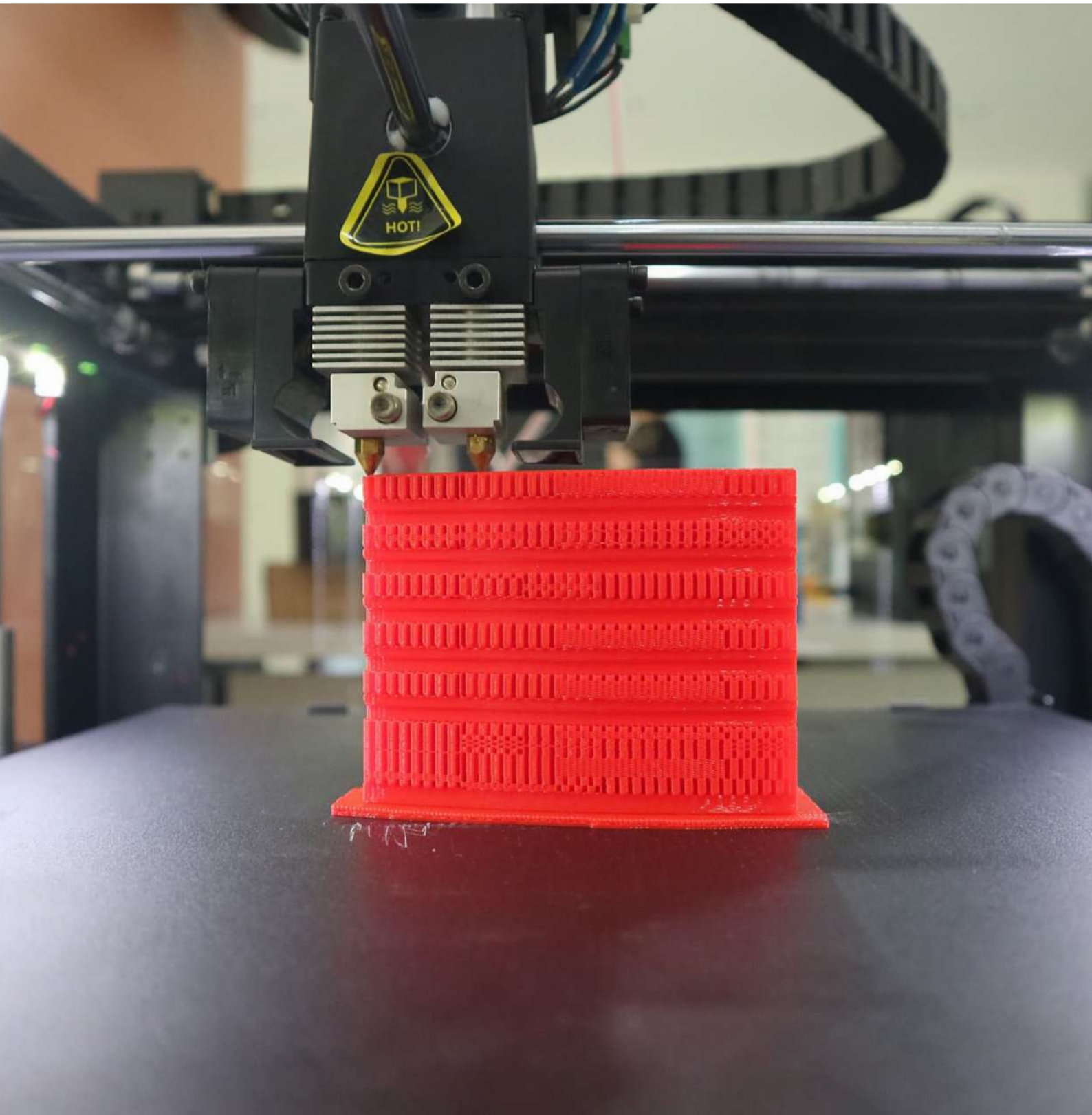
Ongoing Research Projects - Water Engineering & Management

EVIDENCED-BASED ANALYSIS OF FLOOD RISK MANAGEMENT AND SOCIAL VULNERABILITY - A SYSTEMS APPROACH IN SAKON NAKHON PROVINCE, THAILAND

The project aims to overview the status, risks, and trends in flood disasters in Mueang District as a case for developing a system-based multidisciplinary framework for local risk assessment and recommend future actions for decision-makers.

Capacity Building through Curriculum Development, Conduct Various Trainings for Provincial and District Disaster Management Authorities and Line Department Government Officials





9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



*Build resilient infrastructure,
promote inclusive and sustainable
industrialization and foster
innovation*

AIT promotes innovation in areas of direct relevance to the SDGs in collaboration with regional institutions of higher learning and in taking part in campus-wide and international competitions designed to identify and support innovative entrepreneurial solutions to societal challenges. The Institute provides training for environmental trainers, researchers, and consultants in countries such as Vietnam with the aim of enhancing their competencies and effectiveness in setting up sustainable development infrastructure. By staging the largest-ever Social Business Day in 2019, which was attended by 1,500 participants from 62 countries, AIT showed its determination to collaborate with researchers and industry leaders in developing infrastructure for economic development purposes.

B.E.S.T. CAMP

A two-day interactive camp held on 28-30 September 2019 on the AIT campus empowered selected students from AIT, Hong Kong's HKUST, and Singapore's NUS to creatively and collaboratively focus on innovations with societal impact. Participants formed teams and pitched their innovative ideas before a panel of judges.

SUSTAINABILITY HACKATHON 2019

Co-organized by AIT's Department of Development and Sustainability and the AIT Entrepreneurship Center, the Sustainability Hackathon 2019 aimed to propose and design innovative solutions that could help solve real-world problems toward achieving sustainable development as well as for achievement of any or all SDGs. It was held on 16 November 2019 and attended by more than 80 students.

HULT-PRIZE AIT ON-CAMPUS FINALS

AIT successfully organized the Hult Prize On-Campus Finals in December 2019 thanks to the dedication of our student-led team, which believes that AIT can partner with the Hult Prize Foundation in creating social impact through innovation. The Hult Prize is a prestigious global competition established in 2009 that enables the new generation to deliver social change through education and entrepreneurship. Each year, the Hult Prize team issues a big bold challenge aligned with wide market opportunities inspiring students from over 121 countries to solve its greatest problems.

PROFESSIONAL ENVIRONMENTAL AND SOCIAL SAFEGUARD TRAINING

The Vietnam Training Center on Environmental and Social Sustainability Learning Center hosted by the AIT Center in Vietnam has successfully delivered a number of Training of Trainer programs followed by many roll-out programs offered to environmental and social practitioners in Vietnam and regional countries. Since its establishment in April 2015, the Learning Center has trained more than 950 environmental and social professionals (trainers, researchers, consultants) from over 20 countries, helping them to enhance environmental and social impact assessment competencies and improve the effectiveness and sustainability of the development projects.

Vietnam Training Center on Environmental and Social Sustainability

100 INNOVATIONS & ENTREPRENEURS SYMPOSIUM AND EXHIBITION

The 100 Innovations & Entrepreneurs Symposium and Exhibition was held on 27-28 September 2019 in Bangkok as Southeast Asia's first Research to Commercial Conference, bringing together social and technology innovations and entrepreneurs from industry, academia, development partners, and civil society in one creative environment to build meaningful collaborations with social impacts.

AIT OPEN CELLULAR TRAINING CENTER

The main objective of the project is to present major results of radio spectrum utilization measurements in television band that have been carried out in urban areas in Bangkok, a suburban area in Pathum Thani, and a rural area in Mae Kasa, Tak Province.

