AIT
Asian Institute of Technology

AIT SUSTAINABILITY
REPORT 2020

SUSTAINABLE
DEVELOPMENT
G⬤ALS

AIT SUSTAINABILITY
REPORT 2020

EDITORIAL BOARD

Nophea Sasaki

Izel Ann Mojado-Dante

Shawn P. Kelly

Karma Rana

Sireesha Bantu

Asian Institute of Technology wishes to thank its faculty, staff, students, and the many people who rendered their assistance in preparing the AIT Sustainability Report 2020.

TABLE OF CONTENTS

ABOUT THIS REPORT

The 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals 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.

Last year, for the first time in its history, the Asian Institute of Technology (AIT) published a Sustainability Report which outlined key initiatives undertaken by the Institute to meet the Sustainable Development Goals (SDGs) in 2019. This second Sustainability Report provides a summary of the range of activities undertaken at AIT during 2020 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. Even when all of us were severely affected by the COVID-19 pandemic, 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.

AIT participated for the first time in the Times Higher Education (THE) Impact Rankings 2020, which looks at global universities' commitment and performance in furthering the SDGs and AIT ranked #19 in the world for SDG1—No Poverty. The achievement was recognition of AIT's work in providing education to students from countries where poverty is an issue, of its research on poverty issues, and of its success in producing graduates who go back home to help their countries eradicate poverty. Likewise, AIT ranked #86 in the world for SDG2—Zero Hunger, which indicates a recognition of our education and research on food and food security. Over 850 universities from 89 countries participated in this ranking exercise, which also saw AIT's work recognized on several other SDG's.

I would like to thank the editorial team which has worked closely with the AIT Schools and Centers in identifying important work that could be showcased. One important feature of the Sustainability Report is an SDGs Dashboard mapping for the Schools, Thematic Areas, Institute Centers and Institute Service Centers.

AIT research disciplines are critical for the societies of Asia, and the Institute will continue these studies, but with more innovation, under its motto which is 'Social Impact with Innovation' and places a heavy emphasis on sustainability.

AIT President Eden Y. Woon

RESEARCH   OUTREACH AND PUBLIC ENGAGEMENT

TEACHING   OPERATIONS

AIT'S PARTICIPATION IN THE THE IMPACT RANKINGS 2020

Asian Institute of Technology (AIT) participated for the first time in the Times Higher Education (THE) Impact Rankings, which looks at global universities' commitment and performance in furthering the Sustainable Development Goals (SDGs). Over 850 universities from 89 countries participated in the ranking by submitting input during 2019, and the results were published on April 22, 2020, with **AIT ranked 19th in the world for SDG1—No Poverty.**

AIT took part in the 12 SDGs listed below plus the mandatory SDG17, and the results were as follows:

AIT Overall Ranking: (301-400)

- _SDG1 No Poverty (19th)_
- _SDG2 Zero Hunger (86th)_
- _SDG4 Quality Education (401-600)_
- _SDG5 Gender Equality (301-400)_
- _SDG6 Clean Water and Sanitation (101-200)_
- _SDG7 Affordable and Clean Energy (201-300)_

- _SDG8 Decent Work and Economic Growth (301-400)_
- _SDG11 Sustainable Cities and Communities (201-300)_
- _SDG13 Climate Action (201-300)_
- _SDG14 Life Below Water (101-200)_
- _SDG15 Life on Land (101-200)_

AIT Ranks 19th in World in SDG1—No Poverty in Times Higher Education Impact Rankings 2020

1 NO POVERTY

End poverty in all its forms everywhere

Asian Institute of Technology (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 river delta and fish stock preservation and rice farming intensification in low-income Asian countries. The Institute partners with major international players such as the FAO in helping countries build up resilience and mitigate the effects of climate change through a range of farmer-participatory projects alongside advanced IT monitoring systems. With a substantial proportion 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.

Migration and Collectives/Networks as a Pathways out of Poverty: Gendered Vulnerabilities and Capabilities of Fishing Communities in Asia

The project studied migration in fishing communities in Cambodia, India, and Sri Lanka. It explored how migration is used as a strategy to manage diminishing fishing resources, escape poverty, and the deprivation fishers face vis-a-vis large industry players. In Cambodia, the research demonstrated how women, who are often invisible in fishing activities, play a crucial role in sustaining fishing as a profession for the household, which plays a key role in supporting the household financially so that members can maintain their identity as a fishing household and play an active part in leading the fishing community, even though they face an uphill battle to assert themselves.

https://dds.ait.ac.th/sdg-1-no-poverty/

Research Consultations and Support for Expert Group Meetings on SDG Indicators and BIG Data and for the Twenty-eighth Session of the Asia and Pacific Commission on Agricultural Statistics (APCAS28)

AIT's Geoinformatics Center (GIC) collaborated with the Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific (FAO-RAP) to hold a series of expert group meetings on agricultural statistics. The meetings brought together regional experts to discuss applications of the latest technologies, share new innovations, and discuss future plans for agriculture statistics in the Asia-Pacific Region. The second expert group meeting, titled Expert Group Meeting on the Use of Earth Observation Data for Agricultural Censuses and Surveys, was held from 17-19 February 2020 as a side event to the FAO's 28th Asia and Pacific Commission on Agricultural Statistics. The meeting explored regional applications of satellite imagery, drone image products, and GNSS data for agricultural statistics. In total, 33 experts from 12 countries representing national agriculture agencies, national statistical agencies, and the private sector contributed to the meeting's content. As part of this project, AIT-GIC also piloted a study that used Earth Observation data to identify and estimate the amount of agricultural land available for a study site in Thailand. The study explored Sentinel-2 for Agriculture (Sen2Agri), a system developed by the European Space Agency that automates EO data downloading and processing based on user-defined parameters to map crop areas and types. Initial results are promising and will be followed up by an expanded study to take place in 2021.

http://geoinfo.ait.ac.th/gic-attends-apcas28-and-expert-group-meeting-in-bali/

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.

In 2020, out of a total of 4,467 applications, 597 new students joined AIT, including 40 exchange and visiting students. In the January 2020 semester, 105 new students enrolled from 18 different countries from five different parts of the world: Southeast Asia and the Pacific, South Asia, East and Central Asia, and Europe.

Of this intake, 6% of students received scholarships (full subsidy on tuition fees), 40% received AIT scholarships (partial tuition subsidy), and 54% were self-supporting.

In the August 2020 semester, 492 new students were enrolled from 31 countries from five different regions: 70% from Southeast Asia and the Pacific, 21% from South and West Asia, 7% from East and Central Asia, and 2% from Europe and Africa. Of this intake, 32% were under full scholarships including living allowances, 26% received scholarships covering tuition and registrations fee only, 2% were funded by external donors, 23% received AIT fellowships, and 17% were self-supporting.

Development of a Land Resources Information Management System (LRIMS) for Afghanistan

The Food and Agriculture Organization of the United Nations (FAO) and AIT's GIC joined together to strengthen the capacity of Afghani institutions to monitor and analyze agriculture production systems through the development of a Land Resources Information Management System (LRIMS) and National Agro-Ecological Zoning (NAEZ).

LRIMS is being built to provide stakeholders access to standardized GIS data for land and agriculture resources. It will provide the framework for examining current and future cropping scenarios with climate and agricultural production inputs based on IIASA National Agro-ecological Zoning (NAEZ) models. LRIMS will answer questions such as: *Which area is most suitable*

for cultivating a specific crop? If a crop is changed or replaced, what will be the effect on production? What will be the effect on crop cultivation (suitability) and yield due to climate variability or change? Services will be delivered through a user-friendly web portal in which users will be able to select, visualize, query, analyze, and report geospatial data. The portal will provide access to integrated base-maps, static or modeled geographic data, and time series data, thereby enabling relevant agencies to explore options for efficient deployment of input resources for agricultural development in Afghanistan.

https://lrimsfaoaf.ait.ac.th

Strengthening Groundwater Governance in Rapidly Urbanizing Areas of the Lower Mekong Region

Groundwater plays a crucial role in the water security, poverty reduction, and sustainable development of the Mekong region. However, in many countries, groundwater is under-utilized or over-exploited and at the same time affected by multiple stresses such as rapid urbanization, population growth, climate change, and climate variability. Lack of sound groundwater governance, absence of groundwater policies and laws, groundwater institutions, and stakeholders' participation, and fragmented groundwater management along with other aspects of socioeconomic developments have led to unsustainable management of groundwater in the Mekong region. The unsustainable management of groundwater in the region, especially in rapidly urbanizing areas, generates conflict between different sectors and vulnerable populations, including poor, marginalized, and ethnic people. This project aims to evaluate the current state of groundwater governance in the region and recommend ways to improve or strengthen groundwater governance based on an evidence-based understanding of groundwater availability, its use, and potential conflicts under multiple stresses in the future. The project is being implemented through four case studies in Thailand, Vietnam, Cambodia, and Laos.

https://dds.ait.ac.th/sdgs/2019/08/03/strengthening-groundwater-governance-in-rapidly-urbanizing-areas-of-the-lower-mekong-region

2 ZERO HUNGER

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

Asian Institute of Technology (AIT) partners with research and funding institutions working on reducing undernutrition in East and South Asia but also Africa and Latin America as well as on trade-related policies that hamper the availability of appropriate nutrition to populations in need worldwide. The Institute collaborates with a range of international organizations on schemes for freeing up food supply chains, influencing trade-related policies, 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 focusing on innovations, including improved statistics, with the potential

Series of Regional Policy Dialogue by EU Switch-Asia, UNEP and AIT

This is a joint project by SWITCH-Asia Regional Policy Advocacy Component (SWITCH-Asia RPAC) funded by the European Union (EU) and implemented by the United Nations Environment Program (UNEP) Regional Office for Asia and the Pacific and the Asian Institute of Technology (AIT). The EU supports sustainable lifestyles through various mechanisms including awareness raising and advocacy, green public procurement, sustainable financing, policies and regulatory frameworks, and business models including extended lifespan through right to repair, shared economy for optimal use, product as service to control the life cycle of products, and so on. This series of dialogues was organized during the COVID pandemic, when many countries were putting in place economic, social, and environmental recovery measures. The Regional Policy Dialogue focused on the following main themes: Sustainable Patterns of Consumption (SCP) in Tourism Opportunities and Challenges with COVID-19; Moving Toward a Circular Economy for Plastic Waste Management; Innovation and Connectivity Through Farm to Fork for Sustainable Food Systems and Healthier Society; and Sustainable Lifestyles for SCP Focusing on Packaging.

http://www.sl-scp.ait.ac.th/

Bangladesh: BRAC-Fish

AIT and BRAC (Bangladesh) have entered into a three-year partnership that will contribute to the UN's Sustainable Development Goals (SDGs) through fisheries and aquaculture sector development. The project involves transferring knowledge and technology from AIT to Bangladesh. Its objective is to enhance the efficiency of existing operations, introduce new programs and products, and provide technical and logistical support for fisheries and human resource development. The project is therefore directly relevant to Goals 1, 2, 3, 5, 8, and 14 as the objectives of the project are to enhance food production, incomes, nutrition and health, and women's participation and reducing the pressure on wild fish catch. AIT's technical assistance will contribute to upgrading, modernizing, and expanding BRAC fisheries business, fine tune the AIT tilapia hatchery technology model, and place the emphasis on women's participation across the country. Despite the COVID-19 pandemic and the resulting postponement of physical site visits, experts at AIT have been disseminating the latest knowledge on aquaculture development and necessary technological support through virtual training sessions and online workshops.

https://www.brac.net/brac-enterprises/item/884-brac-fisheries

Hult Prize On-Campus Program

The Hult Prize OnCampus Program operates on over 2,000 college campuses in five continents and is made up of students, university administrators, professors, and alumni who participate in the program as mentors, speakers, and sponsors for events, workshops, and startup competitions organized under the Hult Prize Banner. The OnCampus Program 2020 at AIT kickstarted on 27 November with a launch event titled "Hult Meets AIT 2.0" attended by mentors and students who want to change the world. The event was followed by a workshop co-organized by Yunus Thailand on 3 December. The On-Campus finals were held on 12 December in the AIT Robert B. Banks auditorium. Twenty teams of students pitched their ideas under the theme of "Food for Good," specifically on how food can be used as a vehicle to drive change, before a panel of judges that included Paul Ark, Advisor at Gobi Partners; Gautam Ganguly, Founder & CEO of Foodie; Thepparith Senamngern, Leader at Obama Foundation – Asia Pacific; Kunn Kangvansaichol, Founder and CEO of Algaeba; and Dr. Simab Kanwal, Scientist at the Institute of Molecular Biology, Mahidol University. The Chief Guest of the event was Mr. Raj Shankar Ghosh, Senior Advisor for Vaccine Delivery, Bill & Melinda Gates Foundation.

http://ec.ait.ac.th/hult-prize/

Trade Hub

Thousands of species are threatened with extinction globally, there has been a swift decline in biodiversity and ecosystem resilience, and people are being kept in poverty as trade in wildlife and agricultural commodities from low and middle-income countries has increased rapidly. The Trade Hub includes economists, trade modelers, political scientists, ecologists, development scientists, large companies, UN bodies, and NGOs, which will work together across supply chains to influence trade-related policy and practice. It will produce research to help ensure that trade becomes a driver of positive change in the world, with biodiversity loss halted and people permanently lifted out of poverty. The Hub will select trades that are already having—or have the potential to have—a major impact on biodiversity as well as those that are important to local livelihoods: bamboo and rattan, live animals, animal skins, wild meat, cocoa, coffee, palm oil, rubber, soy beans, and sugar.

Emerging trades, for example in crops such as bush mango and the African cherry, will also be studied as examples of wild-sourced species that are being gradually domesticated into agricultural systems. These various trades will be studied within eight countries chosen for being at different stages of economic development as well as producing a wide range of wildlife and agricultural products: Brazil, China, Cameroon, Gabon, the Republic of Congo, the Democratic Republic of Congo, Tanzania, and Indonesia. The project will study how different trade systems have affected biodiversity from a biophysical, social, political, and economic point of view and trace the impact of the supply chain all the way from supplier to consumer countries via trading companies. As well as feeding into public policy advice, this research will help companies understand their products' true environmental impact all the way back to the raw materials.

https://www.unep-wcmc.org/featured-projects/trade

3 GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote wellbeing for all at all ages

Asian Institute of Technology (AIT) has taken all possible measures needed to maintain the health and wellbeing of the AIT community. An extensive application process was completed for 'Organizational Quarantine' (OQ) status, including medical partnership with neighboring Thammasat University Hospital, following which AIT gained approval as the first university in Thailand to operate an OQ for students. 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 promotes dialogue on the Circular Economy and works to upgrade the skills of healthcare professionals in countries such as Pakistan and instill health and wellbeing habits in its students they will take back and pass on to their compatriots.

Supporting AIT Students during COVID-19: From Lockdown to Organizational Quarantine to Hybrid Instruction

Despite the COVID-19 pandemic continuing worldwide with no abatement, AIT was able to open its Fall Semester on 3 August 2020 by adjusting to a Hybrid Instruction mode. An AIT COVID-19 Task Force was formed to closely monitor the pandemic situation and to take all measures needed to maintain the health and wellbeing of the AIT community. From April 2020, AIT enforced work-from-home until July 2020 to fight the spread of the pandemic. More than 20,000 face masks and sanitizers were distributed to students and residents on campus. The COVID-19 pandemic challenged AIT, especially in light of the fact that 70% of its 1400 students are from developing countries. AIT completed an extensive application process for 'Organizational Quarantine' (OQ) status, including medical partnership with neighboring Thammasat University Hospital, and gained approval as the first university in Thailand to operate an OQ for students. The OQ project involved helping overseas students with complex COVID-19 entry procedures at Thai embassies abroad, escorting them safely to AIT on arrival in Bangkok, and hosting them for their prescribed 14-day quarantine in designated campus dormitories retrofitted and sealed off from the Institute community. This facilitates overseas students in undergoing their mandatory quarantine period at AIT rather than at expensive Alternative State Quarantine (ASQ) hotels, which many students cannot afford because of cost and are unable to book due to scarce availability.

Technical Assistance to the Division of Vector-Borne Disease (DVBD) to Address Information Technology Needs to Support Strengthening its Malaria Information System (MIS), RTI-USAID
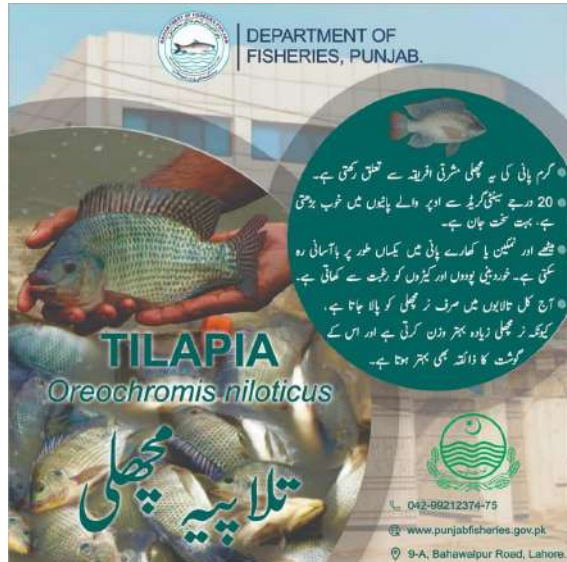
The work being carried out includes:

- Managing MIS migration: This comprises managing and migrating five data modules and two platforms to a new Department of Disease Control (DDC), Thailand server in the IT system environment.

- Designing and installing new automated dataset queries and reports: This comprises working with Inform Asia's lists of standardized indicators and program report queries for data elements of interest and then installing three new datasets: routine national surveillance, subnational verification, and PMI quarterly report for its M-DIVE initiative.