AIT Open Cellular Training Center

AIT HOSTS BIGGEST-EVER SOCIAL BUSINESS DAY

AIT hosted the biggest-ever Social Business Day to date, which took place on 28 June 2019. The 9th Social Business Day witnessed participation by over 1,500 delegates from 62 countries. Organized each year to celebrate the Social Business Movement led by Nobel laureate Prof. Muhammad Yunus, the AIT Social Business Day 2019 held in Bangkok marked a watershed moment for Thailand because it brought together for the first time all key stakeholders engaged in social innovation and entrepreneurship in Thailand.

AIT Co-hosts Biggest-ever Social Business Day

LAUNCH OF INTELLECTUAL PROPERTY SUPPORT OFFICE

In June 2019, AIT launched an Intellectual Property Support Office to ensure that all AIT research work has the required legal authority to become Intellectual Property for AIT as well as transferring this technology from lab scale to global production scale. AIT has been successful in getting 47 patents. In 2019 alone, 5 patents and 6 trademarks were registered.

LAUNCH OF AIT ENTREPRENEURSHIP CENTER

The AIT Entrepreneurship Center was officially launched on 27 September 2019 and is designed as a place for innovation, creation, and incubation to nurture and drive the entrepreneurial capabilities of AIT in collaboration with industry to support the socioeconomic development of Thailand and the region.



10 REDUCED
INEQUALITIES



Reduce inequality within and among countries

AIT works toward reducing inequality by engaging in collaborative research in gender land use in Himalayan countries with a special focus on women in informal settlements. It collaborates on projects aiming to build capacity in electricity supply to address unprecedented demand for clean affordable energy with a particular focus on equal access. The Institute also provides a comprehensive range of professional development services and participates in capacity building projects in the energy sector in South Asia. AIT's commitment to reducing inequality is also seen in its comprehensive recruitment policy, with students from 45 countries in Africa, Asia, Europe, North and South America, and Oceania joining the Institute in 2019.

GENDER LAND USE: LIVELIHOOD NEXUS IN THE HIMALAYAS

The AIT research project on Cities by Women: Embedding Climate Change Resilience in Himalayan Cities funded by the Swiss Agency for Development and Cooperation focuses on gender mainstreaming in the nexus of climate change, land use, and informal livelihoods in Himalayan cities. Its activities included: 1) Surveying and mapping to examine how women in informal settlements use urban spaces for their livelihoods and what impacts climate change has on their daily activities; and 2) Stakeholder workshop and networking to address and inform urban policy-making about women's role in building climate change resilience in Himalayan cities.

Cities by Women: Embedding Climate Change Resilience in Himalayan Cities

BUILDING CAPACITY OF ELECTRICITY SUPPLY COMPANIES IN ASIA

AIT Extension provides a comprehensive range of professional development and capacity development services across a wide disciplinary range. One of its service areas is building capacity in electricity supply companies to address unprecedented global demand

for clean affordable energy. AIT Extension has been engaged in a number of capacity building projects in the energy sector with Bhutan, Bangladesh, and Pakistan.

Building Capacity of Electricity Supply Companies for Clean Affordable Energy

STUDENTS FROM 45 COUNTRIES JOINED AIT FOR THE AUGUST 2019 SEMESTER

Incoming students hailed from Europe (Denmark, Finland, France, Germany, Hungary, Poland, Romania, Russia, Switzerland, and the United Kingdom), Africa (Ethiopia, Kenya, Nigeria, South Africa and Sudan), South America (Brazil and Ecuador), North America (the United States and Canada), Oceania (Australia, Fiji, and Papua New Guinea) and Asia (Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Iran, Japan, Kazakhstan, Korea, Laos, Malaysia, Maldives, Myanmar, Nepal, Pakistan, People's Republic of China, the Philippines, Sri Lanka, Thailand, Taiwan, Timor-Leste, and Vietnam). The diverse range of students is reflective of AIT's international orientation and partnerships. In 2019, 866 students from developing countries and low-income groups were granted AIT-administered scholarships.





11 SUSTAINABLE CITIES AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable

AIT partners with international organizations and funding agencies working at the research, policy, and practice interface through global assessments, conferences, dialogues, and networking initiatives with a special focus on making cities sustainable in the context of climate change in areas such as emissions reduction, wastewater management, and sanitation. Through its AIT Solutions Center, the Institute also collaborates with industry in practical seismic and construction engineering research, assessments of tall buildings' vulnerability, and post-damage response. AIT's Regional Resource Center for Asia was also involved in the 2019 COP 25 in Madrid by taking part in trainings of trainers as well as workshops on building cities resilience to climate and disaster risks.

RESEARCH AND THE RESEARCH-POLICY-PRACTICE INTERFACE IN CITIES AND CLIMATE CHANGE

Given unprecedented urbanization in Asia as well as globally, AIT is highly active in research as well as in the policy and practice interface. AIT researchers influence the global and regional research agenda through leading global assessments, conferences, and dialogues and is involved in several global networking initiatives. AIT works closely with research communities such as the Inter-Governmental Panel on Climate Change, the Urban Climate Change Research Network, established global NGOs such as C40, Local Governments for Sustainability, United Cities and Local Governments, and UN agencies such as UN-Habitat, City Alliances, the Economic and Social Commission for Asia and the Pacific, and the United Nations Environmental Program.

Examples of AIT's research work in support of SDG 11 are as follows:

- *Realizing Smart Cities in the ASEAN Region: Project sponsored by the Economic Research Institute for ASEAN, Indonesia (June 2019-July 2020).*
- *Study of Emission Sources of PM2.5 and Precursors of Secondary PM2.5 in Bangkok Metropolitan Region: Project sponsored by the Delft Foundation Institute for Water Education (July 2019-December 2019).*
- *Optimizing Decentralized Low-cost Wastewater Infrastructure by Managing the Microbes Project sponsored by the Engineering and Physical Sciences Research Council UK (May 2017-April 2020).*
- *Capacity Building Activities of the Asia Pacific Clean Air Partnership: Project sponsored by the UN Environment Program (July 2018-Jan 2019).*
- *Innovative Toilet City - From Reinventing to Realization at Scale: Project sponsored by the Thailand Research Fund (September 2016-February 2019).*

RESEARCH IN EARTHQUAKE ENGINEERING

AIT has conducted considerable research in the area of earthquake engineering with the focus on structural design of tall buildings and infrastructure facilities. The research conducted at AIT has been successfully applied to real-world projects, as can be seen through the various projects conducted by AIT Solutions, a center established to facilitate linkage between academia and industry. Considering the growing urban population in Asia-Pacific, AIT reaches out to industry and government stakeholders in providing solutions that specifically address the need to have sustainable cities and communities. Some of the solutions developed at AIT and then scaled up to the needs of cities and communities include:

PERFORMANCE-BASED SEISMIC EVALUATION OF TALL BUILDINGS

In 2019, AIT Solutions worked closely with engineering consultants in the Philippines to carry out Performance-based Seismic Evaluation of 20 tall buildings. Considering the vulnerability of the Philippines to earthquakes, the buildings were explicitly evaluated on their response to potential seismic hazard, which included probable site-specific seismic demand levels as well as uncertainties in the post-damage response and behavior of the buildings.