- Improving the iDES data and dashboard: This involves supporting the expansion of the existing iDES database to facilitate entry and management of laboratory data, working with Inform Asia to create a verified matching process between these laboratory data and the clinical data in MIS, and improving at least two visualizations in the iDES dashboard.

Technical Support to Establish AIT Model Tilapia Hatchery in Karachi, Pakistan with a Company, LAARH Agro Industry, Pakistan

The company, which has an agriculture business in Pakistan, wishes to invest in aquaculture using AIT's technical assistance. AIT is closely working with the US Soybean Association and the US Department of Agriculture (USDA) to create an environment for private investment in aquaculture. As a result, some private investors are requesting technical assistance. This project is one such response. The company is a car dealer but is now investing in an aquaculture project in Sindh Province, Pakistan. The project consists of producing tilapia and high-quality tilapia fingerlings using the AIT model. AIT is to provide technical assistance through training and site visits and assist in supplying materials and fish from Thailand. An initial visit has already taken place and resulted in developing a plan for upgrading existing facilities. The project is directly related to Goals 1, 2, 3, 5, 8, and 14 as the objectives of the project are to enhance food production, incomes, nutrition and health, and women's participation and reducing the pressure on wild fish catch. During 2020, online communication for technical support was provided especially for pond and AIT-model tilapia hatchery construction, which are almost complete and ready to start operations. AIT will facilitate implementation of the planned project during the contracted period to ensure the project can move forward and achieve the goal of fish production and supply to the people of Pakistan, a country where malnutrition remains one of the biggest problems. As Pakistan also faces declines in fish catch from the wild, this model farm will contribute to producing more fish.

Portable Health Clinic

The Yunus Center AIT (YCA) remains an active partner in the global Portable Health Clinic (PHC) network along with a number of academic partners across the Asia-Pacific. This award-winning pro-poor technology developed at Kyushu University with Grameen Global Communications makes physician-supervised primary healthcare available to remote or disadvantaged communities. Since 2012, YCA has co-refined this techno-innovation into an enterprise-driven approach and engaged with its replication in a number of countries. YCA led the first corporate-supported pilot for PHC in Pakistan in partnership with Stora Enso. YCA participated in co-developing a COVID response module to the PHC platform. The YCA team co-published a paper in the PHC regional Forum, and contributed two chapters to the Institute of Engineering & Technology's book titled "Mobile Technologies for Delivering Healthcare

in Remote, Rural, or Developing Regions," 2020. YCA serves as the PHC hub for Thailand and Pakistan and has contributed Thai and Urdu translations for the PHC portal:

https://portablehealth.clinic

AIT Community Health Services

AIT has a 24-hour medical clinic to support the health and wellbeing of the AIT community. It provides its employees and students with mandatory medical insurance to meet most of their medical needs. AIT strictly implements a no-smoking policy outside designated smoking areas and a no-alcohol-sale policy to ensure the wellbeing of the community. As part of the Institute's commitment to promoting the health and wellbeing of its community, it has partnered with Paolo Hospital and offered an influenza vaccination program to the AIT Community on 10 September 2020.

4 QUALITY EDUCATION

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

Following the 2020 spread of the COVID-19 pandemic and the government-mandated closure of universities, AIT cancelled face-to-face classes and implemented online instruction. AIT delivered hybrid instruction through Smart Modified Classrooms (SMCs) outfitted through fund-raising among alumni and friends. The Institute contributes to quality education by developing programs in engineering and technology for sustainable energy transition, food innovation, regenerative sanitation, urban sustainability planning, and environmental sustainability management. It encourages links between development economics and environmental studies from a multidisciplinary approach. Alongside its Singapore-based partner, it provides professional training and skills upgrading in social dimensions of development and environmental management specially tailored for the present and future needs of low-income countries. It makes lectures, presentations, dialogues, discussions, chats, and blogs on education-related topics widely available through its e-learning platform. AIT Extension also supports educator capacity building to benefit low-income and marginalized groups in developing countries such as Lao PDR.

Innovative Hybrid Instruction at AIT – 'Without Missing a Beat'

Following the 2020 spread of the COVID-19 pandemic and the government-mandated closure of universities, AIT cancelled face-to-face classes and implemented online instruction. AIT delivered hybrid instruction through Smart Modified Classrooms (SMCs) outfitted through fund-raising among alumni and friends. AIT also seized upon Organizational Quarantine (OQ) to help its students return to campus and gained approval as the first university in Thailand to operate an OQ facility. Orientation welcomed new students in person or online. Remarkably given pandemic conditions, Fall semester enrollment was 10% higher than in 2019. AIT also convened its 2020 Graduation Ceremony via hybrid technology. Co-curricular activities brought everyone closer, giving online students a feel for residential education, while the AIT Share e-Learning

platform enabled educators and students to further their knowledge. AIT innovated by allowing flexibility in instruction delivery across degree programs, thus significantly enhancing its mission to become a ground-breaking higher education institution.

Reinforcing the Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry (ReCap 4.0)

ReCap 4.0 is a €989,888 project co-funded by the Erasmus+ Program of the European Commission. It is a three-year joint capacity-building project led by AIT. Eight universities, including five universities representing different parts of Thailand and three European Union partner universities, join hands to enhance the capacity and ability of the non-university sector at the tertiary level in Thailand for the effective delivery of engineering and technology knowledge and skills related to Industry 4.0 to support Thailand Sustainable Smart Industry. ReCap 4.0 will develop an Industry 4.0 competence development training program and offer it in order to upskill and reskill teaching staff. The project will develop twelve Thai trainers along with the establishment of a new Innovative Teaching and Learning Center for Thailand Sustainable Smart Industry for the continuation of service to support the professional development and lifelong learning of the staff of academic institutes at the tertiary level as well as technical industry training. A training network set up around the Center will ensure the sustainability of project results and be in line with European policy and practice in Thailand.

Professional Development Course on Education Project Management, Monitoring and Evaluation

During 20-29 January 2020, AIT Extension organized a Professional Development Course on Education Project Management, Monitoring and Evaluation for 20 senior officials from the Ministry of Education and Sports (MoES), Lao PDR responsible for monitoring and evaluating education projects. This 10-day training program was designed to enhance understanding and introduce suitable tools and processes for project monitoring and evaluation. The focus of the training was on understanding the entire nature of recent M&E platforms, approaches to evaluation, and techniques for information gathering and data collection. The program addressed key elements of program evaluation and approaches to making meaningful analyses of outcomes.

Training course activities included input sessions, study visits to primary schools, and participants' project work. The study visits were organized in Bangkok and the provinces for participants to have opportunities to observe and reflect on school administration, school project management, and monitoring and evaluation. Participants were tasked to carry out project work with knowledge learned from classes applied to their own projects.

Webinar on Singapore Skills Framework: Possible Applications to Human Resource Education and Professional Development

On Thursday 30 July 2020, AIT Extension in close collaboration with Accelebator Private Ltd, Singapore organized and hosted a webinar on the Singapore Skills Framework: Possible Applications to Human Resource Education and Professional Development. This webinar aimed to share experience on the Singapore Skills Framework (SFW) and transfer knowledge and practical experience of Singapore practices. The webinar gathered 25 participants consisting of university faculty members, administrators, and students and human resource managers of private companies.

The webinar was moderated by Mr. Voravate Chonlasin, Director, AIT Extension. Three speakers took part: Mr. Anderson Tan, Director, Accelebator Private Ltd, Singapore, Ms. Elizabeth Chan, Founder & CEO, Center for Competency-Based Learning and Development, Singapore, and Mr. Sethu Meenakshisumdaram, Senior Vice President-Growth (APAC), KnolSkape, Singapore. The webinar emphasized the Singapore Skills

Framework as a strategic leap for education and training to transform the future of learning as well as required competencies and talents for future jobs.

https://www.youtube.com/watch?v=1DX54zwbML8

Development of E-learning Course on Concept Note Development for the GCF Simplified Approval Process

The work being carried out includes:

- UI design and platform configuration

- E-learning platform development for seven modules: this will include the development of e-learning course on Concept Note Development for the GCF Simplified Approval Process. The total duration of the seven modules will be in the range of 10 to 15 hours.

- Platform testing and training: this will be done jointly with the teams from RRC.AP and GCF team for efficient testing of the platform and training of the users.

- Platform launch: the launch will focus on a target of 100-500 users.

- Platform documentation: provide the platform and online materials documentation including system security management plan.

- Technical support to RRC.AP team handling RRC.AP local server host for the e-learning course, including regular monitoring and addressing system security issues.

Digital Manpower Development on 'Data Analytics for Upskilling Program'

The key objective of the program is to:

- Promote and encourage the development of a high-quality, top-caliber workforce in the digital technology area to serve the needs of society, the economy, and the nation.

- Promote and encourage the exchange of knowledge and experience between organizations in the state, educational, and private sectors.

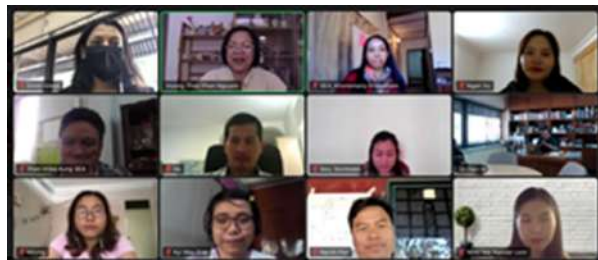- Integrate tripartite cooperation to upgrade course development and education management.

https://www.ait.ac.th/2020/07/ait-teams-up-with-scb-and-depa-in-digital-manpower-development-for-data-analytics-for-upskilling-program

Bangkok Module: Development Policy & Practice with Graduate Institute, Geneva

The Yunus Center AIT (YCA)has hosted the Southeast Asia regional module of the Executive Masters' program in Development Policies and Practice (DPP) for the Graduate Institute (IHEID), Geneva since 2016. This high-demand program developed by IHEID with contributions from AIT is funded by Swiss Development Cooperation and the Canton of Geneva. DPP equips community service professionals from developing countries with academic concepts and technical skills to empower them for greater development impact. YCA hosts students primarily from the Mekong region, organizing both classroom sessions and field visits. IHEID faculty are joined by AIT counterparts and regional experts to deliver classes and practicums and supervise theses. YCA's team provides anchoring support for IHEID, and its director acts as Academic Coordinator for the Southeast Asia (SEA) cohort. The 2020 module was initially postponed, then scheduled in January 2021 in online format. This recurring program demonstrates the effectiveness of distributed learning models given current mobility constraints and AIT's experience in delivering these.

COVID-specific Courses: Innovation Management & Six-Sigma for Start-ups

The Yunus Center AIT (YCA responded to COVID-19 beyond contributing to the above-mentioned PHC module. Three expert webinars and two online courses were designed and delivered, aimed at professionals learning to cope with the uncertainty emerging from the pandemic. The courses were conducted by recognized experts in joint-venture partnership with AIT Extension's Development Management department. Recognizing an opportunity to promote the Six-Sigma approach, a joint venture was established with Toosy Advisory Services to provide accredited training and qualifications at Green and Black Belt levels. Two training cycles were organized along with three associated webinars: "Six-Sigma and Risk Management," "Six-Sigma and Cross-Cultural Management," and "Six-Sigma and Recovering from COVID-related Losses." Another COVID-related course was designed and delivered by Mr. David Galipeau in collaboration with SDGx and the Yunus Near Future Lab, titled "Innovation and the New Normal: How to Make Way in a Changed World." This course was targeted at managers faced with challenges arising from uncertainty and shifting market realities.

The AIT Alumni Association (AITAA) China Chapter Delegation donates THB 1.2 million more to AIT

The AIT Belt & Road Center has awarded the first "Belt and Road Scholarship" to support one young student from Nepal to continue her Masters' study in the Gender and Development Field at AIT.

The AITAA China Chapter Delegation led by Mr Liu Chongming presented two mock cheques to AIT President Dr. Eden Woon: Second instalment of 1,000,000 THB towards the AIT Belt and Road Research Center; Second instalment of 200,000 THB towards the Student Exchange Scholarship Program funded by AIT Chinese Alumni in Thailand. Dr. Woon briefed the delegation on the preparation and discussion with AITAA China Chapter President Prof. Hu Biliang, about the Belt and Road Initiative Summit and suggested online-in-person hybrid modality or online webinar as

alternatives for the in-person summit. Dr. Wenchao Xue, Assistant Professor, EEM, SERD, and Director of the AIT Belt & Road Research Center, briefed the delegation on the Belt and Road Research Center activities and progress in 2020.

Yunus Masters in Social Business & Entrepreneurship

Professor Yunus' vision of an internationally recognized competency-based professional qualification in Social Business and Entrepreneurship was realized through the active support of AIT's Schools of Environment, Resources and Development, and Management. The program balances three essential prerequisites for a robust professional degree: theory, tools, and practice. The new program aims to introduce the concept of a curated degree program at AIT, where existing courses combine in a way that creates a new interdisciplinary offering that attracts students aiming for a specific skills set.

5 GENDER EQUALITY

Achieve gender equality and empower all women and girls

Asian Institute of Technology (AIT) is a regional center of excellence in the field of gender and development, integrating gender as a key teaching and research perspective as well as an ethical concern for all Institute-wide with a view to disseminating gender-related concepts and practices for its alumni to take home to countries such as Nepal and Myanmar. It collaborates with institutions in neighboring countries as well as its Swiss partner in introducing courses stressing women's participation in debates and highlighting their role in developing SDG-related practices. The Institute implements on-campus policies of non-discrimination against women, maternity policies, and childcare facilities that may serve as models for comparable institutions in its students' home countries.

The AIT Gender and Development Studies (GDS)

AIT's Gender and Development Studies (GDS) aims to be a center of excellence in the field by integrating gender equality as a key intellectual perspective and ethical concern in sustainable development. GDS develops scholars, analysts, and practitioners who can integrate gender approaches into development planning and management and conduct original gender and development-related research to advance development goals, including the Sustainable Development Goals globally and in Asia. As one academic arm of community-based efforts for gender equality and the advancement of the rights and inclusion of women and individuals of all sexual orientations and gender identities, GDS aims to be a center of excellence in gender and development studies by integrating gender equality as a key intellectual perspective and ethical concern in sustainable development. Highlights of projects undertaken in 2020 as well as ongoing projects are listed below:

- Women and men in small-scale fisheries and aquaculture in Asia: Barriers, constraints, and opportunities toward equality and secure livelihoods – FAO: Principal Investigator (2020-2021)

- Guidelines for promoting gender equality in regional marine plastic management – World Bank: Principal Investigator (2020-2021)

- he impact of COVID-19 on inclusive development and democratic governance: Rapid and post-pandemic assessment in the Mekong subregion – International Development Research Center, Canada (led by CDRI): Research Technical Adviser (Gender) (2020-2022)

- Research in labour migration and human trafficking laws, regulations, and policies – One-World GVC: Principal investigator (2020)

- Understanding barriers and working pathways to women's political participation in Myanmar – Supported by IDRC Canada (in partnership with Gender Equality Network and McGill University): Co-principal investigator (2018-2020)

- Capacity building of gender and development studies at Yangon University of Economics – Supported by IDRC Canada: Co-principal investigator (2018-2020)

AIT faculty Professor Kyoko Kusakabe was one of the authors of "Exploring the gender dimensions of unpaid care work in the Lao People's Democratic Republic," ADB brief No 163, December 2020, based on Prof. Kyoko Kusakabe, Tingthong Phetsavong, Keomany Soudthichak, Salika Botsabang, Latdaphone Phengsavanh (2018) Women's unpaid work in Lao PDR: Case studies in Luang Namtha, Vientiane, and Champasak Provinces, submitted to Asian Development Bank.

Cambodia: Women in Aquaculture Project and SOS (Sun-Oxygen-System)

"Energy-efficient fishpond aeration enhancing integrated small-scale aquaculture in Cambodia involving women's groups in collaboration with ZHAW, Switzerland and Smiling Gecko Cambodia (SGC)." The project has direct relevance to Goals 1, 2, 3, 5, 8, and 14 as the objectives of the project are to enhance food production, incomes, nutrition and health, and women's participation and reducing the pressure on wild fish catch. In addition, it strives to utilize solar power (SDG7). In this project, a solar-powered system called Sun-Oxygen-System used for the aeration of aquaculture pond systems is being developed and tested. The system is designed to improve the use of naturally-occurring dissolved oxygen in aquaculture pond systems and through that allow the operation of off-grid systems. Accompanied by a training program (workshops, etc.), a basis is created that allows women's groups in rural areas of Cambodia to independently operate a pond aquaculture system to produce fish for their families for food and nutrition security, sell some of their production for income, and help conserve natural fish. Ten women leaders are implementing the system on their land as a model near the end of 2020. In 2021, these leaders will form a group of four farmers each to do the same for expansion. During 2020, a series of trainings were organized for partners and women leaders' groups involved in the project focusing on pond construction, feed making, feeding, water quality management, and fish health management.

https://www.zhaw.ch/en/research/research-database/project-detailview/projektid/3540

https://www.smilinggecko.ch/en

AIT Women Students and Alumni

In 2020, 597 new students joined AIT, including 40 exchange and visiting students. In the January 2020 semester, of the 105 new students enrolled, approximately 30% were women. In the August 2020 semester, of the 492 new students, approximately 44% were women. Of the 461 alumni who obtained their degrees from AIT in 2020, 40% (185) were women.

UNDP Project: Women Entrepreneurship & Peace-building in Southern Thailand

Professor Yunus was invited by Rear Admiral Somkiert Polprayoon, Secretary General of the Southern Border Provinces Administration, to initiate community entrepreneurship projects in the area. With funding from UNDP and the Government of Japan, YCA is engaged in building food security and shared prosperity among diverse ethnic communities in the area in partnership with the Yunus Thailand Foundation. The steering committee is chaired by the Vice-Governor of Yala Province. The Yunus team is engaged in mapping food value chains in a number of identified communities and building interfaith engagement around shared commercial interests to integrate food security considerations with peace-building goals. Fifty women entrepreneurs from the target of 200 have completed business design training, and 10 food businesses have been launched. The upcoming phase includes preparing a cohort of 10 local master trainers to continue capacity-building beyond the Project's life. An online platform will be launched to connect emerging businesses with markets beyond their immediate location.
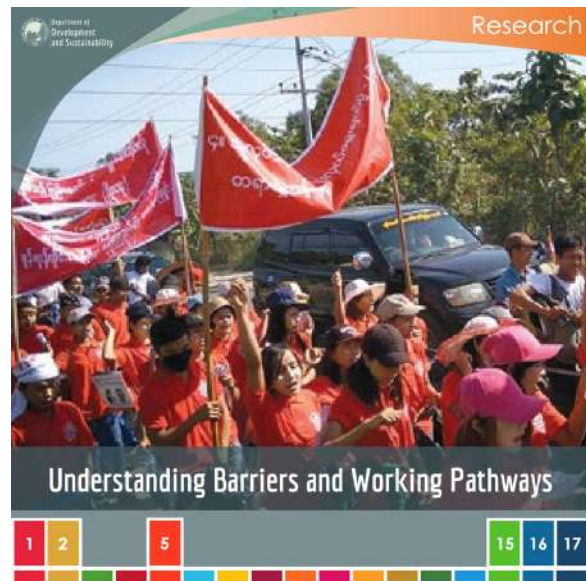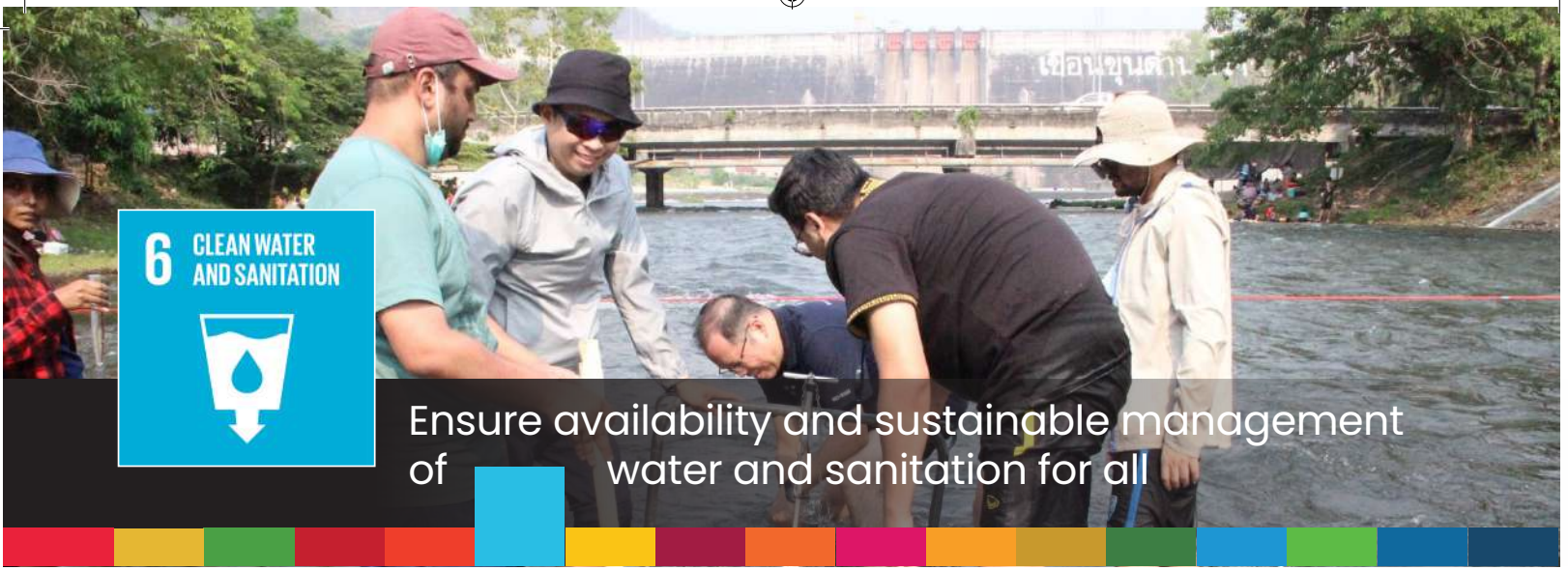

Understanding Barriers and Working Pathways to Women's Political Participation In Myanmar

The aim of the project supported by the International Development Research Centre (IDRC) – Canada is to assess the extent and forms of women's participation in the political sphere in Myanmar and explore barriers and enabling factors. We define participation beyond actions that influence or support governments to include taking part in collective decision-making in a broad sense. Previous research has demonstrated low levels of women's representation in national, subnational, and community governance and explored the social and cultural norms that bar women from taking leadership roles. This research will extend these insights to analyze pathways to participation across multiple levels of governance: (1) national parliaments, political parties, and social movements; (2) central or regional parliaments and government offices; and (3) district, township, and village groups. Using the concept of pathways will allow us to utilize and study women's personal pathways to political power and understand what can undermine upward mobility in the political system at any point and what can facilitate or provide entry points or further engagement at different moments in a woman's life.

Understanding Barriers and Working Pathways

6 CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all

Asian Institute of Technology (AIT) collaborates with Lower Mekong and South Asian countries and elsewhere in Asia on projects studying the roles of hydrology and ecosystems in development, 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, sanitation measures, wastewater disposal, and water conservation. Testing takes place in dedicated facilities on the AIT campus and have been applied to multiple settings, including the Climate Change Risk Assessment for Southeast Asian Lakes initiative. AIT and partners provide industry with integrated sanitary solutions and support for capacity building in partnership with multiple funding organizations.

Water, Health, and Ecosystems: Current Challenges and Opportunities

The 2nd AIT-BNU Joint Virtual Workshop on 'Water, Health, and Ecosystems: Current Challenges and Opportunities' was held on 17th December 2020, hosted by Asian Institute of Technology, College of Water Sciences, Beijing Normal University, and AIT Belt and Road Research Center. The workshop aimed to promote the SDG 6 on cleaning water and sanitation, and create a regional platform for researchers to present the current state of knowledge regarding the advanced methodologies, current progress and challenges, future opportunities in water-health-ecosystems management. Over 80 participants from the region registered and attended the workshop.

Launching Ceremony of Project 'Water Resources Management in the Mekong River Basin

AIT and the Hydro-Informatics Institute (HII), Thailand organized a project kickoff meeting of 'Water Resources Management in the Mekong River Basin' at the Hydro-Informatics Institute (HII) Office in Bangkok on 30 September 2020. The project is supported by the US Department of the Interior (DOI) and USAID and jointly implemented by Water Engineering and Management and HII, Thailand. The aim of this kickoff meeting was to disseminate the project objectives and explore the opportunities for collaboration with various national and international organizations working on water resources management issues in the Mekong River Basin. An introduction to the project 'Water Resources Management in the Mekong River Basin' was featured in the Thai PBS Live Exclusive Talk.

http://wem.ait.ac.th/launching-ceremony-of-project-water-resources-management-in-the-mekong-river-basin/

http://youtu.be/J2PS35ILFzU

Climate Change Risk Assessment for Southeast Asian Lakes (CCRASEAL)

Southeast Asian lakes provide several ecosystem services and are an important natural resource for water supplies, industry, agriculture, shipping, fishing, and recreation. These have been demonstrated to be highly vulnerable to anthropogenic and climate threats. Scientific studies demonstrate that climate change has already significantly affected the SEA region and that these impacts will continue and expand as the pace of climate change accelerates. However, a deeper understanding of how the "ifs" and "hows" related to climate change as well as intensification of land uses may exacerbate those impacts on such vulnerable ecosystems across the whole region is lacking.

CCRASEAL will aim to detect possible links between observed alterations to multiple threats, understand if, when, and where threats may overlap, and define and choose a metric that best quantifies the effects of multiple threats and any changes in them under future scenarios of climate and land uses. CCRASEAL will design a region-based approach for filling existing knowledge gaps and provide guidance for addressing the urgent management challenges posed by multiple threats to freshwater ecosystems.
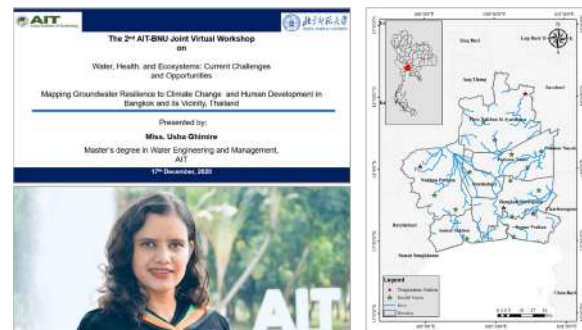
Being interdisciplinary in nature, the project adopts a strategic approach and transdisciplinary outlook to guarantee that the linkage between science and policy at regional level is strengthened by actively engaging academic and government partners from five different countries in the Indo-Burma region.

https://www.apn-gcr.org/project/climate-change-risk-assessment-for-southeast-asian-lakes-ccraseal

International Virtual Workshop on Water Health and Ecosystems

AIT's Belt & Road Center co-organized an International Virtual Workshop on "Water, Health, and Ecosystems: Current Challenges and Opportunities" on 17 December 2020. The workshop sought to create a platform for presenting the current state of knowledge regarding advanced methodologies, current progress and challenges, and future opportunities in water health and ecosystems management (SDGs 3, 6, 13, 14).

Sustainable Use of Water on Campus

AIT has had its own wastewater treatment plant since July 2012, s system that collects all sewage water from the campus, which amounted to 156,053m3 in 2020, and all treated water was released back to AIT's canal system and reused for garden use on the campus. AIT has a closed-loop canal system, with rainwater stored for the summer and all landscaping and greenery maintained using this 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 funding agencies such as the UN and domestic sources, AIT engages in research on a range of innovative renewable energy and energy conservation technologies. The Institute's Youth Energy Academy equips future leaders from across Asia including Bangladesh, Myanmar, Nepal, Pakistan, the Philippines, and Thailand with the Do It Yourself and Do It Together skills needed to promote wider energy access and sustainable energy solutions in their respective countries. The Institute is a leader in gradually increasing solar power generation on its campus and by coordinating with local partners and companies over the feasibility of generating most of its power consumption from renewable solar energy.

Towards Achieving SDG 7 Goals In The Asia Pacific - Energy Access, Renewable Energy And Energy Efficiency Measures And Best Practices Database

This sponsored activity supported by UNESCAP developed a database of policies, interventions, and best practices in the energy sector (with focus on SDG7-related targets) areas, namely energy access, energy efficiency, and renewable energy.

This renewable energy database can be used to estimate the economic, social, and environmental impacts of renewable energy policies to be implemented in a given country. The database describes various renewable energy resources, renewable energy technologies, energy policies (duration, nature, etc.), cost of implementation of the policies, and quantity of emission mitigated due to the implementation of policies for various renewable energy technologies.

The energy efficiency database was designed to help estimate the economic and environmental impacts of the various energy-efficient technologies in the different sectors. This will allow users to compare a product for a given level of efficiency with a benchmark product. The sectors and technology areas included in the database are residential sector appliances (air conditioners, refrigerators, fans, washing machines, lighting, televisions, and water heaters), industrial sector appliances (motors and pumps), and transport sector technologies (IC engines and electric battery storage vehicles).

The energy access database describes the resources (both renewable and non-renewable), energy technologies, duration of policies promoting energy access, cost of implementation of the policies, and quantity of emission mitigated or generated for various energy access technologies This database is designed to help users estimate the economic, social, and environmental impacts of energy access policies to be implemented in a given country.

The three interactive databases will constitute a knowledge product of the Energy Portal for use by policymakers, energy planners and practitioners. It will serve as input and support the identification and prioritization of technologies and interventions to make informed decisions about appropriate policy measures to be taken in the Asia-Pacific countries and thus meet the SDG 7 targets.

Smart Grid Commercial, Technical and Market Drivers

AIT Extension organized a two-week professional development program on "Smart Grid Commercial, Technical, and Market Drivers" designed for the engineers of Dhaka Power Distribution Company Ltd. (DPDC), Bangladesh. This course comprised theoretical and practical aspects of electric power transmission, distribution, and management through modernized smart grid technology. The course combined classroom theory lectures, study visits to relevant organizations, and interaction with resource persons. All sessions were focused on participative discussions geared toward enhancing participants' knowledge of technical and developmental issues. The teaching-learning method included lectures, discussion sessions of each module, relevant case studies, group work, individual practice, and project work. The participatory approach to the training was appreciated by all participants as it enabled them to discuss, interact, and relate the learning and training experiences to their peers in their own organizati on.

AIT RRC.AP Conducted a Virtual Youth Energy Academy (V-YEA) on 28 September-4 October 2020

Between 28 September and 4 October 2020, AIT RRCAP in partnership with Sustainable Energy Youth Network (SEYN) organized the second edition of Youth Energy Academy (YEA) with the support of the Regional Project Energy Security and Climate Change Asia-Pacific of the Konrad Adenauer Foundation (KAS-RECAP). The Academy convened 21 participants from 5 Asian countries (Myanmar, Nepal, Pakistan, Philippines, and Thailand) including 7 partners, 14 resource persons, and 5 YEA 2019 alumni acting as mentors. The 7-day program was delivered in close partnership with SEYN with contributions from organizations such as the Department of Energy, Environment, and Climate Change of the School of Environment, Resources, and Development, AIT's Yunus Center, the Klong 6 Community Occupational Learning Center, Pathum Thani, Fosera Thailand, Rangsit, and Tha Manao Community Biogas from Swine Farms, Lopburi, Thailand and other guest speakers.

The second edition of the Youth Energy Academy was convened virtually to raise awareness and engage and empower young people to develop sustainable energy projects, increase the potential of project idea implementation, and foster replicability across the region. The Academy used participative, non-formal,

empowering methods to boost creativity and inspire action. Throughout the week, participants were engaged through theoretical sessions, practical sessions, and virtual tours. The theoretical sessions delivered through Zoom used interactive presentations, discussions, and exercises while the practical sessions were dedicated to building simple energy systems using "Do It Yourself" (DIY) and "Do It Together" (DIT) approaches. Lastly, the virtual tour served as a proxy for field visits for participants to gain insights into renewable energy technologies and examples of technology applications in the communities. For more details, please follow this link:

https://bit.ly/35Jy4sm

Evidence Based Policies For The Sustainable Use Of Energy Resources In The Asia-Pacific Region - The Case Of Thailand Energy Division, UNESCAP

Renewable energy accounts for 15.48% of final energy consumption in Thailand in 2018. Renewable energy has attracted enormous interest in Thailand for several decades, and Thailand is now considered a leader in the region for placing emphasis on renewable energy within policy development and implementation. Given the availability of vast renewable energy resource potential and to complement rising energy security and sustainability challenges, policy development for renewable energy is expected to bring synergistic co-benefits. In the last two decades, the Government of Thailand has initiated a series of policy measures to increase the rate and scale of renewable energy and related technologies together with setting a clear vision and targets for the future. The cornerstone of this approach has been successive alternative energy development plans, the latest of which (AEDP 2015) sets the overall target of 30% of final energy consumption being renewable by 2036 together with detailed targets in several sectors and technologies. To realize these goals and targets, several policies and specific measures have been initiated. The evaluation of successes and shortcomings of these initiatives and tracking progress made will serve as a platform for devising further efforts

to meet the set targets. In this context, the aim of this project is to strengthen the capacity of national decision makers in Thailand to develop evidence-based policy and planning measures for renewable energy. More specifically, it has two specific objectives: to review and evaluate Thailand's Renewable Energy (RE) policies and their progress by assessing current RE trends and policies, and to develop policy perspectives for future pathways, including their impacts.

https://www.unescap.org/sites/default/files/ESCAP-DA-Energy-Project-ESCAP.pdf

Sustainable Energy Consumption on Campus

In 2020, AIT's overall electricity consumption was 10,110,360 kWh, down by 8.6% from the previous year and of which 35% was used for chiller operations, 29% for academic use, 14% for residential purposes, and 22% other facilities operations. AIT has an installed capacity of 50kw rooftop photovoltaic (PV) units with an average solar electricity generation capacity of 200kWh/day, which supplies power to the Institute's library. In 2020, the PV system generated 66,117.1 kWh of electricity. AIT 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 2020, the PV system generated 16,649 kWh of electricity. AIT is currently 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

Asian Institute of Technology (AIT) collaborates with international researchers and institutions such as the European Union over expanding job creation, income generation, and health and wellbeing practices, in particular by introducing and upgrading techniques in the labor-intensive fisheries sector across countries such as Nepal, Pakistan, and the Philippines. The Institute engages in promoting economic growth through increased supplies of sustainable hydropower in low- and middle-income countries including Madagascar, Nigeria, Lao PDR, Myanmar, the Philippines, and Thailand. With the focus on tropical climatic conditions in the context of climate change, other projects include work on floodwater management, flood mitigation, and their impacts on vulnerable populations across the region.