SEISMIC EVALUATION OF EXISTING BUILDINGS

AIT Solutions closely worked with the World Bank in conducting seismic evaluation of its offices in Nepal and Bhutan. Considering that these two countries are in seismic active regions, seismic performance of structural systems in terms of strength, stiffness, and ductility requirements were evaluated in order to ensure public safety, with special emphasis on the effects of different levels of earthquake activity. The scope of work carried out also included on-site visits to review the current status and conduct of the structures.

COP 25 SIDE EVENT ON ENHANCING RESILIENCE OF CITIES AND URBAN COMMUNITIES THROUGH CITY-UNIVERSITY COLLABORATION IN MADRID

This side event was hosted by the Ministry of the Environment of Japan and the UN Global Adaptation Network in the Japan Pavilion of the Conference of the Parties (COP) 25. AIT's Regional Resource Center for Asia and the Pacific was represented at the event, which showcased a series of Trainings of Trainers and regional training workshops on Building Cities Resilience to Climate and Disaster Risks convened in partnership with the United Nations Office for Disaster Risk Reduction and United Nations Development Program, the United Nations Economic and Social Commission for Asia and the Pacific, the FAO, and UN-Habitat.



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



*Ensure sustainable consumption
and production patterns*

AIT actively promotes responsible consumption by staging awareness-raising workshops demonstrating practical, solution-oriented responses to the spread of plastic litter on campus as well as technical consultations on plastic litter reduction in developing countries in the Caribbean, Mekong countries, and South Asia. Through its AIT Center in Vietnam, the Institute offers administrative staff training in Green Office best practices, with a wide variety of stakeholders including national ministries, consumer groups, private sector producers, and enterprises sharing findings and encouraging further uptake. AITrole in promoting responsible practices begins on its own campus, where sustainable food consumption and waste minimization and treatment are promoted at all levels.

WORKSHOP ON COMMUNITIES PARTICIPATION IN REDUCING MARINE PLASTIC LITTER AND FILM SHOWING ON ACTIONS AGAINST PLASTIC WASTE IN THE CARIBBEAN REGION

AIT's Regional Resource Center for Asia and the Pacific continued where it left off in the Environment Awareness Series last April. The second series was on the topic of plastic waste reduction to prevent marine litter. The workshop demonstrated an interactive, practical, solution-oriented session on Communities Participation in Reducing Marine Plastic Litter held on 8 May 2019 in AIT's Milton E. Bender Auditorium. Following the presentation, participants took part in hands-on activities on segregating different types of plastic bottles and other plastic materials. A screening was also organized on the evening of the same day showing a number of short documentaries on how local action against plastic waste has been successful in the Caribbean region.

ACTIVITIES CONDUCTED BY AIT CENTER IN VIETNAM

AIT Center in Vietnam launched the Upscaling and Mainstreaming Green Office Lifestyles in Vietnam project under the Sustainable Lifestyles and Education Program of the 10 Year Framework Program for Sustainable Consumption and Production. The project aims to assist offices in adapting green practices through training staff and developing a toolkit introducing the offices to best practices and a step-by-step guide to the green office building process. The toolkit has been deployed in 10 offices across Hanoi, Da Nang and Ho Chi Minh and more than 300 sustainable practices have been implemented in 10 offices. Greenhouse gas emissions reductions have been demonstrated by measuring the baseline emissions prior to the start of activities and then after implementing changes within the offices. The project has started scaling up practices through a national workshop with a wide variety of stakeholders including national ministries, consumer groups, private sector providers, and enterprises to share the outcomes and encourage further uptake.

AITCV also implemented the From Green Office to Environmentally Sustainable Development of Belgian Non-Governmental Actors project (December 2018-March 2020). This aim of the project is to increase levels of understanding and adoption of Environmental Sustainability for members of the Joint Framework Strategy Vietnam with a vision to mainstream environmentally sustainable practices at organization and program levels and outreach to their communities and networks. The project was designed with three key objectives: 1) To improve members' sustainable office practices; 2) to apply environmentally sustainable



AIT's Center in Vietnam's training workshop on sustainable consumption behavior in Ho Chi Minh, 2019

practices in program implementation; and 3) to strengthen communication, collaboration and synergies between members. AIT's Center for Vietnam played the role of mentor and facilitator for the entire process.

SECOND TECHNICAL CONSULTATION ON THE PROJECT PROMOTION OF COUNTERMEASURES AGAINST MARINE PLASTIC LITTER IN SOUTHEAST ASIA AND INDIA

The Second Technical Consultation on the Project Promotion of Countermeasures Against Marine Plastic Litter in Southeast Asia and India (the Counter-MEASURE project) was held on 15 November 2019 at the UN Conference Center, Bangkok by the UN's Environment Program's Regional Office for the Pacific. The meeting aimed to create an opportunity to exchange the lessons learned and to catalyze synergy between Mekong countries and India through in-depth discussions on technical challenges and solutions toward plastic leakage scenario development and data collection. About 27 project members and experts from various national governments, the private sector, academia, civil society organizations, UN agencies, and other intergovernmental agencies participated. Mr. Guilberto Borongan from AIT's Regional Resource Center for Asia and the Pacific presented the approach to Capacity Mapping along with its research plan.

The 2nd technical consultation on the Project "Promotion of Countermeasures Against Marine Plastic Litter in Southeast Asia and India"

SUSTAINABLE FOOD CONSUMPTION AND WASTE TREATMENT ON CAMPUS

In 2019, AIT introduced waste segregation by separating bins as wet waste and dry waste and segregated waste of 89 tons per annum, which were handed over to the local municipality. Similarly, food waste collection of 16 tons per annum from AIT's conference center dining and cafeteria were collected and donated as feed for pig farms. Other waste such as green waste after lawn mowing amounting to 967 tons per annum was converted to organic compost and used to maintain campus gardens and landscapes. The compost is also used by the AIT farming community club to produce organic vegetables within the campus.

To reduce plastic waste, AIT raised a campaign on the awareness of plastic use, and all concessionaires were asked to stop using plastic bags. To promote the use of cloth bags, AIT distributed cloth bags as souvenirs during the Institute's 60th anniversary celebrations in 2019 and to students during orientations, career fairs, and workshops and made them available for sale to encourage reliance on reusable bags. AIT officially stopped using plastic bottles in the dining room and Cafeteria and official meetings.



13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts

AIT researchers and experts lead climate-related actions by studying the effects of climate change on community vulnerability in Central and Southeast Asian countries such as Indonesia, Timor-Leste, and Thailand with technical and funding support from Norway, Japan, and the UN. AIT's Geoinformatics Center collaborates with the FAO in studying the effects of climate change on crop cycles, terrain conditions, and yields. The Center participates in research on natural disaster manifestations, prevention, and mitigation in partnership with international organizations in Singapore and Mexico. The Center also plays a capacity-building role by equipping Laotian agriculture officials with skills for competently handling and analyzing geospatial and climate data.

AIT EXPERTS LEAD GLOBALLY IN AREAS OF CITIES AND CLIMATE CHANGE, INCLUDING SHAPING NEW DIRECTIONS IN RESEARCH

Examples of some of the research projects undertaken by AIT faculty are highlighted below.