Technology Transfer for the Development of Aquaculture in Nepal

A collaboration has been established with the renowned Vaidya Group (VG) of Companies, Nepal to upgrade its existing fish farm and initiate AIT-model tilapia and pangasius hatcheries to supply seed to other farmers and solve the shortage of fish seed. Vaidya Group (http://voith.com.np) is committed to the development of Nepal in its entirety. The group has developed a diverse portfolio of businesses across Nepal and supports those business activities that help shape the future of Nepal. The organization has been given priority to industries that contribute greatly to the social uplifting of the Nepali people. Labor-intensive, agro-based industries are VG's priority as the group realizes that such undertakings help raise the living standard of the poorest people, mostly farmers. Since its establishment, the VG conglomerate has played a significant role in the country's development, especially in tea production, livestock, poultry, aquaculture, and the animal feed sector. VG looks forward to expanding its business in the aquaculture sector, being aware of its potential in

Nepal. The group hopes to be a game changer in the aquaculture industry in Nepal through collaboration with AIT. The Project is therefore directly relevant to Goals 1, 2, 3, 5, 8, and 14 as its objectives are to enhance food production, incomes, nutrition and health, and women's participation and reducing the pressure on wild fish catch.

https://www.aqua-centre.org/projects

Philippines: Technical Support to the Private Sector

A three-day onsite training was provided to the staff of the J&M Company, which runs AIT-model Tilapia hatcheries and farms in the Philippines using green water systems for most stages in the fish production process. The training involved face-to-face teaching and hands-on skills development in the company's own facilities. The Project is directly relevant to Goals 1, 8, and 14 as its objectives are to enhance seed (but not food fish) and increase efficiency and thereby incomes, create jobs, and help conserve natural fish stocks from excessive catch when farmers get hatchery produced fingerlings to produce more fish in their own farms.

https://www.aqua-centre.org/projects

Curriculum Development for Sustainable Seafood and Nutrition Security (SSNS)

Nine Asian partners from Indonesia, Thailand and Vietnam are joining with four European partners from Greece, Norway and the UK on this Project.

SSNS is a curriculum development project co-funded by the EU's Erasmus+ Program to address the issue of sustainability of seafood production, supply, and consumption through needs-based higher education and vocational training. The Project is intended to cover 36 months from October 2017 to October 2021. It aims to build capacity in Higher Education Institutions (HEI) and strengthen linkages between institutions and individuals. The Project is therefore directly relevant to Goals 1, 2, 3, 4, 5, 8, 12, 14, and 17 as its objectives are to improve higher education, enhance seafood production, increase incomes, nutrition and health, and women's participation while reducing the pressure on wild fish catch and building partnerships within Asia and with Europe.

Project activities include inception workshop, identification of needs and gap analysis in existing aquaculture and fisheries curriculum, and developing new curriculum for SSNS programs. It also includes accreditation of curriculum. Project outcomes and achievements will be disseminated by organizing a symposium and will be made available online. During 2020, online teachers training was organized for Indonesia partners as planned in-class training was not possible due to COVID-19.

Teacher training for Indonesia' organized Zoom sessions for three hours each day as a part of the EU's Erasmus+

Project on Curriculum Development on Sustainable Seafood and Nutrition Security (SSNS) hosted by the University of Gadjah Mada (UGM) and Jakarta Fisheries University (JFU), Indonesia on June 22-26 2020.

Over 50 new courses have been developed and are being taught using an online system using its own platform called Virtual Learning Environment (VLE), the necessity of which was envisioned and incorporated in the Project by the project team before COVID-19. Under this project, each of the nine Asian partners had a budget of approximately 1 million baht to purchase laboratory equipment. However, due to COVID-19, some partners experienced delays in purchasing and delivery. AIT managed to purchase the equipment for its aquaculture laboratory as complete lock-down was not imposed in Thailand.

Various Training for Ex-Mad Group

Training for a Group from Madagascar

This Project is a part of human resource development for trainees from Madagascar. Programs included exchanges of professionals, communication, training, and study tours in Thailand to give participants exposure to various fisheries and aquaculture centers and stations so as to get up-to-date knowledge and skills. A group of eight professionals – government officials, fishers, and fish farmers – joined the training during December 2019. The Project continued to support providing new and updated knowledge remotely until the end of the Project in June 2020.

Training for Natari Nig Group, Nigeria

A group of four participants from Nigeria were trained in aquaculture and agriculture, a visit that included seminars and visits to farms such as chicken, goat, cattle, fish, prawn, rice and mushroom during September 24-October 9, 2020. Three of the participants were stuck in Thailand due to COVID-19 and wished to learn about these aspects, which were of use to them. One was a staff member from the Embassy of Nigeria. The Project is related to SDGs 1, 2, 3, 8, and 14.

Training of Staff from Companies from Germany and Singapore

An advanced Aquaculture and Biotechnology training was organized on October 28-November 8, 2020 for two participants originally from India but working in Bangkok as Regional Sales Coordinator for Leiber, a German company, and in Singapore with Shiok Meat Company, which has started to produce cell-based meat from stem cells, especially shrimp, crab, and lobster. The Project is related to SDGs 1, 2, 3, 8, and 14.

MoU with LAARH Group, Pakistan

AIT has signed an MoU with LAARH Group of Companies, Pakistan to provide technical support to establish AIT-model a tilapia project during 2019-2022. The main objective is to help produce more fish for Pakistani people, who enjoy very low fish consumption.

Aqua-Dev, Nepal. AIT signed an MoU with the Baidhya Group, one of the largest business groups in Nepal, to assist in establishing AIT-model tilapia hatcheries

and other fish farming businesses or to upgrade these from their current facilities. The objective is to transfer technology through the private sector and enhance fish production in Nepal, where fish production and consumption are among the lowest in Asia. Cooperation on the Project is for three years during August 2020-July 2023 and is related to SDGs 1, 2, 3, 8, and 14.

https://www.aqua-centre.org/projects

Sustainable Manufacturing

Since December 2020, The Yunus Center AIT (YCA has led a three-country study of sustainable manufacturing best-practices in the Apparel, Domestic Appliances, and Food sectors. The country studies are designed to inform the development of a long term regional strategy for engaging manufacturers and suppliers for global supply chains with facilities in the region and building their capacity for responsible Environmental, Social, and Governance (ESG) business practices, allowing major retail brands to place orders for goods with local manufacturers. The three-year project covers specialized inputs from AIT's faculty and experts in the area of gender and development, environmental impact mitigation, and corporate social responsibility.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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

Asian Institute of Technology (AIT) promotes industrial innovation in areas of direct relevance to the SDGs in collaboration with regional educational institutions and by taking part in campus-wide and international competitions designed to identify and support innovative entrepreneurial solutions to societal challenges. Through its Green Office, the Institute provides training for environmental instructors, researchers, and consultants in countries such as Vietnam and the Philippines with the aim of enhancing their competencies and effectiveness in creating and maintaining sustainable development infrastructure. In 2020, AIT partnered with Pernod Ricard and Siam Cement in promoting such practices among the staff of international and local corporations. AIT also collaborates with industry leaders in developing infrastructure for economic development purposes suited to COVID-19 conditions.

Green Office Implementation for Pernod Ricard Vietnam and Siam Cement Group

In recent years, AIT-VN acting as a key partner has implemented many sustainable development projects and activities in sustainable consumption and production in Vietnam, such as the Eco-Innovation project funded by UN Environment, the GetGreen Vietnam project and Sustainable Products Innovation project funded by the European Union, and the Upscale and Mainstream Green Office Lifestyle in Vietnam project funded by Japan's Ministry of the Environment and UN Environment

Green Office (GO) is an initiative to upscale and mainstream sustainable low-carbon lifestyles and models for office staff with the focus on behavior changes to reduce consumption of energy, water, paper, and equipment as well as the generation of waste and emissions from business traveling. This will contribute to a reduction in Greenhouse Gas (GHG) emissions and environmental impacts by organizations, building an environmentally friendly working space, and shaping a sustainable low-carbon lifestyle for employees along with the core values of sustainability for the organization.

GO AIT-VN program is a spin-off from the Upscale and Mainstream Green Office Lifestyle in Vietnam project under the 10-Year Framework Program (10YFP) on Sustainable Consumption and Production.

Pernod Ricard Vietnam is a member of the Pernod Ricard Group, which specializes in importing and distributing popular liquor and wine brands in Vietnam including Chivas Regal, Martell, Absolut, Beefeater, Havana Club, Malibu, Ricard, Jacob's Creek, Wyndham Estate, etc. Pernod Ricard has presented in over 70 countries and held 107 production workshops.

Siam Cement Group (SCG) was established in 1913 following a royal decree of His Majesty King Rama

VI to produce cement, the main building material for infrastructure projects that greatly contributed to the progress of the country during that period. Since its founding, SCG has grown continually and diversified into three core businesses: SCG Cement-Building Materials, SCG Chemicals, and SCG Packaging.

A Green Office team of Pernod Ricard (PR) and Siam Cement Group was established to implement the activities of the GO program under consultation of AIT-VN during 2020. Current beliefs and practices among PR staff (office and sales staff) toward environmental issues and climate change will be surveyed and serve as inputs for the GO program. A tailor-made training program on sustainable consumption and low-carbon lifestyles will be developed to facilitate awareness raising and behavior changes among PR staff to encourage them to switch to green office lifestyles and sustainable consumption.

The GO AIT-VN program will help establish a GO environmental management system and policy on sustainable consumption to facilitate sustainability-driven behavior changes among their employees.

Sustainability Hackathon 2020: Challenging the Unknown with Imagination to Achieve the SDGs Targets.

Under the leadership of Professor Nophea Sasaki, Department of Development and Sustainability, AIT organized the 2nd Sustainability Hackathon in November 2020. One hundred participants from universities in Thailand and around the world organized in 13 teams joined onsite and virtually. During the two-day hackathon, the teams received mentoring support, formulated sustainability ideas, developed prototypes and tools for achieving sustainability solutions to problems of sustainability in the direction of SDGs targets. The event was jointly organized by the Entrepreneurship Center, Asian Institute of Technology with partial sponsorship of South Pole's Bangkok Regional Office.

https://dds.ait.ac.th/sustainability-hackathon-2020

Sustainability Hackathon

Against the backdrop of the ongoing global pandemic and ever-present environmental, social, and economic challenges, AIT Sustainability Hackathon 2020 organized by the Department of Development and Sustainability in collaboration with AIT's Entrepreneurship Center exuded youthful optimism and a can-do attitude to changing things for the better.

http://dds.ait.ac.th/sustainability-hackathon-2020

Green Startup Toolkit *(AIT ENTREPRENEURSHIP CENTER)*

There is a growing entrepreneurship community across Asia and the Pacific that produces sustainable, low-carbon goods and services. Support is needed to promote these green startups and to motivate other businesses to go green. One way to encourage businesses to be green is to provide a toolkit to act as a set of guidelines for daily business operations as well as business development of green startups. well as business development of the green startups.

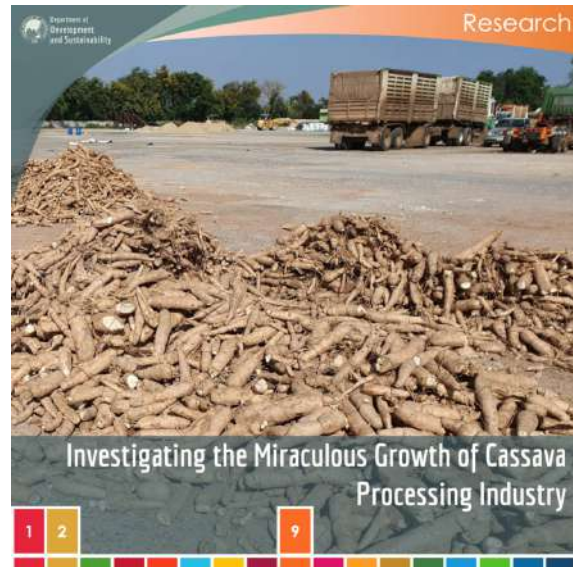*http://www.greenstartups.ait.ac.th/test/index.html*

Investigating the Miraculous Growth of the Thai Cassava Processing Industry

Thailand is the world's No.1 exporter of processed cassava products, especially tapioca starch powder. All other countries pale in comparison. While it is well known that tapioca production and export have grown dramatically over the last decades in Thailand, it is not widely known why this industry has grown so successfully only in Thailand. The major research question is whether the growth and development of this industry was driven by substantial foreign direct investment. Qualitative interviews with selected businesses were conducted in Nakhon Ratchasima Province in November 2019. To further investigate the mechanism of growth, the Project will conduct a structured questionnaire survey with owners and managing directors of various cassava processing factories in the nation in partnership with the Thai Tapioca Starch Association. Through the survey, we will collect information on their profile, practices, performance, relationship with other value chain actors as well as the Tapioca Starch Association, the operation's size at present and in the past, sources of technology and market information, history of mergers and acquisitions, composition of nationalities of capital, and constraints on further growth.

Investigating the Miraculous Growth of Cassava Processing Industry

Delivery of Training Program for Technology Clinic for Small- and Medium-Sized Enterprises (SMEs) in Thailand

The Project was initiated based on a request from the Climate Technology Center and Network (CTCN), the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism and hosted by the United Nations Environment Program (UNEP) in collaboration with the United Nations Industrial Development Organization (UNIDO) and supported by 11 partner institutions with expertise in climate technologies. This CTCN Assistance project is intended to deliver a training program on a Technology Clinic for SMEs (SME Clinic) in Thailand in its agro-food processing sector. The project will undertake the following key activities: (i) preparation and finalization of a training program; (ii) development of training materials; (iii) organization of an SME Clinic workshop; and (iv) preparation of a synthesis report and recommendations based on the workshop's outcomes. The workshop will cover topics for building the capacities of SMEs to: a) acquire and streamline specific climate technologies into their processes; b) apply new business models; c) upgrade or develop new products or services; and d) develop business plans or proposals. The training materials will cover (but not be limited to) the transfer and commercialization of precision farming technologies for SMEs in the agro-food sector and discuss business case studies that demonstrate good practices relevant to the training program. These will be used to provide concrete examples of successful climate technology transfers

Training Program for Technology Clinic for SMEs* in Thailand
*SMEs: Small and Medium Enterprises

from other countries and to provide ideas and guidance to participants in preparing their strategic action plans.

https://dds.ait.ac.th/sdgs/2019/08/02/delivery-of-training-program-for-technology-clinic-for-small-and-medium-sized-enterprises-smes-in-thailand
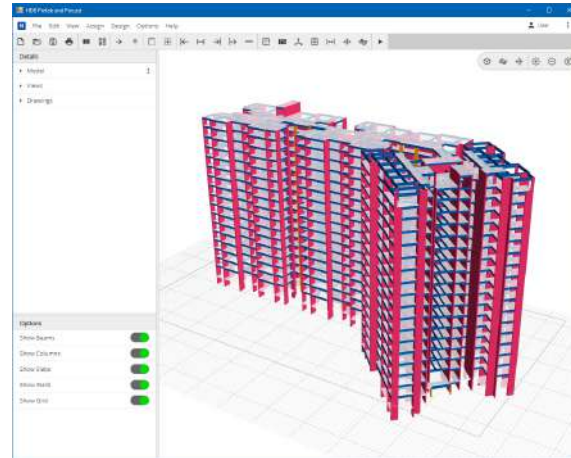
Automating Precast and Prefabrication Design and Detailing through Universal Plug-in Application

The scope of work is to develop the software application for Automating Precast and Prefabrication Design and Detailing for precast concrete buildings to facilitate the design process.

The key features of the project include:

- Extraction of the relevant structural geometry, analysis, and design outputs.

- Detailing process to generate 2D drawing and details for AutoCAD and pdf printing.

- Exporting the detailer output file to 3D BIM software.

Seminar: Building Back Better Housing Solutions Post COVID-19

The seminar focused on existing structural inequalities in housing systems exposed by the pandemic and on the opportunity this pandemic provides in addressing the housing affordability deficiencies and protecting the right to housing of the people. With these issues as a backdrop, experts from international and national agencies, government stakeholders, and relevant fields came together during the seminar to collaborate and explore policies and solutions in order to address:

- Housing related debt with respect to renters and homeowners in informal and formal markets

- The role of financial institutions in alleviating financial and housing insecurity in a proportionate manner

- Type of consultations that may be considered among the various stakeholders to address housing issues aggravated by the pandemic

- Policies and legislation that may need to be created, implemented, or strengthened to address housing insecurity

- Policies that encompass the principles of social inclusion, economic effectiveness, and environment protection

- The role of housing in enhancing capital formation, income, employment generation, and contributions to driving sustainable and inclusive economic transformation.

http://solutions.ait.ac.th/nha-seminar-on-building-back-better-housing-solutions-post-covid-19/

Truss Tra Chang-Phase 3: Enhancement of Software for Integrated Design of Roof Trusses

The scope of work that is being carried out include:

- Enhancement of Truss Tra Chang Version 2 which will be focused on updating new type of properties, enhance the capability and performance of the Truss Tra Chang Version 2, develop the automatic drawing process.

- Development of New Features focused on Roof Tile Calculation, Hot-rolled steel design, Cold formed steel design for beam built-up section, Implementation of "Rules of Thumb" of Truss, Predefined Drawings template, Predefined Report template, Cut list Forms.

- Knowledge Transfer Sessions:
  › User training to relevant teams.
  › Co-development sessions for relevant teams on a mutually agreed upon schedule.