- Assistance with regard to execution of Climate Change Vulnerability Assessment and Development of Energy-Climate Change Action Plan in the far north of Cameroon: Project sponsored by the Climate Technology Center and Network (April 2019-December 2019).
- Realizing Smart Cities in the ASEAN Region: Project sponsored by the Economic Research Institute for ASEAN, Indonesia (June 2019-July 2020).
- Technology Needs Assessment Phase 3: Technical, Project sponsored by the UN's Environment Program and Denmark's DTU (June 2018- May 2021).
- Incubator Program for Implementation of Nationally Determined Contributions in Timor-Leste: Project sponsored by the Climate Technology Center and Network and the UN's Framework Convention on Climate Change (September 2018-July 2019).
- Effects of Climate Change and Variability on Community Vulnerability and Exposure to Dengue in South-East Asia: Project sponsored by the Research Council of Norway (January 2018-December 2019).
- Disaster Resilience and Sustainable Development Education Network in Asia: Project funded by the United Nations University, Japan, March 2018-March 2019.
- Enhancing Resilience to Future Hydro-meteorological Extremes in the Mun River Basin in North-eastern Thailand funded by the Thailand Research Fund and the Natural Environment Research Council, UK: Project period: October 2018-March 2021. The objectives of the project are: 1) To understand the impact of the combined stressors of climate variability, climate change, and land-use change on hydro-meteorological extremes in the Mun River basin; and 2) To recommend adaptation measures to enable sustainable management of water resources and improve water security in the coming decades.

NEW TOOL FOR AGRO-ECOLOGICAL ZONATION IMPLEMENTATION

The FAO has been addressing food security for nearly 40 years by developing a methodology for assessing

agricultural resources and potential called Agro-Ecological Zonation. While already a formidable convention, the tool needed updating for modern systems and be made more user-friendly for agriculture officials in the Asia-Pacific Region. AIT's Geoinformatics Center collaborated with the Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific to develop a modern, accessible tool for Agro-Ecological Zonation implementation. The resulting Python Package tool provides a standard framework for land resource inventories and appraisal while adhering to the established FAO Land Evaluation Framework. The underlying algorithm uses numerous data inputs in simulated crop cycles to assess the suitability and productivity of selected crops and additionally estimates maximum yield under particular climate, soil, and terrain conditions.

Flyer link: [New Tool for Agro-ecological Zonation](#)

Github Open Source software link: [Github Open Source](#)

DISASTER RISK ASSESSMENT AND RISK MANAGEMENT SYSTEM FOR NATURAL DISASTERS IN UTTARAKHAND, INDIA

A 2013 destructive cloudburst in northern India's Uttarakhand state prompted initiation of the Uttarakhand Disaster Recovery Project. AIT's Geoinformatics Center was engaged in two of the state-run, World Bank-backed system sub-components: 1) Disaster Risk Assessment in Uttarakhand; and 2) Implementation of an Integrated Geospatial Platform, Database, and Applications for Disaster Risk Management in Uttarakhand.

The sub-component titled "Disaster Risk Assessment of Uttarakhand" resulted in development of a digital risk database focused on earthquakes, flash floods, fluvial floods, landslides, and industrial hazards. AIT-Geoinformatics Center used high-resolution satellite imagery to map state-wide building clusters for vulnerability assessment. The ensuing data was used to carry out a risk assessment to aid local authorities in disaster risk reduction. Mr. Prakash Pant, Finance Minister of Uttarakhand, publicly unveiled the results of the sub-component at a public event in Dehradun where he highlighted the importance of a robust disaster risk database for effective planning as well as post-disaster response and recovery. The disaster risk assessment was a success due to a close collaboration between **AIT's Geoinformatics Center** and international partners from DHI (Singapore) and ERN (Mexico).

Under the sub-component titled "Implementation of Integrated Geospatial Platform, Database, and Applications for Disaster Risk Management in Uttarakhand," a geospatial platform was developed that is widely accessible across locations, devices, agencies, and applications for reporting, monitoring, and responding to disasters in Uttarakhand. The platform ingests real-time weather, model, and disaster data from state, national, and international organizations. AIT's Geoinformatics Center has also deployed device-independent geospatial applications for Emergency Operation Centers, government agencies, decision makers, and field staff to facilitate monitoring, reporting, and disaster and emergency response from the field.

TAJIKISTAN MULTI-HAZARD RISK ASSESSMENT & VISUALIZATION PLATFORM

AIT's Geoinformatics Center and the Faculty of Geo-Information Science and Earth Observation of the University of Twente of the Netherlands have implemented a multi-hazard risk assessment for all districts in Tajikistan under the United Nations Development Program's Strengthening Disaster Risk Reduction and Response Capacities project. The primary objective of the collaboration is to assess the vulnerability of communities and infrastructure to natural hazards, determine their degree of exposure to future hazardous events, and develop risk profiles as a basis for development planning processes for all districts of Tajikistan. The first task of the project was to develop a disaster risk assessment methodology in accordance with the Tajikistan context. The methodology consisted of susceptibility and hazard assessment of six hazard types as well as exposure, vulnerability, and risk assessment. The capacities of local experts was enhanced through training and collaboration with relevant national agencies as well as other stakeholders, working together on conducting multi-hazard risk assessment in Tajikistan. Finally, an online composite risk visualization and analysis platform was launched to facilitate interactive exchange of information about risks between decision makers and the public. The project officially began in November 2018 and is targeted to be completed in May 2020.

For additional info on the Tajikistan Risk Assessment Platform, see:

Multi-Hazard Risk Assessment in Tajikistan

ASSISTANCE TO LAOS IN PREPARATION FOR EFFECTS OF CLIMATE CHANGE ON AGRICULTURE

AIT's Geoinformatics Center has been collaborating with the FAO to prepare Laos for effects of climate on national agriculture and food security. The Center has been serving a capacity building role by equipping Laotian agriculture officials with the skills necessary to competently handle and analyze both geospatial and climate data.

Six training courses were delivered by the Geoinformatics Center throughout 2019 focusing on geospatial applications to agriculture, including programming-oriented geospatial analysis, satellite image processing, multispectral and satellite image processing for agricultural analysis, biomass estimation with LiDAR, geospatial databases, and network analysis. Additionally, the Geoinformatics Center led a one-week training of trainers for downscaling climate data with the Weather Research and Forecast model. Participants were guided by experts from the Geoinformatics Center in compiling the model from source code in cloud computers for running simulations for domains in Laos. Using the Weather Research Forecasting model in combination with other data sources, the Geoinformatics Center also created an Agro-climate Atlas for all agricultural production areas in Laos. With the skills gained through capacity development, participants were able to develop adaptation strategies for agriculture based on impact

scenarios including water availability, crop yields, and socioeconomics for all major agro-ecological zones.

The Geoinformatics Center's capacity development in Laos was part of the FAO's ongoing project titled Strengthening Agro-climatic Monitoring and Information Systems to Improve Adaptation to Climate Change and Food Security in Laos. For more information on this project, please visit the following link:

Strengthening Agro-climatic Monitoring and Information System (SAMIS)

Vientiane Times News Story covering the aforementioned training courses link:

Training course paves way for climate mapping

Additional coverage of the climate downscaling training of trainers featured on the FAO's website:

Strengthening Agro-climatic Monitoring and Information System (SAMIS)

AIT AND INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE INVOLVEMENT

Two of AIT's researchers lead the Intergovernmental Panel on Climate Change's Sixth Assessment Report due in 2021 as Coordinating Lead Authors in two different chapters, which is expected to influence knowledge on climate change as well as the stocktake of the Paris Agreement.

AIT Climate Change Seminar Series - AIT organized a series of seminars on climate change in 2019 by inviting over 20 experts to interact with AIT students, staff, and faculty members and especially by providing opportunities for students to learn and deliberate.

Climate Change-related Efforts by AIT's Regional Resource Center for Asia and the Pacific - AIT's Regional Resource Center for Asia and the Pacific assists countries in advancing their environment and sustainable development goals through the provision of capacity-building, knowledge sharing, policy advice, and research in three thematic areas: Climate Change, Air and Atmosphere, and Waste Management.