AIT's Cooperation with the Thailand National Housing Authority

AIT has been working closely with the National Housing Authority, Thailand for over five years. The Institute has provided support for conducting technical seminars and workshops on topics such as urbanization, innovative housing solutions, sustainable and green housing solutions, housing solutions for an aging population, and building back better housing solutions post COVID-19. AIT signed an MoU in 2020 to strengthen the ongoing collaboration.

https://www.ait.ac.th/2020/08/thailands-national-housing-authority-and-ait-enter-partnership-for-technical-cooperation-on-building-and-housing-technologies/

Partnership with the National Research Council of Thailand (NRCT)

AIT has an ongoing project on Integrated Assessment of SDGs Using Earth Observation Technology for Bangkok Metropolitan Region (BMR) with NRCT. The project will be carried out over the next three years, covering: Phase (1): development of a framework and integrated methodology, including stakeholder participation with priority SDGs and targets; Phase (2): development of the earth observation technology for supporting the monitoring and assessment of identified SDGs indicators and demonstrate these methodologies; and Phase (3): development of good practices and interlinked strategies.

https://www.ait.ac.th/2020/08/ait-joins-nrct-and-6-thai-provinces-for-research-project

Multi-Hazard Risk Assessment at District Level in Tajikistan

AIT-GIC and the Faculty of Geo-Information Science and Earth Observation of the University of Twente (UT-ITC) of the Netherlands implemented a multi-hazard risk assessment for all districts in Tajikistan under the United Nations Development Program's (UNDP) Strengthening Disaster Risk Reduction and Response Capacities project. The primary objective of the Project was to develop the risk profiles for all the districts in Tajikistan. A risk assessment methodology was developed in accordance within the Tajikistan context. The methodology consisted of susceptibility and hazard analysis followed by exposure, vulnerability, and risk assessment. Local experts were trained to improve their capacities in disaster risk assessment. An online composite risk visualization and analysis platform were launched for sharing the risk information.
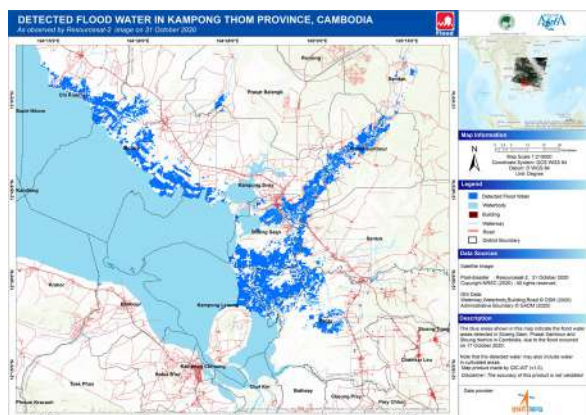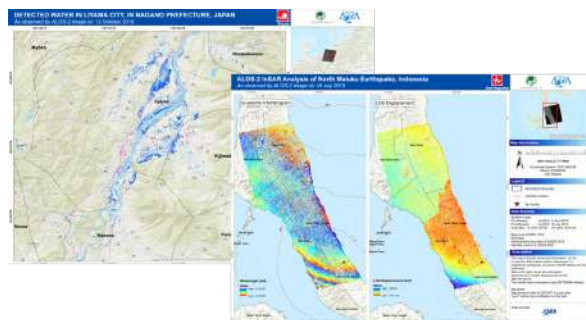
http://tajirisk.geonode.ait.ac.th/

Sentinel Asia Program – Principal Data Analysis Node

A number of regional and international initiatives have been taken up by space agencies as well as multilateral forums to establish mechanisms for making satellite data and products available for emergency response purposes. At the regional level, the "Sentinel Asia" initiative has been facilitating free satellite images to prepare value-added products for emergency response activities during major disaster events in the Asia-Pacific region. Depending on the satellite system, data from the Sentinel Asia Constellation can include finer spatial and temporal resolutions. Data Analysis Nodes then secure the satellite data, identify disaster-affected areas through image analysis, and create value-added products by combining relevant ancillary data. Initial value-added products are made available on the Sentinel Asia website for local agencies within 24 hours of activation while further products are uploaded as additional satellite data become available.

GIC-AIT has served as Sentinel Asia's Principal Data Analysis Node (P-DAN) since the program's inception in 2006. GIC-AIT also regularly contributes to the International Charter for Space and Major Disasters as the Project Manager to coordinate emergency mapping efforts of catastrophic disasters in the region. Under both initiatives, GIC-AIT receives satellite images acquired through emergency observations and creates value-added products (VAP) in order to help affected countries in their emergency response and recovery efforts. The satellite-based products are then integrated with available GIS data (such as OpenStreetMap) and other local data from the respective countries to help national government agencies in their emergency response and recovery efforts. GIC-AIT has created value-added products for Sentinel Asia as well as the International Charter for Disasters, including floods, volcanic eruptions, earthquakes, landslides, cyclones, glacial lake outburst floods, and oil spills.

https://portal.geoinfo.ait.ac.th/portal/apps/sites/#/gic-ait-disaster-response-portal

10 REDUCED INEQUALITIES

Reduce inequality within and among countries

Asian Institute of Technology (AIT) works toward reducing inequality by engaging in collaborative research on gender as it relates to social, political, economic, cultural, and technological change. It publishes Gender and Development Studies, a highly-rated peer-reviewed journal. Through its Centers, AIT participates in gender-related summits, competitions, and forums. 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 regardless of gender or other characteristics. AIT's commitment to reducing inequality is also evidenced by its comprehensive recruitment policy, which despite the COVID-19 pandemic, attracted students from up to 31 countries in Asia-Pacific, Europe, the Americas, and Africa in 2020.

Gender, Technology, and Development (GTD): A Peer-reviewed Journal

The Gender, Technology, and Development (GTD) is a peer-reviewed journal that serves as a forum for exploring linkages between gender relations, development, and technological change. The objective of the journal is to provide a platform for original research and theorizing on the shifting meanings of gender as it relates to advances in science and technologies or to social, political, economic, and cultural change. In particular, the journal is interested in addressing these in the context of transnational phenomena and engaging in dialogue that cut across geographical boundaries. It is published three times a year. The journal was founded in 1997 and until 2016 was published by SAGE Publications in association with the Gender and Development Studies program at the Asian Institute of Technology. Since 2017, the journal has been published by the Taylor and Francis Group in association with AIT. The journal is a member of the Committee on Publication Ethics (COPE) with a CiteScore of 2.1 and was ranked as a Q1 journal in gender studies. The publication is based at AIT and four faculty members of the Department of Development and Sustainability are its editors.

https://journals.sagepub.com/home/gtd/

Capacity-Building for Business and Enterprise-led Development

During 2020, YCA's work mostly migrated to hybrid formats, with learning activities moving online and physical exposure curtailed to essential interaction where social distancing guidelines permitted. Despite the mobility restrictions and physical barriers, the YCA team was able to deliver on a number of SDG-specific outcomes. YCA representatives were invited to online events in a number of countries, and within Thailand, to conduct workshops, panels, and learning sessions and as judges and facilitators for pitching and business competitions. These included the ASEAN Social Business Competition, the Social Business Youth Summit, the SDGs for Start-up keynote for AITxTU Series, and the East Africa Social Business Forum.

Students from 31 Countries Joined AIT for the August 2020 Semester

In 2020, of a total of 4,467 applications, 597 new students joined AIT, including 40 exchange and visiting students.

In the January 2020 semester (including the March 2020 term), 105 new students enrolled from 18 different countries from five different regions of the world: Southeast Asia and the Pacific, South Asia, East and Central Asia, and Europe. Of these, 65% enrolled in the School of Engineering and Technology (SET), 25% in the School of Environment, Resources, and Development (SERD), and 10% in the School of Management (SOM). Approximately 30% of students were women. Of this intake, 6% received scholarships (full subsidy for tuition fees), 40% received AIT scholarships (partial tuition subsidy), and 54% were self-supporting.

In the August 2020 semester (including the October 2020 term), 492 new students were enrolled from 31 countries from five different regions: 70% from Southeast Asia and the Pacific, 21% from South and West Asia, 7% from East and Central Asia, and 2% from Europe and Africa. Around 44% of these were enrolled in SET, 33% in SERD, and 23% in SOM. Approximately 44% of these students were women. Of this intake, 32% were under full scholarships including living allowances, 26% were received scholarships for tuition and registration fee only, 2% were funded by external donors, 23% received AIT fellowships, and 17% were self- supporting.

10

11 SUSTAINABLE CITIES AND COMMUNITIES

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

Asian Institute of Technology (AIT) partners with international organizations from Germany and beyond and funding agencies such as the World Bank to engage in research, policy, and practice through global assessments, conferences, dialogues, and networking initiatives with a special focus on making cities sustainable in the context of climate change, with the focus on emissions reduction, wastewater management, and sanitation. Closer to home, AIT promotes sustainable farming practices by operating a community-managed farm on its campus, a demonstration of the potential of farm production in urban settings. In 2020, the Institute played an active role in a hydrology resilience project in Pakistan, India, and Thailand designed to help populations cope with natural as well as anthropogenic hazards.

Sustainable Food Production in an Urban Environment (AIT Community Farm)

As a part of the Institute's "Living Laboratory on Sustainability" initiative, a twelve-month project entitled "Renewable Energy Technologies for Integrated Community Farming Systems" with funding from the Wuppertal Institute for Climate, Environment, and Energy (WISIONS on Sustainability), Germany was initiated in April 2015 with the aim of helping the AIT community grow its own food (vegetables, fish, etc), and thus showcase its sustainability initiatives. AIT community members interested in farming continued this activity with renewed vigor after relocating to a new site on 1 August 2019.

The AIT community farm practices sustainability principles including organic farming (using compost and home-made pesticides in maintaining crops) and using solar energy (PV panels) to pump water for its irrigation from West Lake. No resource is wasted as the biomass harvested is composted and used as fertilizer. In addition, kitchen waste is also used as compost material.

The farm area is a model that represents micro-farming in urban areas and provides a small income source for farm members as they sell extra produce to interested buyers. It is also an outdoor learning experience for AIT International School students, who visit and learn about the variety of crops and fruit trees grown on the farm. It is becoming a popular site for the landscape's beauty and for relaxation, and visitors take photos of colorful flowers, vegetables, and fruit. The community farm is expanding its area with the ambition to grow fruit trees and make the site an unique example of a sustainable food production area in an urban setting.

The number of persons currently involved in the farming is 20 (from 7 countries). The current products include cauliflower, salad leaves, egg plant, spinach, radish, beet root, among others, and visitors could purchase the day's produce in the evening. Details of the produce and its availability for purchase are available at the AIT Community farm facebook page (*https://bit.ly/3vDUHt3*) and AITMarket *(https://bit.ly/3qblr1P*).

Due to the sustained interest and enthusiasm of members, this activity has continued on its own since 2016, thus "walking the talk" on sustainability principles.

Farming in the West Lake Area (2019 – 2021)

Discussions and trainings with interested participants (2015/2016)

Farming and fishing in the AFE farm area (2015 -2018)

Hydro Meteorological Hazard Assessment Of Sindh Province

AIT, in collaboration with regional partners and support from the Sindh Resilience Project (SRP) is working under the World Bank-funded "Hydro Meteorological Hazard Assessment, Sindh Province" project. Hydro-meteorological natural hazards are considered one of the natural progressions or extreme phenomena in hydrological or atmospheric nature and may cause death or injury, property damage, socioeconomic disruption, or geo-environmental degradation (UNISDR, 2002). Sindh Province deals with two types of natural hazards: floods and droughts. Hazard assessment implies the determination of the magnitude and frequency of the hazards and includes their spatial delineation.

The study was intended for the Sindh Irrigation Department (SID), Government of Sindh to undertake several activities for institutional strengthening of the department under the 'Sindh Resilience Project, Irrigation component' funded by the World Bank. The envisioned studies under soft component handle flood situations efficiently, meaningful preparedness before each flood season, and reliable flood hazard and vulnerability assessments, and manage uninterrupted extreme drought conditions through the development of tools to improve understanding of risks and eventually support rapid response through the flood disaster and to assess the socioeconomic impacts of hydro-meteorological extreme and social demand for climate change and disaster resilient development in line with Sustainable Development Goals (SDGs 1, 2 and 13).

Field surveys, flood hazard and vulnerability assessments and determination of hydro-meteorological extremes, and training and capacity building are other important components of the project, and for this purpose, a workshop and exposure visit on "Water Management Resilience to Climate change and Disaster Risk Reduction" was organized by AIT on 5-13 February 2020 in Australia for senior officers and officials of the Irrigation Department for Capacity Building among professionals in water resources and disaster risk management while keeping in mind the sustainability of the cities and communities and availability of clean water and sanitation for all to develop and strengthen suitable industries and infrastructure considering climatic change and the natural environment.

The field visits were arranged for the professionals to observe, learn, and understand innovative concepts from structural and non-structural measures for hydro-meteorological hazard assessment and risk management and adopting new technologies for water resources management.

Workshop

Feld Survey

River Morphological Study, Flood Hazard Mapping, and Establishment of Decision Support System for Sindh Province

AIT in collaboration with local and international partners working on the "River Morphological Study, Flood Hazard Mapping & Establishment of Decision Support System for Sindh Province" project, a World Bank-funded project for the Sindh Irrigation Department (SID), the Government of Sindh has undertaken several measures for institutional strengthening of the department under the Sindh Resilience Project.

The envisioned studies under soft components, which harmonize with Sustainable Development Goals (SDGs) 2, 6 and 9, are to: (i) strengthen resilience and adaptive capacity to climate-related disasters; (ii) integrate climate change measures into policies and planning; (iii), build knowledge and capacity to meet climate change and handle flood situations; (iv) develop sustainable, resilient, and inclusive infrastructures by promoting research and upgrade industrial technologies; (v) provide access to sanitation and hygiene; (vi) improve water quality by developing a framework for implementing Integrated Water Resource Management (IWRM), (vii) support local engagement in water and sanitation management to protect the world's cultural and natural heritage by reducing the adverse effects of natural disasters.

AIT's key experts highlighted the approaches and roadmaps needed to achieve the objectives of the study and to frame a decision support system based on recent advances in technology as the availability of real-time hydrological data can be effectively used in overall flood management and real-time decision making. This allows for efficient flood control and river management through the development of detailed flood forecasting and inundation models integrated with real-time discharge and water level data. The system will support the Sindh Irrigation Department in managing the Indus River using a Decision Support System (DSS).

The AIT's technical team approach to the development of the DSS therefore focuses on meeting the users' requirements through: 1) improved system representation through field and satellite based data; 2) state-of-the-art modeling techniques integrated with real time hydro-meteorological data inputs; and 3) a user-centric interface design that empowers and enables flood managers and decision makers to take timely and effective decisions in all phases of the flood management cycle.

The following are the major objectives of the Project:

1. River morphology studies, digital elevation models, and field surveys

2. Flood hazard mapping hydrodynamic modeling

3. Establishment of Decision Support System (DSS)

4. Training and capacity building

Workshop

Feld Survey

Prototypes Of Hazard Mapping

Structural Performance-based Design of Project Bravo, Philippines

The project is located in Quezon City. It consists of two 52-story condominium towers and adjacent 9-story podium structure.

The scope of work being carried out includes:

- Explicitly evaluating the structural design of the building for the reliability of the structural system and public safety under specified levels of earthquake hazards

- Developing performance-based evaluation criteria, including the description of the building and its structural system, codes, standards and references, loading criteria, materials, modeling, and the prescribed analysis and design procedures

- Creating finite element models of the building with varying complexity and refinement suitable to determine the response under gravity and seismic loads

- Carrying out different types of analyses to evaluate performance by progressively using linear-static and nonlinear response history analyses. The analyses will be conducted using seismic input information and ground motion records provided by the main structural engineer or client

- Carrying out detailed studies of the response and performance of primary structural members and systems in the building with the objective of improving their performance as well as cost-effectiveness

- Reporting on performance-based evaluation results and recommendations

- Providing clarifications or responses to comments from the peer reviewer related to performance-based seismic evaluation.

Wind Tunnel Testing of Emaar Project, Pakistan

A wind tunnel study was carried out for the EMAAR Tower to enhance the reliability and cost-effectiveness of the structural design, thereby ensuring occupant comfort, façade design optimization, and improving pedestrian comfort. The Project is located in Karachi, Pakistan. The Project consists of a 37-story high residential building with a 7-story podium. As part of the scope of work, three types of physical models were developed: (i) a force balance model; (ii) a pressure model for target buildings; and (iii) a proximity model for surrounding buildings within a 400m radius from the target building.

Laboratory tests were also carried out that included structural load tests, cladding pressure tests, and environmental wind tests. A wind climate study and analysis of the test data was also carried out. This analysis was done together with the historical wind speed information obtained from local weather stations and roughness changes experienced by the wind passing by nearby buildings.

Implementation of an Integrated Geospatial Platform, Database, and Applications for Disaster Risk Management in Uttarakhand, India

In 2013, a destructive cloudburst in the northern Indian state of Uttarakhand prompted the World Bank to provide assistance through the Uttarakhand Disaster Recovery Project. Under this endeavor, GIC-AIT worked with the Uttarakhand State Government to develop a decision support system for risk management. The system features an online geospatial platform that streamlines the monitoring, analyzing, responding, and reporting processes involved in handling disaster situations efficiently. The platform accesses a consolidated database comprising baseline data, model outputs, and direct-feed real-time data to facilitate informed decision-making for Uttarakhand's state-run Emergency

Operation Centers. AIT-GIC also ensured support for the system by building local capacity for operation and management of the platform.

11

Regional Training Workshop on Building Cities' Resilience to Climate and Disaster Risks, Bangkok, 24–28 February 2020

AIT RRC.AP in collaboration with United Nations Office for Disaster Risk Reduction (UNDRR) and the Educational Partnership for Innovation in Communities Network (EPIC-N) with financial support from the Ministry of the Environment, Japan (MoEJ) organized a five-day regional training workshop from 24-28 February 2020 at the Sukosol Hotel, Bangkok. This workshop on Building Cities' Resilience to Climate and Disaster risks targeted representatives from national and local government agencies, national or local universities, and civil society.