Highlights from some of the work undertaken by AIT's Regional Resource Center for Asia in 2019 are provided below:

- *Fourth International Forum on Sustainable Future in Asia, Hanoi, Vietnam*
- *Green Climate Fund Regional Training Event for National Designated Authorities and Bilateral Meeting with the Fund's Secretariat, Bangkok*
- *Training Program on Green Climate Fund Project Development and Appraisal, Maldives*
- *Environmental Awareness Series in Celebration of the Center's 30th Anniversary: Air Pollution Awareness Workshop on Impacts of PM2.5, Bangkok*
- *Capacity Building Program on Developing Project Proposals for Climate Change Adaptation and the Green Climate Fund Simplified Approval Process, Bangkok*
- *Third Run of the Climate Change Downscaler Training Workshop, AIT*
- *Green Climate Fund Concept Note Development Training Program, Bangkok*

- *Workshop on Capacity Building for Preparation of Bankable Concept Notes for Green Climate Fund, Tokyo and Okinawa*

AIT KNOWLEDGE PARTNER OF THE CLIMATE TECHNOLOGY CENTER & NETWORK

AIT is a knowledge partner to the Climate Technology Center & Network, the operational arm of the United Nations Framework Convention on Climate Change Technology Mechanism. Knowledge partners support the Network’s mandate to foster collaboration and access to information and knowledge in order to accelerate climate technology transfer. Through its

needs required to pursue low-carbon development and achieve climate resilient societies in Asia. The program is designed to support the recently adopted Paris Agreement and the 2030 Development Agenda. A key feature of the program is to develop capacities in Asia to prepare, finance, and implement bankable climate change mitigation and adaptation projects. AIT is committed and working on a plan toward becoming a carbon-neutral university.

Climate Change Asia; About us

CLIMATE CHANGE

Climate change creates significant impacts to the environment on both global and regional scales. One of



knowledge partner network, the Network generates, manages and shares knowledge, experience, and good practices at the national, regional, and global level, taking into account traditional knowledge and practice knowledge partners.

CLIMATE CHANGE ASIA INITIATIVE

The Climate Change Asia initiative is a program launched at AIT to meet the diverse range of capacity building

the ongoing issues in Thailand is air pollution, especially a significant rise of PM2.5 levels during the winter. To tackle this nationwide environmental issue, AIT is working with Thailand’s Pollution Control Department and Climate and Clean Air Coalition in developing a tool to be used to identify the sources of current PM2.5 in order to solve the problem at its root cause.

OPERATIONS

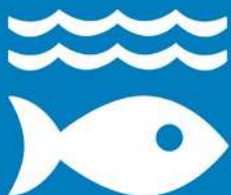
In 2019, AIT’s photovoltaic system generated 64,550.7 kWh of electricity, with its social contribution as shown below since December 2015

Social Contribution





14 LIFE
BELOW WATER



Conserve and sustainably use the oceans, sea and marine resources for sustainable development

AIT's Geoinformatics Center collaboratively addresses river plastic monitoring and clean-up efforts in the Lower Mekong and Ganges River Basins based on studies conducted in Thailand, Laos, Cambodia, and Vietnam. AIT partners with Thai universities in organizing participatory clean-up events on beaches and in rivers and by monitoring and recording plastic waste for future research using a customized mobile application. The Institute's Aqua Center promotes sustainable development in aquaculture by helping communities produce more fish for food and nutritional security and to improve livelihoods by creating employment and generating higher incomes. AIT also offers educational programs in aquatic ecosystems, water management and conservation, and water-based farming.

DEVELOPMENT OF REGIONAL MODEL FOR PLASTIC MONITORING & RIVERSIDE CLEAN-UP EVENTS

AIT's Geoinformatics Center engaged with the United Nations Environment Program to address marine microplastics in the Lower Mekong and Ganges River Basins. As an active partner in the Counter MEASURE program, the Center developed a region-based model for monitoring and assessing plastic leakage and pollution reduction and co-organized two successful riparian plastic clean-up events in the Lower Mekong River Basin. Link to Counter MEASURE project overview:

[Counter Measures for Plastic Free Rivers](#)

The regional model for monitoring river basin plastic leakage targeted land-based sources of plastic pollution as directed by evidence from previous studies. Five pilot sites were selected throughout the Lower Mekong River Basin including Chiang Rai and Ubon Ratchathani (Thailand), Vientiane (Laos), Phnom Penh (Cambodia), and Can Tho (Vietnam). The model incorporated a number of data sources including land use maps, infrastructure, population density, and plastic point source locations such as factories and dump sites. Geospatial analysis by way of a fuzzy overlay approach was performed to predict plastic leakage density for the lower Mekong River Basin. Results were validated using illegal dump locations collected by field teams at the pilot sites. The methodology was developed with the aim of repeatability for further studies, including basins beyond the Mekong such as the Ganges River Basin.

[Promotion of Countermeasures Against Marine Plastic Litter in Southeast Asia and India](#)

Additionally, the Geoinformatics Center co-organized riverside clean-up events with the UN's Environment Program, Pirika Inc. (Japan), and Trash Hero at the Thailand pilot sites. A clean-up event in Chiang Rai took place on World Clean-up Day 2019, when more than 60 local volunteers collected 305.5 kg of litter from Chiang Rai Beach in the Rop Wiang sub-district. A second clean-up event in Ubon Ratchathani saw the team partner with the Ubon Ratchathani municipality to clean up Ku Du beach, located along the Mun river. Local participation nearly doubled for the second event, with more than 100 participants from Ubon Ratchathani University and Ubon Ratchathani Rajabhat University turning out for the event. Through both clean-up events, participants were able to actively contribute to Counter-MEASURE project data

collection efforts by recording data on the plastic waste they encountered with a customized mobile application. Data collected by participants was later integrated into the project's plastic leakage model.

The Geoinformatics Center's involvement in the Counter-MEASURE Project was featured during a parallel session at the UN's Economic and Social Commission for Asia and the Pacific Sea of Solutions four-day conference in November 2019.

[UNESCAP Sea of Solutions Conference](#)

MAINTAINING A LOCAL ECOSYSTEM

The Aqua Center, a specialized unit under AIT's School of Environment, Resources, and Development, contributes toward sustainable development of aquaculture by helping communities produce more fish or aquatic food for food and nutritional security and improve livelihoods by creating employment and generating higher incomes.

[Aqua Center - Home](#)

Research: Some of AIT's research on aquatic ecosystems is available at [Publications](#)

SUPPORTING AQUATIC ECOSYSTEMS THROUGH EDUCATION

AIT offers educational programs on fresh-water ecosystems (water irrigation practices, water management and conservation) through its [Water Engineering and Management](#) and the [Aquaculture and Aquatic Resources Management](#) academic programs. The AIT aquaculture program promotes sustainable Asian aquaculture, which is practice-based, by closely working with the local aquaculture industry and focuses on the development of sustainable intensive aquaculture systems and the management of aquatic resources to enhance food and nutritional security.

[AIT Aquaculture](#)

AIT was a hosting partner of the Sixth International Conference on Fisheries and Aquaculture 2019 held on 22-23 August 2019 in Bangkok. The theme of the Conference was Sustainable Aquaculture: Nutritional Security and Export.

[International Conference on Fisheries and Aquaculture](#)

An aquaculture and aquatic resources management training titled "Biofloc, Biomimicry, and Biological Farming for Innovative Aquaculture Entrepreneurship" was held at AIT led by international experts on biofloc, aquamimicry, and sustainable shrimp farming.