This event was organized to:

1. Introduce the Making Cities Resilient (MCR)_global campaign and tools under the UNDRR's Ten Essentials for Making Cities Resilient and involve participants in creating city resilience action plans

2. Increase political commitment and social demand for climate change and disaster resilient development in line with the Sustainable Development Goals (SDGs)

3. Introduce the Asia-Pacific Adaptation Information Platform (AP PLAT) as a source of open data and useful tools such as the S8 Si-CAT down-scaler software
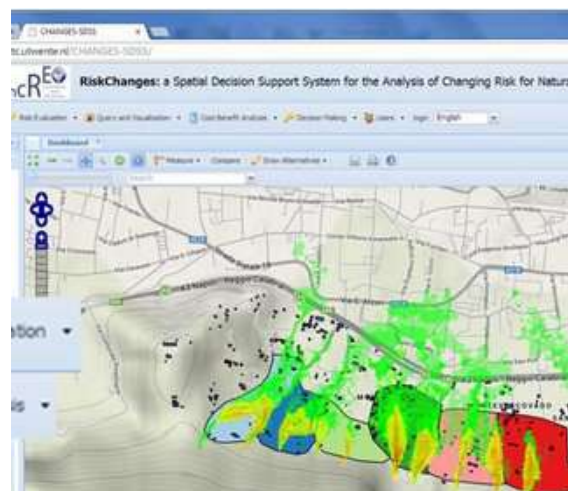
Introduce EPIC - N, its structure and operation method, and to brainstorm way forward.

Participants representing cities from Bangladesh, Indonesia, the Maldives, and Nepal gathered to strengthen their knowledge on making their respective cities resilient to climate and disaster risks. The workshop included presentations on the MCR global campaign, UNDRR's ten essentials for making cities resilient, and tools including the disaster resilience scorecard for cities and the Quick Risk Estimation (QRE) tool. Participants from each country used the disaster resilience scorecards to assess their respective city and draft a safe and resilient city action plan. City teams presented their draft action plans and discussed objectives, an action plan for meeting those objectives, indicators identified, and targets set. Further, the EPIC-N team introduced their model to the participants, including its structure and operation modality, and tasked attendees to identify all the stakeholders required to implement this model in their respective countries. Follow this link for more details. *https://www.climatechange.rrcap.ait.asia/bcr2020*

SDSS Development: RiskCHANGES Spatial Decision Support System

AIT-GIC is working together with ITC-University of Twente (Netherlands) to develop a multi-hazard risk assessment platform called "RiskCHANGES." RiskCHANGES is being developed to understand present and future risks and recommend potential risk reduction measures in order to assist decision-makers. RiskCHANGES comprises five modules: 1. Risk Assessment, which performs spatial risk analysis for a range of complexities; 2. Data Input & Management, which handles data used by the platform; 3. Cost-Benefit, which selects the best alternative risk reduction measures; 4. Multi-criteria Evaluation, which conducts qualitative risk assessment; and 5. Communication & Visualization, which displays maps, risk curves, tables, and graphs related to risks for risk communications. AIT-GIC and ITC-University presented the initial version of the RiskCHANGES tool at the 2020 Understanding Risk Forum.

Webinar on Making Cities Resilient (MCR2030): Cities and Partners Engagement in Asia and the Pacific, 19 November 2020

On 19 November 2020, the AIT RRC.AP organized and hosted a webinar on "Making Cities Resilient 2030 (MCR2030): Cities and Partners Engagement in Asia and the Pacific" in partnership with the United Nations Office for Disaster Risk Reduction (UNDRR), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the United Nations Environment Program (UNEP), and the Educational Partnerships for Innovation in Communities – Network (EPIC-N). The webinar gathered 109 resilience enthusiasts (58.5% male; 37.7% female) of various affiliations (academia, civil society, international organizations, local government, national government, and the private sector) from 26 countries around the world. The webinar served as an important platform to raise awareness among stakeholders on the MCR2030 campaign, discuss best practices and roadmaps used by different organizations, and share lessons learned in establishing partnership and greater engagement of key stakeholders in strengthening cities' resilience to climate change and disaster risks.

The webinar was moderated by Mr. Phurba Lhendup, Head of Climate Change, RRC.AP, and opened with a keynote address by Dr. Naoya Tsukamoto, Director of RRC.AP, who highlighted the approaches and roadmaps used by various UN agencies and organizations to assist cities along the resilient pathway toward achieving international agreement such as the Sendai Framework for Disaster Risk Resilience, the new urban agenda, the Paris agreement, and the Sustainable Development Goals. While inviting innovation to leverage human knowledge and creativity in the context of limited finance for adaptation and resilience, Dr. Tsukamoto welcomed the MCR2030 campaign led by the United Nations Office for Disaster Risk Reduction (UNDRR) and expressed RRC.AP's commitment to supporting the initiative. Follow this link for more details:

https://www.climatechange.rrcap.ait.ac.th/post/from-conflict-to-productivity-partners-discuss-the-making-cities-resilient-2030-mcr2030-campaign

Integrated Assessment of SDGs Using Big Earth Observation Data for the Bangkok Metropolitan Region (BMR)

The Bangkok Metropolitan Region (BMR) faces serious problems related to sustainability in various dimensions. Adoption and application of the SDGs in planning and implementing these in current administration and management systems are therefore needed. This Project aims to develop an integrated assessment of selected SDGs using the Big Earth Observation (EO) technology in synergy with regional and local monitoring data and information applicable to the BMR as the primary objective. The specific secondary objectives are: 1) to develop a regional-specific set of indicators based on EO technologies for the sub-regions of BMR for enhancing monitoring and assessing; 2) to develop proper EO based technologies in conjunction with accessible in-situ data for baseline assessment; and 3) to identify inter-linked strategies with priority targets and indicators for the sub-region-based compile information on good practices and lessons learned in relation to the resulting SDGs performance. The scope of the project focuses on SDGs 2, 6, 9, 11, 13, and 15, which are related to five thematic areas in urban development, including urban expansion and infrastructure services, land use and ecosystems, water quality, air quality and waste, and climate change and disasters. The project is supported by the National Research Council of Thailand (NRCT) in collaboration with the Digital Belt and Road (DBAR) Program as part of DBAR's Center of Excellence in Southeast Asia (SEA). It is expected to support planning and implementation of the SDGs in BMR and Thailand, including identifying gaps and good practices, compare these with relevant cases in China (e.g., the Yangzi and Pearl River Deltas) and other regions, and to apply to similar cities and regions in SEA (including river delta metropolitan regions such as the Mekong Delta, etc.).

Realising Smart Cities

By 2030, the number of urban dwellers in South East Asia is projected to increase to 370 million. This will significantly increase energy demand as more energy will be required to support greater economic activity, expanded urban infrastructure, and the rising need for municipal services. Providing adequate housing, efficient and affordable transportation, and sustainable energy systems and other infrastructure along with employment, education, and healthcare systems are some of the challenges faced by cities. This translates into building smart and sustainable cities that cater to the needs of its citizens while combating the effects of climate change, which is the focus of SDG 11. Smart City is a form of urban development using Information and Communication Technology and the Internet of Things to provide useful information to effectively manage resources and assets. This includes data collected from citizens and mechanical devices processed and analyzed to monitor and manage city systems such as traffic and transport systems, power plants, water supply networks, and waste disposal not only for the benefit of citizens but also for the city's sustainable future.

Guidelines to assist aspiring cities to become "smart" are not easily available. In this research sponsored by the Economic Research Institute of ASEAN and East Asia, a need and gap analysis was done to develop Key Performance Indicators to assist the city authorities to measure parameters and develop the indicators. With these indicators, the authorities would be able to understand the status of their city in its drive towards smart city, and thus help to convert the existing city into a smart city. Additionally, the cost and benefits in applying smart technologies in the city context has been developed. The theoretical concepts developed have been applied for selected cities in consultation with the city authorities.

This study provides a tool for city authorities to ascertain the status of their city as well as the measures to be undertaken to make their cities "smart" and thus assist with the SDG 11 goal. Activities will also assist in promoting SDGs 6, 7, 8, 9, and 13, which are related to energy, water, employment, infrastructure, and climate action.

The study will include case studies and will be published in book form.

Sustainable Waste Management on Campus and the AIT Community Farm

Waste segregation at AIT in 2020 is carefully carried out by the Office of Facilities and Assets Management, which separates wet waste from dry waste and segregates wet waste amounting to 239 tons (residential, cafeteria, and other dining areas) and dry waste amounting to 78 tons (academic) and was handed over to the municipality. Other waste such as green waste after lawn mowing amounting to 959 tons in 2020 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.

To raise awareness among AIT residents about recycling plastic waste, AIT conducted a program to recycle plastic waste by collaborating with TPBI Company, which conducted a WON project for 6 months from July to December 2020 to collect plastic waste from recycling bins and send it for recycling.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns

Asian Institute of Technology (AIT) actively promotes responsible consumption by staging awareness-raising workshops on techniques, materials design, legislation, and practical responses to the spread of plastic litter on campus and beyond. In 2020, the Institute joined forces with the European Union, UNESCO, and the UN in staging policy dialogues on sustainable lifestyles and consumption and production, especially given the increase in plastic packaging resulting from the COVID-19 pandemic. AIT's role in promoting responsible practices includes not only studies and classification of micro-plastics using drone technology at dumpsites in Thailand but also on its own campus, where sustainable food consumption, waste minimization and treatment, and recycling are encouraged at all levels.

AIT Joins UNESCO's Plastic Initiative

AIT signed an institutional MoU in 2020 and has joined UNESCO's Plastic Initiative program as a founding member along with SEAMO, UN Habitat, UNESCAP, IUCN, the National Science Museum, and UNEP. UNESCO Bangkok has invited AIT to co-organize joint field excursions in 2021 to visit UNESCO sites in coastal zones in Thailand with a view to educating young people in marine ecosystem issues, including ecosystem health, conservation, and pollution management. UNESCO is in exploratory discussions with Thailand's Bangchak on a sustainable biofuels initiative that could also involve AIT. UNESCO has confirmed that it will host three (3) students for professional internships lasting 6-months each in 2021.

https://www.ait.ac.th/2020/05/ait-joins-unescos-the-plastic-initiative

A Multi-criteria Assessment of Alternative Sustainable Solid Waste Management of Flexible Packaging

This project examined the issues affecting end of life (EOL) management of flexible packaging. It focuses on Sustainable Solid Waste Management by using multi-criteria decision making, analytic network process (ANP), and Strengths, Weaknesses, Opportunities, and Threats (SWOT).

Data were collected from 33 expert stakeholders through a series of interviews and questionnaires. Seven aspects were probed related to integrated sustainable waste management, with 19 sub-criteria identified. Criteria were prioritized by applying ANP and SWOT to the internal and external environments of organizations directly responsible for waste management.

The findings of this study show that the five most important factors in the management of flexible packaging waste include: (i) techniques for waste management; (ii) materials and design; (iii) management support; (iv) legislation and rules; and (v) environmental care and health, respectively. Solutions addressing flexible packaging waste were identified, including reuse and recycling, waste to energy conversion, biopolymers, new innovative materials, and material recovery.

https://www.emerald.com/insight/content/doi/10.1108/MEQ-11-2018-0197/full/html

AITxWON Projects

Plastic pollution is undeniably a major issue of our world. Globally, in 2016, plastic waste generated about 242 million tons, or around 12 percent of all municipal solid waste, with the AIT campus showing a plastic waste production rate around 29 percent of total solid waste (EEM, 2018). We therefore conducted a program designed to recycle plastic waste by collaborating with the TPBI Company, a co-founder of the WON project (WON means "circular" in Thai). The founders decided to use this name because they wished to remind people to recycle plastic back into the production process so as to reduce single-use plastic in daily life. AIT has collaborated with TPBI company since May 2020 to jointly develop the project, which was launched in the first week of July.

After running the AIT x WON project for 6 months from July until December 2020, large amounts of plastic waste were collected from recycling bins in good condition. In addition, the results of waste composition at the AIT transfer station show that the percentage of plastic waste was reduced after running the Project. This is proof that the Project is successful and achieves its objective to raise awareness among AIT residents about recycling plastic waste.

It is therefore possible to implement the project for the long term since the involvement of individuals at AIT is increasing, as evidenced by the good quality of the plastic waste and their continued contribution in placing plastic waste in recycling bins. For these reasons, instead of running this project for research purposes, AIT should provide additional cleaning staff and implement the project systematically to collect this plastic waste for sustainable recycling purposes on the campus.

PUNPUI Food Waste Management at EEM Garden

Almost 50% of household waste is organic. Over 1.3 billion tons of food waste is annually disposed of globally. Thus, reducing organic waste is one of the most significant goals of the UN's Sustainable Development Goals.

This project aims to reduce food waste in AIT campus. In the first stage, we focus on the EEM department to ensure the applicability of our composting bin. Following this, we will encourage AIT residents, staff, and faculty members to use this type of bin in both academic buildings and residential areas.

We hope that in the future, AIT will be a zero-waste campus and all residents will have knowledge of how to manage the waste they generate and can share this information with everyone, including those with no experience of proper waste segregation.

SWITCH–ASIA

SWITCH-Asia, supported by the European Union (EU), the United Nations Environment Program (UNEP), and the Asian Institute of Technology (AIT) have joined forces to launch an online series of Policy Dialogues on Sustainable Lifestyles in Asia and offline courses on the Circular Economy. A series of online Policy Dialogues on Sustainable Lifestyle for Sustainable Patterns of Consumption and Production (SCP) have been organized with an additional focus on COVID-19. This initiative aims to create an enabling environment (policies, financing, technologies, business models, and stakeholder engagement) to replicate and scale up good practices on sustainable lifestyles.

https://www.ait.ac.th/2020/09/switch-asia-eu-unep-and-ait-join-forces-for-policy-dialogues-on-sustainable-lifestyles-in-asia-and-circular-economy

Plastics and Packaging Waste Management during a Pandemic (COVID 19)

This project is aimed at enhancing technical capacity on Plastics and Packaging Waste Management during a Pandemic (COVID-19) for capacity building through webinars and THE development of peer reviewed research and moduleS focusing on THE assessment of increasing level of plastic waste and related pollution due to COVID-19. Furthermore, the development of peer reviewed comprehensive research (working paper) and a module focusing on plastics and packaging waste during COVID 19 is also planned. Plastic consumption in various sectors include healthcare, e-commerce, and household supplies as major domains of COVID-19 plastics. In addition, various case studies of Plastics in Municipal Solid Wastes (MSW) will also be collected and presented.

Advancing Circular Economy Roadmaps for ASEAN Countries

This study focuses on science and technology among various approaches to the Circular Economy. The study aims to discuss countries' sectoral experience with regard to building domestic capabilities and receiving external support from external partners in developing and implementing Circular Economy strategies and action plans. The current Waste to Energy (WtE) sector is to be compared with Best Available Technologies (BAT), and various recommendations will be provided to improve circular economic practices.

Investigation of Leachability and Migration of Plastics from a Dumpsite (AIT-SINTEF I)

The objectives of the study are to classify and quantify types of plastics among the remaining solid waste fractions present at different sampling locations at a dumpsite in Thailand. Micro-plastics leaching from the dumpsite to nearby bodies of water are quantified at multiple locations within and around the dumpsite area. Excavated plastic fractions are classified based on brands, and top brands polluting the dumpsite are identified. The second phase of the project involves aerial mapping of the dumpsite using drone technology. By using different drones at different altitudes, e flights are carried out to identify and quantify plastics at the dumpsites.

13 CLIMATE ACTION

Take urgent action to combat climate change and its impacts

Researchers and experts from AIT's various Departments and Schools with support from German Cooperation lead climate-related actions by studying the effects of climate change on community vulnerability in Thailand, Laos PDR, and other countries in the region. The Institute works to disseminate knowledge on climate-related issues through workshops, talks, seminars, and webinars. A particular focus of this work is advances in meteorology. The Institute also participates in research on climate-related natural disaster manifestations, prevention, and mitigation in partnership with international organizations and plays a capacity-building role in equipping agriculture officials with skills for competently handling and analyzing geospatial and climate data.

Study of Systems Approaches and Climate Change in Domestic Wastewater Management in Thailand

The Department of Environmental Engineering and Management (EEM) led by Prof. Thammarat Koottatep (Project Investigator) and Dr. Atitaya Panuvatvanich (Senior Researcher and Team leader) has been appointed for technical assistance to Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) in a project in the field of climate change and specific to domestic wastewater management in Thailand. Support will be provided throughout the year on various aspects of climate change from the domestic wastewater sector, including: (i) assessing the current situation regarding onsite domestic wastewater management at household level in Thailand; (ii) consolidating information of onsite treatment technology in Thailand and other countries to suggest best available technology with the capability needed for reducing GHG emissions and discharging acceptable effluent from its treatment processes; and (iii) identifying Thailand's specific GHG emission factor for onsite treatment systems. Field trips and onsite meetings were conducted to relevant organizations such as Nakhon Sawan Municipality, Songkhla Municipality, Khon Kaen Municipality, Pattaya municipality, and Chiang Mai Municipality.

Events and Activities related to SDG-13

a. Invited talk on **"Mitigation Potentials and Strategies for Urban Transport in Asia and the Pacific"** Virtual Regional Workshop on Urban Mobility and Impacts of COVID-19 on Mobility, 25-26 November 2020, United Nations Economic and Social Commissions for Asia and the Pacific, Bangkok.

b. Invited Plenary Talk on **"Challenges and Opportunities posed by COVID-19 pandemic to achieve Sustainable Development Goals (SDGs) in Nepal",** 2nd Non Resident Nepalese Association's Global Knowledge Convention (Online) 'Diaspora for Innovation and Prosperity in Nepal: Post COVID-19 Scenario', Plenary 1: 14:30 - 16:30 P1: COVID-19 Impact on Nepal's Economy and Path to Recovery, Kathmandu, Nepal, Non-Resident Nepali Association (NRNA). 10 Oct 2020

c. Invited Guest Lecture and Seminar on **"Science-policy interface: the IPCC assessments delivering science for policy makers"**, Dept. Of Built Environment and Energy Technology, Linnaeus University, Sweden, 24 Sept 2020.

d. Invited talk on **"Mitigation potentials and strategies for transport in Asia and the Pacific"**, Virtual Expert Group Meeting on Climate Change Mitigation and Adaptation in Transport, 22-23 September 2020, United Nations Economic and Social Commissions for Asia and the Pacific, Bangkok.

e. Invited talk on **"Renewable Energy Development in Thailand",** Workshop on Energy Transition ad Scaling-up Renewable Energy (Online Event), 10,00-16.40 hours, 17 September 2020, Organized by APEC Sustainable Energy Center at Tianjin University, China. Asia Pacific Economic Cooperation (APEC).

f. Invited talk on **"Key Points on Impacts of COVID-19 to Nepal's Sustainable Development Goals"**, A webinar to present Result of a Study on Impact of COVID-19 on Nepal's Sustainable Development Goals and Future Roadmap, 17 September 2020 (15.00-16.45 NST), Honorable Chief Guest was Speaker of Nepalese House of Representatives and attended by current and past ministers, members of parliament, top government officials and selected experts. Mid-Western University, Surkhet, Nepal.

g. Invited talk on "**High Proportion Solar PV Utilization: Thailand"**. The Approach to Increase the Share of Solar PV Capacity in ASEAN Warm up Seminar for China-ASEAN Clean Energy Capacity Building Programme 2020, SNEC 2020 PV Power Expo, Shanghai, 8 August 2020 (14:00-17:30 pm (GMT+8) organized by China Renewable Energy Institute and ASEAN Energy Center.

Climate Downscaling: Capacity Development and Implementation of Modeling for Data Preparation for a Climate Atlas under SAMIS Project in Lao PDR

The FAO is assisting Lao PDR with preparations for changes to the agriculture sector due to climate change with the "Strengthening Agro-climatic Monitoring and Information Systems to Improve Adaptation to Climate Change and Food Security in the Lao PDR (SAMIS) Project." SAMIS is equipping decision-makers with pertinent climate and agricultural geospatial data analysis skills to plan appropriately for the effects of climate change in years to come. One of the major activities in the SAMIS project involves downscaling high resolution climate data for agriculture sector planning. In 2020, GIC-AIT helped implement this activity by optimizing a climate downscaling model, producing high-resolution data-products over a 30-year period, and developing capacity at national level for sustainability. The GIC-AIT team worked closely with government officials from the Lao PDR Department of Agricultural Land Management and the Department of Meteorology and Hydrology to build capacity for future climate change scenarios. An initial one-week training course led by GIC focused on model setup and parameter optimization for climate downscaling. A second one-week training course demonstrated how to perform modeling for a 30-year time period. In early 2021, the GIC team published a peer-reviewed journal article in "Advances in Meteorology" based on its Lao PDR climate downscaling findings.

https://www.hindawi.com/journals/amete/2021/6630302/

http://www.fao.org/in-action/samis/en/

14 LIFE BELOW WATER

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

Asian Institute of Technology (AIT) collaboratively addresses river health monitoring and clean-up efforts and promotes good practices in large- and small-scale shrimp farming in countries such as Thailand, India, Vietnam, Cambodia, and Laos PDR, whenever necessary through webinars and other online modes as during the COVID-19 emergency. AIT partners with universities, schools, the private sector, and civil society organizations in organizing participatory clean-up events on beaches and in rivers and by monitoring and recording plastic waste for both research and youth education. The Institute also promotes sustainable development in aquaculture by helping communities produce more fish for nutritional security and to improve livelihoods by creating employment and generating incomes.

COVID-19's Impact on Shrimp Farming and White Feces Disease: How Are Farmers Dealing with the Problem?

On 6 August 2020, AIT Extension organized and hosted a webinar on "COVID-19's Impact on Shrimp Farming and the White Feces Disease: How Are Farmers Dealing with the Problem?" The key resource person was Dr. Chalor Limsuwan, an Aquaculture and Shrimp Farming Expert from the Aquaculture Business Research Center (ABRC), Faculty of Fisheries, Kasetsart University, Thailand. Since 1987, he has been regularly invited as a speaker on shrimp culture management for domestic and overseas seminars and conferences in Asian countries, the USA, and South America. The webinar gathered more than 100 attendees from live broadcasting and over 4,000 views on Facebook and YouTube with various affiliations (academia, civil society, international organizations, local and national government, and the private sector) from many countries around the world. The webinar was moderated by Dr. Md Zakir Hossain, Director of Programs at AIT Extension. With his extensive teaching and research experience in the field of shrimp culture and disease prevention, Dr. Chalor explained how to deal with various issues at the farm level, especially during

the COVID-19 pandemic period. He suggested different effective approaches to dealing with diseases such as white feces disease and early mortality syndrome (EMS). The webinar contributed greatly to knowledge on shrimp farming and aquaculture industries impacted by the COVID-19 pandemic and major other diseases.

https://youtu.be/NCzhSYzunkI

AIT launches Master's in Marine Plastics Abatement (MPA) with US$ 3 Million Japan Grant

AIT initiated efforts with the Embassy of Japan in Thailand on a proposal from AIT's Environmental Engineering and Management (EEM) program on "Empowering New Generation Leaders in Marine Plastics Abatement". Funded by a landmark US$ 3 Million grant from the Government of Japan, AIT launched a new one-year Master of Science (MSc) degree program called Marine Plastics Abatement (MPA) in August 2020. The region's very first one-year MSc program on Marine Plastics Abatement includes provision for 50 full and 50 partial academic scholarships earmarked for students from developing countries. The aim of the program is to train a new generation of Asian environmental leaders to combat the ocean plastics litter problem through advanced technologies and sound management practices.

https://www.ait.ac.th/2020/04/ait-launches-marine-plastic-litter-msc-with-us-3-mil-japanese-grant/

https://eecc.ait.ac.th/marine-plastic-abatement/

UNEP Countermeasure Phase II: Promotion of Countermeasures Against Marine Plastic Litter in Southeast Asia and India

As an active partner in UNEP's CounterMeasure program, GIC-AIT worked to address marine plastics in the Lower Mekong and Ganges River Basins by developing a region-based model for monitoring and assessing plastic leakage. The regional model 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 dumpsites. Geospatial analysis using a fuzzy overlay approach was performed to predict plastic leakage density in 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 intention of replicating it in future studies, including in basins beyond

the Mekong River Basin. Project outputs were presented at the 2020 UNEP Sea of Solutions Conference. GIC-AIT hosted a virtual booth to engage conference participants in the Center's efforts to address plastic pollution.

Furthermore, GIC-AIT co-organized a World Cleanup Day 2020 riverside cleanup event with UNEP, Pirika Inc. (Japan), and Trash Hero at a city park in Chiang Rai's Thoeng district. More than 50 volunteers from Teung Wittayakom School collected 90kg of trash from the park and adjoining riverside area. GIC-AIT took part in a second World Cleanup Day event in Rayong, Thailand alongside faculty and students from AIT's Marine Plastics Abatement (MPA) program. Nearly 5,000 pieces of litter were collected and analyzed in order to characterize the types of waste found along the half-kilometer stretch of Moonlight Beach in Rayong.

https://platform.countermeasure.asia

AIT's Unique Role in the Promotion of Tilapia Farming for Food and Nutrition Security

On 23 September 2020, AIT Extension organized and hosted a webinar on "AIT's Unique Role in the Promotion of Tilapia Farming for Food and Nutrition Security" in partnership with the Aqua-Center, AARM, FAB Department, School of Environment, Resources, and Development (SERD) at the Asian Institute of Technology (AIT), Thailand. The webinar gathered 91 participants from academia, civil society, international organizations, local government, national government, and the private sector from many countries around the world. Facebook and YouTube views crossed the 3,200 mark. The webinar was moderated by Dr. Md Zakir Hossain, Director of Programs, AIT Extension, and the keynote speaker was Dr. Ram C. Bhujel, Director, Aqua-Center, Research Associate Professor, AARM, FAB Department, School of Environment, Resources, and Development (SERD) at AIT. As the webinar explained, AIT has been playing a leading role in conducting research and development in the field of tilapia hatchery technology and farming practices with the purpose of transferring technology to developing countries and commercializing

the venture to the public and private sectors. AIT's tilapia farming and hatchery technology is one of the most advanced hatchery technologies and farming systems in Thailand and probably in the region as well.

https://www.youtube.com/watch?v=j1k8pCDb_fc&t=13s

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

Asian Institute of Technology (AIT) partners with international institutions such as Waseda University, Tokyo in mitigating plastic land pollution using state-of-the-art IT tools. The institute also uses Cloud-based technologies in rapidly and accurately assessing and monitoring changes in land cover and related carbon stocks and emissions. AIT 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 the outside world, as evidenced by the extensive international media coverage it received in 2020. Leading by example, the Institute also implements preventive and corrective maintenance measures of its own campus.

Beyond Biodiversity SDGs Hackathon 2020

The Beyond Biodiversity SDGs Hackathon 2020 was jointly organized by the AEON Environmental Foundation and Waseda university, Japan under the theme of "Mitigating Plastic Pollution" at Chulalongkorn University, Thailand in February 2020. During the hackathon, two lectures were delivered on how to use artificial intelligence, deep learning, and advances in remote sensing technologies to solve plastic pollution. Mentoring support was also provided to team members, who are the undergraduate students of Chulalongkorn University.
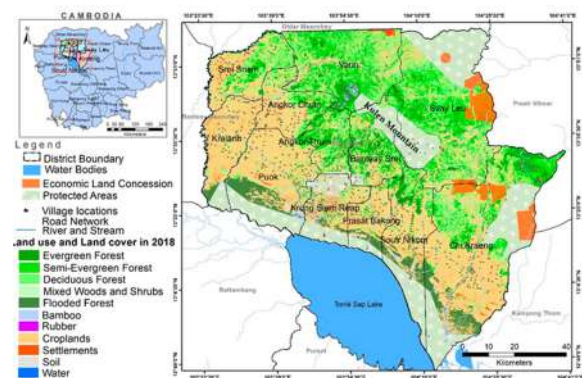

https://bit.ly/3r7cGq3

FRAWASA Project
Activity 1: Applications of the Google Earth and Phenology-Based Threshold Classification Method for Mapping Forest Cover and Carbon Stock Changes in Siem Reap Province, Cambodia

FRAWASA's goal is to develop decision-making tools for better management of natural resources. Data are needed to support the effective introduction of climate-based solutions to reduce carbon emissions from deforestation and conventional agriculture while increasing carbon sequestration through restoration. Cloud-based technologies are increasingly important for rapid and large-scale assessment and monitoring of changes in land cover and related carbon stocks and emissions. Such monitoring is required for monitoring activities under the Reducing Emissions from Deforestation and Forest Degradation (REDD+) of the UNFCCC. This project used the Google Earth cloud computing platform to develop a phenology-based threshold classification method (PBTC) and detected forest cover and carbon stock changes in Cambodia between 1990 and 2018. These methods and findings were published in Remote Sensing (IF – 4.509), which can be downloaded from the weblink below:
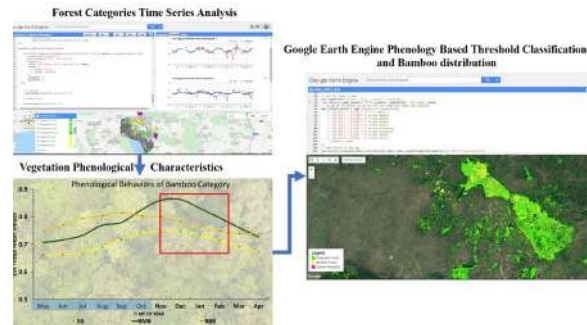

https://doi.org/10.3390/rs12183110

FRAWASA Project
Activity 2: Mapping the Natural Distribution of Bamboo and Related Carbon Stocks in the Tropics Using Google Earth, Phenological Behavior, Landsat 8, and Sentinel-2
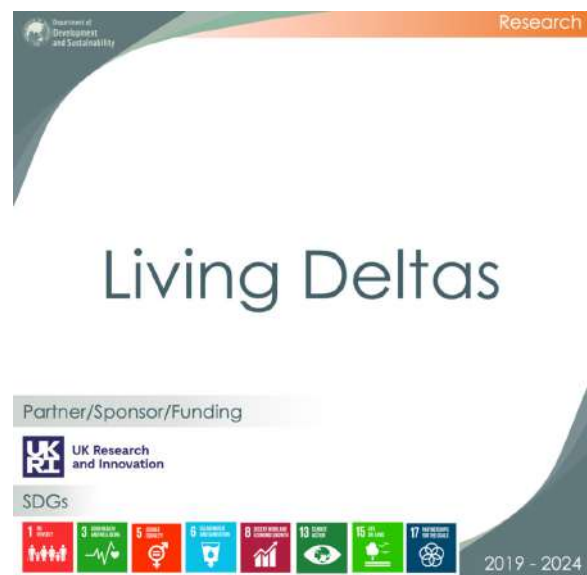
As part of FRAWASA project activities, we developed machine learning algorithms in Google Earth for time series of remote sensing images to detect and map the natural distribution of bamboo forests and estimate carbon stocks in Siem Reap Province, Cambodia. Carbon offsetting through the management of bamboo forests can contribute to SDG13 and SDG15. We published our methods in Remote Sensing (IF – 4.509), which can be downloaded from the weblink below:

https://doi.org/10.3390/rs12183109

Living Deltas

The Living Deltas Research Hub is funded for five years (2019-2024) and operates across four delta systems: the Red River, the Mekong delta in Vietnam, and the Ganges-Brahmaputra-Meghna system in Bangladesh and India. The Living Deltas Hub's aim is to tackle the problem of delta degradation in the face of multiple threats (sea level rise and saline intrusion, mangrove degradation and loss of coastal buffering, climate change, population growth, land use changes, saline intrusion and communities health and wellbeing, unsustainable engineering interventions such as damming, sand mining etc.). The Global Challenges Research Fund (GCRF) also aims to help delta countries better achieve their UN Sustainable Development Goals (SDGs) through voluntary national review agendas. The Hub aims to achieve its objectives via a process of capacity building though equitable partnerships: only by doing this will the Hub have a legacy beyond its five-year funding period. This is an extremely ambitious research program, the most ambitious the UK Research Council has undertaken up to now. The Hub is truly interdisciplinary and brings together the natural and physical sciences, the social sciences, and the arts & humanities on an equal basis to seek new solutions to complex, intertwined issues by building on research already carried out in the delta countries through capacity-building and knowledge co-production toward better delta futures.

https://www.livingdeltas.org

https://dds.ait.ac.th/sdg-1-no-poverty

GAEZ / PyAEZ: A Python Package for Agro-ecological Zoning

GIC-AIT has developed a modern GIS-based tool for agro-ecological zoning implementation with support from the FAO Regional Office for Asia and the Pacific (FAO-RAP). This Python Package tool for AEZ (PyAEZ) provides a standard framework for land resource inventory and appraisal while adhering to the established FAO Land Evaluation Framework. PyAEZ's 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. PyAEZ has roots in Global Agro-

ecological Zoning (GAEZ), a program that uses global datasets to quantify impacts on land productivity based on historical climate variability and future climate change. GIC's intent in developing PyAEZ was twofold: 1) to make GAEZ more accessible to users by transcribing it into a modern scripting language (Python); and 2) to provide users with the capability to input their own datasets (finer than global scale) to create AEZ data products with increased detail.

https://github.com/gicait/PyAEZ

Media Coverage

Interviews with China's People newspaper: "Opinion on Ecosystem Restoration in China Prior to COP15 of the UN Convention on Biological Diversity," 10 March 2020

https://bit.ly/35DNfmv

Interviews with The Straits Times, a top newspaper in Singapore, titled "Reforestation not a Cheap Fix for Climate Change," 22 August 2020

https://www.straitstimes.com/singapore/environment/reforestation-not-a-cheap-fix-for-climate-change

The lecture on "Applications of AI for Environmental Monitoring" was quoted by the Mainichi Shimbun, a major newspaper in Japan, 20 May 2020

https://mainichi.jp/articles/20200507/org/00m/010/011000d

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

In 2020, AIT was particularly active in promoting a range of training activities for government officials in areas such as disaster management and resilience in Sindh Province, Pakistan. The Institute engaged in promoting curriculum as well as public events focusing on Social Business. This shows AIT's commitment to showcasing the role of government structures, mechanisms, and officials in identifying and implementing approaches to putting in place and maintaining strong institutions with peace and social justice in mind, aided in this task by representatives of current partner governments and international organizations along with prominent individuals from academia, government, and enterprises.

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

The Sindh Resilience Project and the Sindh Provincial Disaster Management Authority (PDMA) signed a contract with the Asian Institute of Technology (AIT) on 28 June 2019 to execute this capacity development project for the target group from provincial to district levels: Sindh Provincial Disaster Management Authority (Pakistan), 29 District Disaster Management Authorities (DDMA – Sindh Province), and Line Department Government Officials (Sindh Province).

The overall objective of the Project is to strengthen knowledge of risk exposure and available resources for enhanced preparedness and response capacities at the provincial and district levels.

Expected Outcome: The capacities of the PDMA, DDMAs, and respective government officials from the Sindh government are being built up through a series of international, provincial and district level training programs on various aspects of disaster risk management, training toolkit development, and delivery of five thematic training courses for PDMA and district-level government officials identified in the fields specified in the capacity assessment report and refined after scoping.

Curriculum Development for Disaster Management Authorities

Global Social Business Summit

The Annual Global Social Business Summit hosted by Professor Yunus and the Grameen Creative Lab brings together leaders from government, academia, business, the UN system, and civil society organizations to learn about the latest trends shaping the world and how Social Business is able to respond through enterprise-led approaches. Examples from all over the world inspire change-makers to action and build effective networks for shared success. YCA presented two on-campus social business case studies and contributed speaking slots as well as conference workshops on business design.