[Training Program on Biofloc, Biomimicry and Biological Farming for Innovative Aquaculture Entrepreneurship](#)

The Urban Water Engineering and Management program is jointly offered by AIT and the UNESCO's Institute for Water Education and leads to a dual Masters degree. AIT also offers a Certificate course designed for the Integrated Coastal Management with Mangroves for the Future initiative of the International Union for Conservation of Nature.

[Non-Regular Programs](#)



15 LIFE
ON LAND



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

AIT partners with the Government of Thailand's Department of National Parks, Wildlife, and Plant Conservation in assisting recreational navigation for the enjoyment of nature through a phone application advising on routes, species, and safety. The Institute has joined the UK's Research and Innovation in promoting sustainable trade in agricultural commodities in African, South American, and Asian countries. AIT also provides education and training opportunities in the sustainable management of natural resources and agricultural systems through trainings and outreach initiatives aimed at its own students as well as outside clients. Leading by example, the Institute also implements preventive and corrective maintenance measures of its own campus.

PILOT PROJECT FOR KHAO YAI NATIONAL PARK

In this pilot project AIT conducted through AIT Solutions in collaboration with the Thailand's Department of National Parks, Wildlife, and Plant Conservation to develop a mobile app integrated with Bluetooth low-energy beacon technology for Khao Yai National Park. The demo version of the app was launched on 9 February 2019 during the inauguration of the 200-Year Commemorative US-Thai Friendship Trail in Khao Yai National Park. The app aims to assist nature lovers to experience Khao Yai's biodiverse landscape in its full capacity through offline navigation and relevant content based on information developed by park stewards. The app will also feature personalized tracking of routes with photos and notes shareable on social media and various safety and security options for navigating the park's walking trails safely. The app also delivers context-aware content in the user's preferred language and is designed to function even in absence of mobile phone networks.

SUSTAINABLE TRADE IN AGRICULTURAL COMMODITIES AND WILDLIFE PRODUCTS

AIT faculty members are co-investigators for the UK Research & Innovation-funded large-scale project on sustainable trade in agricultural commodities and wildlife products in China, Indonesia, Brazil, Tanzania, Cameroon, the Democratic Republic of the Congo, the Republic of Congo, and Gabon from 2019 to 2024.

SUPPORTING LAND ECOSYSTEMS THROUGH EDUCATION

Through teaching, research, and outreach activities, AIT's Natural Resources Management academic program seeks to develop professionals who can contribute

to the conservation and sustainable management of terrestrial and coastal resources and ecosystems. The NRM academic program specializes in areas as diverse as community-based natural resources management, forestation and forestry, integrated land management, biodiversity conservation, climate change mitigation and adaptation, and the valuation of ecosystem services. Natural Resources Management also provides training, outreach, and capacity-building opportunities to a growing number of interested clients in many related areas.

Natural Resources Management

Likewise, AIT's Environmental Engineering and Management field of study looks for solutions to environmental problems including wastewater treatment and disposal systems, air pollution engineering and management, solid and hazardous wastes, waste minimization and life cycle assessment, environmental impact assessment and management, and environmental toxicology.

Environmental Engineering and Management

In response to regional demand, two areas of specialization are offered by AIT in Agricultural Systems and Agricultural Engineering to train students in developing, adopting, and disseminating knowledge and technologies that focus on the utilization and management of biological and agricultural systems and natural resources.

Agricultural Systems and Engineering

GOOGLE GEO FOR GOOD SUMMIT

AIT faculty and a PhD student were invited by Google to attend its Geo for Good Summit 2019 in September 2019 in California, where they presented Google Earth Engine-based mobile technology for near-real-time detection of land cover change before large-scale clearing happens. This technology, named Krumap, was awarded the "Next Step Award" by Google.

SUPPORTING LAND ECOSYSTEMS THROUGH ACTION

AIT's landscape maintenance team manages and maintains the gardens landscape and canal system around the AIT campus. The service is contracted to a company which ensures necessary preventive and corrective maintenance to the highest standards through environmentally friendly solutions. Landscape and Ground Maintenance



16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

With funding from the World Bank, AIT conducts a range of training activities for government officials in areas such as disaster management in countries of the Mekong River basin as well as Pakistan and India, addressing in particular the role of government structures, mechanisms, and officials in identifying and implementing approaches to pollution mitigation and reduction and landscape restoration. At institutional level, AIT demonstrates its commitment to sound governance by relying on a Board of Trustees that reflects its international character and is made up of representatives of current partner governments and international organizations along with prominent individuals from academia, government, and enterprises.

CAPACITY BUILDING THROUGH CURRICULUM DEVELOPMENT



The Sindh Resilience Project in collaboration with the Sindh Provincial Disaster Management Authority, Pakistan signed a contract with AIT on 28 June 2019 to execute a project titled “Capacity Building through Curriculum Development: Conducting Various Training Programs and Workshops for Provincial and District Disaster Management Authorities and Line Department Government Officials” funded by the World Bank.

Capacity Building through Curriculum Development, Conduct Various Trainings for Provincial and District Disaster Management Authorities and Line Department Government Officials

ESTABLISHING AN ALLIANCE BETWEEN THE COUNTRIES OF THE HIMALAYAN REGION AND THOSE OF THE MEKONG REGION, BANGKOK, 18 MARCH 2019



AIT led by RRC.AP and the International Union for Conservation of Nature’s Asia Regional Office in Bangkok are jointly working to establish an alliance between the countries of the Himalayan region and those of the Mekong Region named “HIMEK,” which will function as a regional cooperation framework for promoting efforts toward climate change mitigation and adaptation in order to reduce the effects of climate change in the region with special focus on emissions reduction of

black carbon particles and forest landscape restoration. An Inception Meeting on HIMEK was organized at the Asia Regional Office on 18 March 2019. The meeting was attended by representatives from the International Union for Conservation of Nature, the Regional Resource Center for Asia and the Pacific, the Regional Community Forestry Training Center for Asia and the Pacific, the FAO, and India’s Environment and Health Foundation. It discussed issues pertaining to the impacts of black carbon particles on the Himalaya region and the need for forest land restoration to reduce impacts of climate change on the region. It also discussed options for operationalization of the HIMEK initiative, promotion during international events, and funding opportunities.

Establishing Alliance between the Countries of the Himalayan Region and the Countries of the Mekong Region



GOVERNANCE AND ENGAGEMENT OF AIT FACULTY, STUDENTS, AND STAFF

Representatives of the AIT Alumni Association, Faculty, Students, and Staff along with the Chair of the Academic Senate also participate in meetings of the Board. To provide a direct interface between the various constituencies of the Institute and the Board on issues of wider interest concerning these constituencies, the Board also has in place a Board Faculty, Students, and Staff Relations Committees.

AIT Bye-laws





17 PARTNERSHIPS
FOR THE GOALS



*Strengthen the means of
implementation and revitalize
the Global Partnership for
Sustainable Development*

Among the partnerships linking AIT to organizations working toward the implementation of the SDGs are those with NGOs, international organizations, regional bodies and national governments, and a range of specialized UN agencies as well as the Government of Thailand. The AIT 60th Anniversary University Presidents' Forum held at AIT in 2019 shared perspectives on best practices in partnering with institutions of higher learning, governments, multinationals, and NGOs on promoting innovation with sustainability in mind. AIT is project leader in the Disaster Resilience and Sustainable Development Education Network in Asia, while its Regional Center for Asia and the Pacific supports the development of monitoring and evaluation tools for knowledge sharing among participants.

RELATIONSHIPS WITH NGOS AND REGIONAL AND NATIONAL GOVERNMENTS

AIT experts closely work with well-established NGOs in areas of cities and climate change such as C40 CITIES, UNSG Climate Action Summit ICLEI - Local Governments for Sustainability, and UN agencies such as UN-Habitat, the Environment Program, and others. AIT also provided support for evidence-based policy-making support to the Ministry of Energy of Thailand in 2019 in the area of renewable energy policy to meet its 2036 targets under the UN's Economic and Social Commission for Asia and the Pacific initiative.

AIT PRESIDENTS FORUM EXPLORES SOCIAL IMPACT WITH INNOVATION

How have universities injected innovation into your research in social impact areas? How do universities collaborate globally with academia, governments, multinationals, and non-profit organizations in social impact research? How do universities maintain a sustainable campus in both teaching and campus operations? These three core questions regarding innovation, globalization, and sustainability were the focus of the 16 University Presidents and Vice Chancellors who assembled at AIT to share their thoughts in the Presidents' Forum held on 24 October 2019.

AIT Presidents Forum Explores Social Impact with Innovation

DISASTER RESILIENCE & SUSTAINABLE DEVELOPMENT IN EDUCATION

AIT is the project leader in the Disaster Resilience and Sustainable Development Education Network in Asia undertaking, which aims to establish a working group on Higher Education Institutions on Disaster Resilience and Sustainable Development under the ProSPER.Net Project umbrella. The working group intends to pursue curriculum reform to integrate the sustainability agenda into postgraduate courses, curriculum, and programs along with the development of a multidisciplinary curriculum mapping tool focusing on the Sendai Framework for Disaster Risk Reduction and the SDGs.

AIT organized the International Symposium on Disaster Resilience and Sustainable Development along with partner universities in the Asia Pacific Region 2019. The symposium brought together disaster resilience and sustainable development educators from the Asian region and was aimed at bringing about regional synergies between higher educational institutions.

AIT'S REGIONAL RESOURCE CENTER FOR ASIA AND THE PACIFIC (RRC.AP) WORK IN SDG 17

AIT's Regional Resource Center for Asia and the Pacific supports national adaptation planning and climate mitigation through technical and policy advice in accordance with the specific needs of each country. This includes supporting the development of monitoring and evaluation tools. In addition, the Center organizes events and activities with the aim of facilitating dialogue and knowledge exchange between stakeholders. For example, we are a core technical partner to the Asia Pacific Adaptation Network, contributing as an organizer and moderator for several sessions of the Network's Asia Pacific Adaptation Forum, which is held every two years, and through the development and distribution of its e-Communiqué Newsletter. Highlights of some of the other projects include the following:

Summary Report of the ASEAN Member States Meeting on Soot-Free Transport

Side Event on "Black Carbon and Forest - A HIMEK Initiative," Incheon, South Korea

Awareness Forum on Prevention of Air Pollution in Asia Pacific, Bangkok

Sixth Green Mekong Forum, Bangkok

RRC.AP Attends the Asia Pacific Regional Environmental Data Knowledge Sharing, Capacity Strengthening and Strategic Pathways Workshop, UNCC-Bangkok

Working Group Meeting on Preparation of the Medium-Term Plan (2021-2025) for the EANET, Bangkok

Asia-Pacific Climate Week: Knowledge to Action Day by the Paris Committee on Capacity-Building /Asia-Pacific Climate Week, UNCC Bangkok

Nineteenth Session of the Scientific Advisory Committee on the EANET, Siem Reap, Cambodia

Workshop on Implementing Co-benefits Solutions in Asia and 10th Asian Co-benefits Partnership Advisory Group Meeting, Tokyo

Twenty-first Session of the Intergovernmental Meeting on the EANET, Beijing

Kick Off Meeting: Development of Inventory of Mercury-Containing Medical Measuring Devices, Jakarta, Indonesia

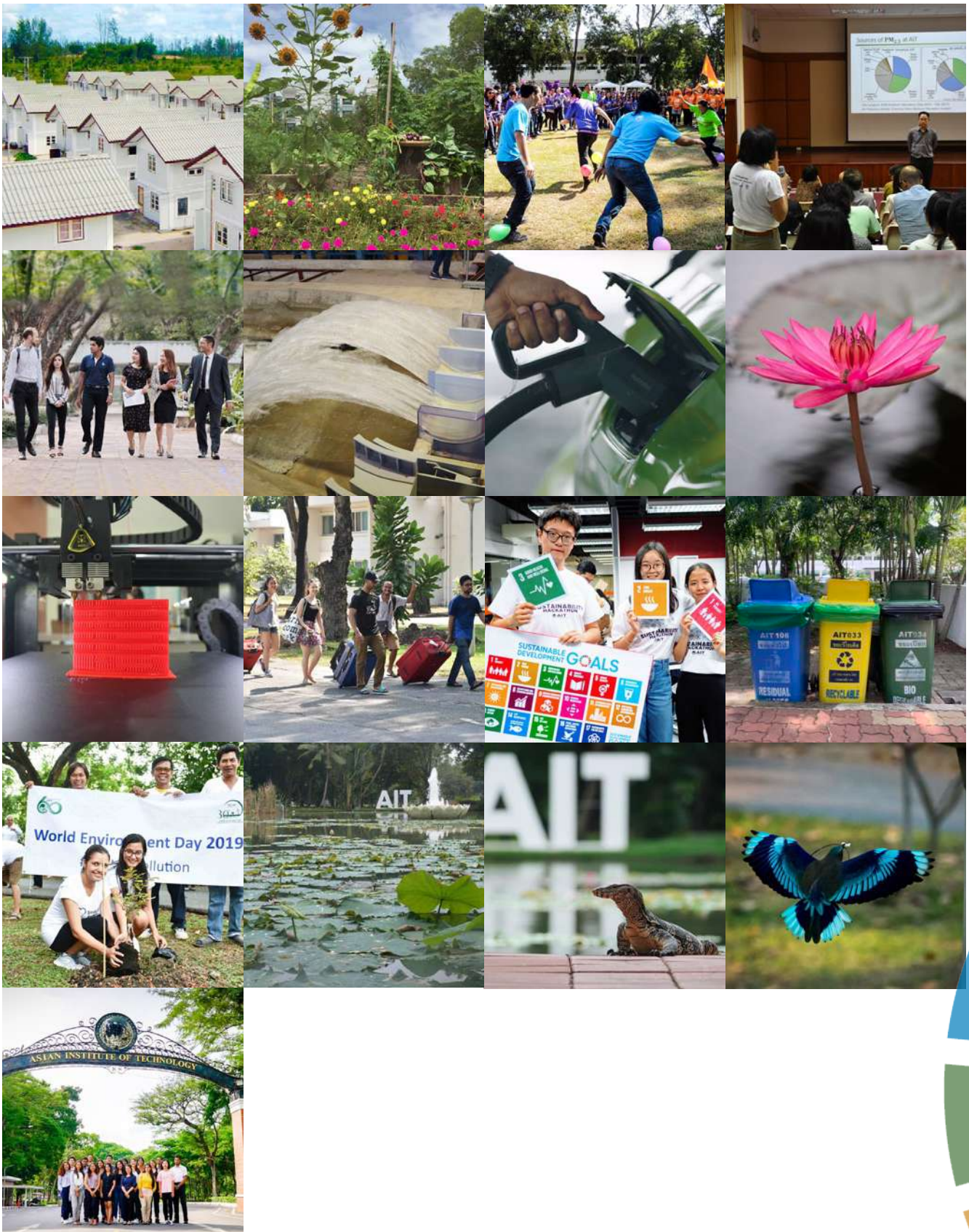
EANET National Awareness Workshop, Putrajaya, Malaysia

Sustainable Development Goals Dashboard

SCHOOL	DEPARTMENT	PROGRAM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Website		
School of Environment, Resources, and Development	Department of Development and Sustainability	Development and Sustainability	Red	Red	Red	Red	Red	Red	Yellow											Development and Sustainability		
		Gender and Development Studies	Red	Red	Red	Red	Red	Red	Yellow												Gender and Development Studies	
		Natural Resources Management	Red	Red	Red	Red	Red	Red	Yellow												Natural Resources Management	
	Department of Energy, Environment, and Climate Change	Regional and Rural Development Planning	Red	Red	Red	Red	Red	Red	Yellow												Regional and Rural Development Planning	
		Urban Environmental Management	Red	Red	Red	Red	Red	Red	Yellow												Urban Environmental Management	
		Sustainable Energy Transition	Red	Red	Red	Red	Red	Red	Yellow												Sustainable Energy Transition	
		Environmental Engineering and Management	Red	Red	Red	Red	Red	Red	Yellow												Environmental Engineering and Management	
		Climate Change and Sustainable Development	Red	Red	Red	Red	Red	Red	Yellow												Climate Change and Sustainable Development	
		Regenerative Sanitation	Red	Red	Red	Red	Red	Red	Yellow													Regenerative Sanitation
		Marine Plastic Abatement	Red	Red	Red	Red	Red	Red	Yellow													Marine Plastic Abatement
Department of Food, Agriculture, and BioResources	AgriBusiness Management	Red	Red	Red	Red	Red	Red	Yellow												AgriBusiness Management		
	Agricultural Systems & Engineering	Red	Red	Red	Red	Red	Red	Yellow												Agricultural Systems and Engineering		
	Aquaculture and Aquatic Resources Management	Red	Red	Red	Red	Red	Red	Yellow												Aquaculture and Aquatic Resources Management		
	Food Engineering and Bioprocess Technology	Red	Red	Red	Red	Red	Red	Yellow												Food Engineering and Bioprocess Technology		
	Food Innovation, Nutrition and Health	Red	Red	Red	Red	Red	Red	Yellow												Food Innovation, Nutrition and Health		
Department of Civil and Infrastructure Engineering	Construction, Engineering and Infrastructure Management	Red	Red	Red	Red	Red	Red	Yellow												Construction, Engineering and Infrastructure Management		
	Geotechnical and Earth Resources Engineering	Red	Red	Red	Red	Red	Red	Yellow												Geotechnical and Earth Resources Engineering		
	Geosystem Exploration and Petroleum Geoen지니어링	Red	Red	Red	Red	Red	Red	Yellow												Geosystem Exploration and Petroleum Geoen지니어링		
	Structural Engineering	Red	Red	Red	Red	Red	Red	Yellow												Structural Engineering		
	Transportation Engineering	Red	Red	Red	Red	Red	Red	Yellow												Transportation Engineering		
	Water Engineering and Management	Red	Red	Red	Red	Red	Red	Yellow												Water Engineering and Management		
	Computer Science	Red	Red	Red	Red	Red	Red	Yellow												Computer Science		
	Data Science and AI	Red	Red	Red	Red	Red	Red	Yellow												Data Science and AI		
	Information Management	Red	Red	Red	Red	Red	Red	Yellow												Information Management		
	Remote Sensing and Geographic Information Systems	Red	Red	Red	Red	Red	Red	Yellow												Remote Sensing and Geographic Information Systems		
Department of Information and Communication Technologies	Telecommunications	Red	Red	Red	Red	Red	Red	Yellow												Telecommunications		
	Information & Communications Technologies	Red	Red	Red	Red	Red	Red	Yellow												Information and Communications Technologies		
	IoT (Internet of Things) Systems Engineering	Red	Red	Red	Red	Red	Red	Yellow												Internet of Things (IoT) Systems Engineering		
	Bio-Nano Material Science and Engineering	Red	Red	Red	Red	Red	Red	Yellow												Bio-Nano Material Science and Engineering		
	Mechatronics	Red	Red	Red	Red	Red	Red	Yellow												Mechatronics		
	Industrial and Manufacturing Engineering	Red	Red	Red	Red	Red	Red	Yellow												Industrial and Manufacturing Engineering		
	Nanotechnology	Red	Red	Red	Red	Red	Red	Yellow												Nanotechnology		
	Center of Excellence in Nanotechnology (CoEN)	Red	Red	Red	Red	Red	Red	Yellow												Center of Excellence in Nanotechnology (CoEN)		
	Microelectronics and Embedded Systems	Red	Red	Red	Red	Red	Red	Yellow												Microelectronics and Embedded Systems		
	Data Science & AI	Red	Red	Red	Red	Red	Red	Yellow												Data Science and AI		
School of Management	IoT (Internet of Things) Systems Engineering	Red	Red	Red	Red	Red	Red	Yellow												Internet of Things (IoT) Systems Engineering		
	Management	Red	Red	Red	Red	Red	Red	Yellow												Management		
	Disaster Preparedness, Mitigation, and Management	Red	Red	Red	Red	Red	Red	Yellow												Disaster Preparedness Mitigation and Management		
	Urban Water Engineering and Management	Red	Red	Red	Red	Red	Red	Yellow												Urban Water Engineering and Management		
	SET & SERD	Red	Red	Red	Red	Red	Red	Yellow														

Sustainable Development Goals Dashboard

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Website	
AIT's Five Thematic Research Areas																			
Climate Change	Red					Blue	Yellow						Green						
Smart Communities						Blue	Yellow		Orange										AIT's 5 Thematic Research Areas
Food, Energy, Water Security	Red					Blue	Yellow		Orange			Brown		Blue	Green				
Infrastructure									Orange										
Technology, Policy and Society	Red				Red	Blue	Yellow	Dark Red		Pink		Brown	Green						
Institute Outreach Centers																			
AIT Extension	Red				Red	Blue	Yellow	Dark Red	Orange	Pink	Brown	Brown	Green	Blue					AIT Extension
AIT Solutions								Orange	Orange		Orange	Orange			Green				AIT Solutions
Entrepreneurship Center							Red	Orange	Orange		Brown								AIT Entrepreneurship Center
Belt and Road Research Center							Red	Dark Red	Orange						Green				Belt & Road Research Center
Geoinformatics Center (GIC)													Green	Blue					Geoinformatics Center
Regional Resource Center for Asia & the Pacific (RRC.AP)								Yellow				Brown							Resource Center for Asia & the Pacific (RRC.AP)
Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI)	Red				Red					Pink	Orange	Orange	Green						Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI)
Internet Education & Research Laboratory (intERLab)					Red			Dark Red		Pink	Orange		Green						Internet Education and Research Laboratory (intERLab)
AIT AI Technology (AIT2) Center	Red				Red	Blue	Yellow	Orange				Brown							AIT AI Technology (AIT2) Center
AIT Center in Vietnam (AITVN)									Orange										AIT Center in Vietnam (AITVN)
Institute Service Centers																			
Facilities							Yellow				Brown				Green				Office of Facilities & Assets Management
Student Affairs	Red				Red	Blue				Pink									Admissions / Career Center
Human Resources																			Human Resources Office



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