17 PARTNERSHIPS FOR THE GOALS

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

Among partnerships linking AIT to organizations working toward the implementation of the SDGs are those with universities, NGOs, international organizations, regional bodies, national governments, civil society organizations, development agencies, and the private sector in (among others) Thailand, Vietnam, Pakistan and Nepal. In 2020, AIT supported the development of monitoring and evaluation tools for knowledge sharing among experts in the veterinary and animal sciences in Pakistan and Thailand, oil, gas, and mineral drilling in Indonesia and Bangladesh, and acid deposition and pollution in Myanmar. AIT also collaborated with the University of Tokyo in organizing the annual National Institute for Environmental Studies (NIES) Forum on a Sustainable Future in Asia.

Launching of 'Groundwater Asia' Project Website

The project is funded by the Asia-Pacific Network for Global Change Research (APN) and implemented by the Asian Institute of Technology (AIT). Collaborators are the Institute for Global Environmental Strategies, Japan, the Department of Groundwater Resources, Thailand, the Division of Water Resources Planning and Investigation for the South of Vietnam, Vietnam, the International Waterlogging and Salinity Research Institute, Pakistan, and the Center of Research for Environment Energy and Water, Nepal.

https://groundwaterasia.org

Project Planning and Management

AIT organized a Professional Training Program on "Project Planning and Management" specially designed in response to a request from the University of Veterinary and Animal Sciences (UVAS) Lahore, Pakistan. Participants in this program were academics and research officials and personnel from relevant government departments in Pakistan. The main focus of this professional training program was experiential learning combining sharing experiences, study, and exposure visits to relevant project management cases in Thailand. Technical inputs sessions covered Project Management Body of Knowledge (PMBOK), Project Cycle Management including Project Identification and Planning, Use of IT in Project Management (Time and Financial), Results-based Monitoring & Evaluation, and Risk Management in Projects. The study visits and field trips were conducted to relevant organizations, institutions, and various sites in Thailand, including the Department of Livestock Development (DLD), Beef Production Demonstration Center, Kasetsart University Kamphaeng Saen Campus, the Large Animals Hospital Department of Animal Science Kasetsart University, Kamphaeng Saen Campus, and the Chockchai Farm and Faculty of Veterinary Science, Chulalongkorn University to learn about and investigate different types of projects and their management.

Unconventional Resources-Techniques and Challenges in Advanced Drilling

AIT Extension organized a professional training program in Indonesia in collaboration with its partner organization Jember University, Indonesia. This two-week customized course on "Unconventional Resources: Techniques and Challenges in Advanced Drilling" was designed for senior and mid-level officers from Bangladesh Oil, Gas & Mineral Corporation (Petrobangla) to enhance their knowledge on modern techniques and challenges in advanced drilling. This training program was designed for transferring knowledge and skills to individuals and government institutions, enabling them to manage and lead positive changes, solving problems, delivering effective services, and improving the performance of the professionals involved in the public utility's management to benefit the operation of the Bangladesh Oil, Gas & Mineral Corporation (Petrobangla). The main focus of this course was to gain insights into evaluation and development of shale resources from the perspective of Indonesia. Relevant study visits along with experts from the host country was provided by AIT's partner Jamber University. Technical inputs sessions covered Evaluation and Development of Shale Resourcesand Analysis and Design of Directional, Horizontal and Multilateral wells: Completion and stimulation. A relevant site visit was arranged in the host country to boost the technical input.

5ᵗʰ NIES International Forum on a Sustainable Future in Asia, 21–22 January 2020

The National Institute for Environmental Studies (NIES) has convened its annual "NIES International Forum on a Sustainable Future in Asia" since FY2015 in collaboration with the University of Tokyo, the Asian Institute of Technology (AIT), and other Asian research organizations. Through this forum, NIES seeks to promote discussions on a sustainable future for Asia and to further develop and enhance research networks among research organizations in Asia.

The 5th NIES International Forum on a Sustainable Future in Asia was convened on January 21-22, 2020 in Yangon, Myanmar, co-organized by the Institute for Future Initiatives, University of Tokyo (IFI–UTokyo), the Regional Resource Center for Asia and the Pacific, the Asian Institute of Technology (RRC.AP, AIT), and the University of Medicine 1, Yangon (UM1) under the theme of "Fostering a Healthy and Sustainable Environment to Achieve the Sustainable Development Goals." Around 160 attendees from 33 Asian research organizations actively participated in discussions from a wide range of perspectives. Participants from the host country Myanmar included representatives of the Ministry of Health and Sports and other governmental organizations as well as the rectors and researchers from 20 universities and research institutes.

Efforts by the international community toward achieving sustainable societies are now accelerating, and for Myanmar, the host country, addressing the health effects of various substances in the environment, responding to climate change, and implementing initiatives to fulfill the SDGs are important issues. Given this background, the 5th Forum focused on three topics: Current Environmental Issues, Health Problems, and Research Challenges in Asian Countries; Synergetic Strategies for SDGs on Combating Climate Change and Protecting Healthy Ecosystems; and Integrative Approach for Strategic Design toward SDGs in Asia.

Follow this link for more details.

http://www.nies.go.jp/event/forum/2019/report.html

EANET National Awareness Workshop, Nay Phi Taw, Myanmar, 24–25 February 2020

The Myanmar Awareness Workshop on Acid Deposition and Air Pollution was conducted on 24-25 February 2020 in Nay Pyi Taw, Myanmar. The event was organized by the Secretariat for the Acid Deposition Monitoring Network in East Asia (EANET) in collaboration with the Myanmar Department of Meteorology and Hydrology (DMH) and the Ministry of Transport and Communications (MoTC).

A total of 60 participants from various sectors, including agriculture, industry, transport, forestry, health, and education attended the awareness event. These consisted of representatives from the relevant government offices, civil society organizations, development agencies, universities, and the private sector. The two-day workshop aimed to facilitate sharing and learning platforms, increase understanding on issues related to the prevention of air pollution, and enhance participants' knowledge and understanding of managing air quality at their workplaces. Experts from EANET and other invited speakers shared presentations and led group discussions on the current status and development of acid deposition and air pollution monitoring activities and the effects of climate change on

acid deposition and air pollution, among others. Participants had the opportunity to discuss challenges, opportunities, and potential solutions to air pollution and acid deposition problems from different sectors' points of view.

RRC.AP acting as an implementing partner of EANET supported the organization of the Myanmar Awareness Workshop.

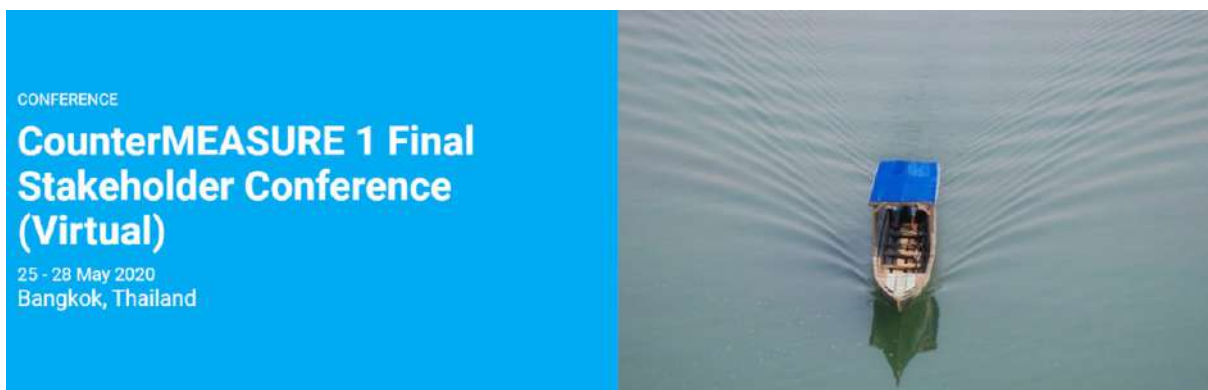Follow this link for more details.

http://www.rrcap.ait.ac.th/

Virtual Conference of the CounterMEASURE Final Stakeholder, Pathum Thani, 25–28 May 2020

The CounterMEASURE Final Stakeholder Conference was successfully held virtually on 25-28 May 2020. It showcased important achievements of the CounterMEASURE project in its first phase and previewed the second phase of CounterMEASURE implementation. The virtual conference highlighted key stories, accomplishments, and innovative solutions, including growing concerns over the coronavirus (COVID-19) pandemic. Cumulatively, about 1,286 participants from 58 countries on 5 continents attended the virtual conference. Participants were drawn from policy makers, researchers, engineers, the private sector, and civil society groups. The conference streamed keynotes, 6 live sessions, workshop with breakout sessions, and a press conference through interactive learning and insights sessions from experts. Highlights of the conference included catalyzing future action from CounterMEASURE

1, reflecting on how the power of data can be unleashed; and engagement of media and citizenry to prevent plastic pollution in the region. Other highlights included moves to drive change toward stemming the tide.; creating more synergy between entities (intergovernmental and others) with a view to beating plastic pollution, the importance of the recycling sector in the region, and small-scale, especially informal sector support and integration in the waste value chain, making recycling feasible and functional in local contexts, and ensuring appropriate recycling technology to be used for different *plastic types and polymers. Follow this link for more details.*

https://www.unep.org/events/conference/countermeasure-1-final-stakeholder-conference-virtual

EANET Virtual Meeting on Drafting a Medium-Term Plan and Reviewing the Scope of the Instrument, 20–22 October 2020

The Working Group (WG) Session 2 Meeting on Drafting a Medium-Term Plan for the EANET (Acid Deposition Monitoring Network in East Asia-2021-2025) and on Reviewing the Scope of the Instrument for EANET was held virtually on 20-22 October 2020, gathering over 50 representatives from EANET participating countries. Following Session 1 of the Working Group meeting held in early July this year, participants met again online to work together on the Medium-Term Plan for EANET (2021-2025) and defining the Network's future activities for the next five years while also discussing a possible expansion of the scope of the EANET's Instrument. During the three-day meeting, national focal points and representatives from Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, the Republic of Korea, Russia, Thailand, the Philippines, and Vietnam joined with the EANET's Secretariat, Network Center and the United Nations Environment Program teams to discuss in detail how they envision the future of the Network. At the end of the three-day meeting, the Session agreed on the set of recommendations to be submitted to the 22nd Session of the Intergovernmental Meeting (IG22) on 25-26 November 2020 for its approval and endorsement. AIT's RRC.AP worked closely with the EANET Secretariat at UNEP in organizing the WG virtual meeting.

Follow this link for more details.

https://bit.ly/3zFG1g4

Training Program on Pseudo-global Warming Downscaling Using the S8DS User Interface, 17 November 2020

The AIT RRC.AP convened a virtual training program on pseudo-global warming downscaling using the S8DS user interface in partnership with the Ministry of the Environment, the University of Tsukuba, and Pacific Consultancy, Japan. The training was divided into three themes: 1: Theoretical session on pseudo-global warming downscaling; 2: Practical session on the use of the S8DS user interface; and 3: Operation and maintenance of the S8DS user interface.

The theoretical session on 17 November 2020 focused on the basics of climate downscaling, including dynamic and statistical downscaling, the advantages of pseudo-global warming downscaling, and the working principles behind the downscaling system. Following the theoretical session on 20 November 2020, a practical session was organized where participants learned to run the climate projection using the S8DS user interface. A third session was convened on 17 December 2020, which focused on the operation and maintenance aspects of the downscaling software. Each session was 120 minutes long, and participants came from the Highland Research and Development Institute (HRDI), a Thailand-based organization (2 participants), PhD students from the Asian Institute of Technology (2 participants), and staff from the Regional Resource Center for Asia and the Pacific (13 participants).

Follow this link for more details.

https://bit.ly/3qhsM0W

Twenty-second Session of the Intergovernmental Meeting (IG22) on the Acid Deposition Monitoring Network in East Asia (EANET), 25-26 November 2020

The 22nd Session of the Intergovernmental Meeting (IG22) on the Acid Deposition Monitoring Network in East Asia (EANET) was held virtually on 25-26 November 2020. Over 50 representatives from participating countries (Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, the Philippines, the Republic of Korea, Russia, Thailand, and Vietnam) participated in the Session. The United Nations Environment Program (UNEP), the Asia Center for Air Pollution Research (ACAP), which serves as the Secretariat and the Network Center (NC) for EANET, and the Asian Institute of Technology, Regional Resource Center for Asia and the Pacific (AIT RRC.AP) attended the Session.

The Session discussed the future scope of the Network activities. It concluded by major decisions such as approval of the Medium-Term Plan (MTP) (2021-2025) and the Work Program and Budget for EANET in 2021 as well as the decision to start the process of expanding the scope of the Instrument allowing EANET to work not only on acid deposition monitoring but also on wider air quality and air pollution issues in the near future. AIT's RRC.AP actively participated as implementing partner of EANET and greatly supported the organization of the IG22 meeting.
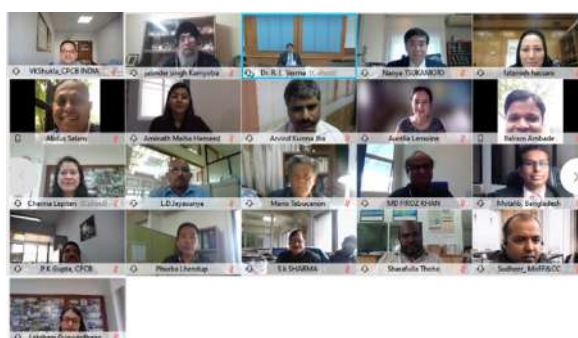
Follow this link for more details.

https://bit.ly/3gQb3cu

Webinar on Air Quality Management in Malé Declaration Countries During COVID-19: Current Status, Challenges, and Opportunities, 17 December 2020

The Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia (Malé Declaration) organized a webinar on "Air Quality Management in Malé Declaration Countries During COVID-19: Current Status, Challenges, and Opportunities" on 17 December 2020. The event, which successfully gathered around 50 participants from the eight-member countries of the Malé Declaration (Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, and Sri Lanka) along with several other countries, provided an avenue for sharing and learning about experiences, challenges, and opportunities in air quality management during the COVID-19 pandemic. Country representatives delivered elaborative and informative presentations on the respective status of air quality management in their countries. Encouraging feedback was received from participants on the successful conduct of the webinar. The Secretariat plans to organize similar events to update members and

strengthen the bond and cooperation among member countries of the Malé Declaration.

Follow this link for more details.

http://news.rrcap.ait.ac.th/

Geo for Good Summit 2020

Profs. Nophea and Dr. Manju were selected to attend the annual virtual Geo for Good Summit, which was organized by Google to provide a forum for nonprofits, scientists, and other change-makers to share and learn about the latest advances in digital technologies such as remote sensing, the Google Earth engine, and mapping tools for making a positive impact in the world. Attendees actively participated and exchanged ideas about digital technologies for sustainability.

https://sites.google.com/earthoutreach.org/geoforgood20/home

Advancing Higher Education for Afghanistan's Development (AHEAD) Program

AIT is a partner of FHI 360-Asia Pacific Regional Office in Bangkok, and is the sole Asian university partner in the USAID-funded project titled: Advancing Higher Education for Afghanistan's Development (AHEAD) Program. The project aims to enhance the capacity of universities in Afghanistan at the national level. Project lead is FHI 360 in the United States. Other U.S. university partners in the consortium are: (1) University of Massachusetts, (2) University of Minnesota, and (3) Virginia Polytechnic Institute and State University.

Founding Member of "Plastic Initiative"

AIT officially joined UNESCO's newly unveiled "Plastic Initiative" along with other strategic partners the Southeast Asian Ministries of Education Organization (SEAMEO), UN Habitat, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), International Union for Conservation of Nature (IUCN), National Science Museum (NSM), Thailand and UN Environment Programme (UNEP). The Plastic Initiative was launched during a virtual webinar held on 12 June 2020 to mark International Environment Day on Biodiversity. The Plastic Initiative developed by

UNESCO Bangkok aims to support sustainable waste management and behavior in the Asia-Pacific region.

AIT and UNESCO Bilateral Cooperation

The Asian Institute of Technology on 29 September 2020 signed a Memorandum of Understanding (MoU) with the United Nations Educational, Scientific and Cultural Organization at a ceremony in Bangkok. Mr. Shigeru Aoyagi, Director of the UNESCO Regional Education Bureau in Asia Pacific in Bangkok, and AIT President Dr. Eden Y Woon signed the MOU to strengthen bilateral partnership between the both institutions.

Policy Dialogues on Sustainable Lifestyles in Asia and the Circular Economy

As part of the online series on Policy Dialogues on Sustainable Lifestyles in Asia and offline courses on the Circular Economy, the task being carried out include:

- Organizing off-line dialogue on sustainable lifestyles for sustainable consumption with additional focus on sustainable lifestyles for SCP during pandemics.

- Developing and organizing an offline course on the Circular Economy and providing periodic feedback to the participants.

- Developing a knowledge management mechanism on the Circular Economy and organizing a pilot run.

- Organizing a pilot dialogue on "Challenges and Opportunities for the Circular Economy in Asia and the Pacific Focusing on the Co-benefits Including Resilience and Building Back Better out of Pandemics."

https://www.ait.ac.th/2020/09/switch-asia-eu-unep-and-ait-join-forces-for-policy-dialogues-on-sustainable-lifestyles-in-asia-and-circular-economy

SUSTAINABLE DEVELOPMENT GOALS DASHBOARD

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

The dashboard maps each program against Sustainable Development Goals numbered 1 through 17.

	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	●																	
Smart Communities																		
Food, Energy, Water Security		●				●	●		●		●		●	●				AIT's 5-Thematic Research Ares
Infrastructure																		
Technology, Policy and Society	●	●			●	●	●	●	●	●	●		●				●	
Institute Outreach Centers																		
AIT Extension	●	●	●	●	●	●	●		●	●	●	●	●	●	●		●	AIT Extension
AIT Solutions				●	●				●		●				●			AIT Solutions
Entrepreneurship Center				●	●				●			●						AIT Entrepreneurship Center
Belt and Road Research Center				●		●		●	●					●			●	Belt & Road Research Center
Geoinformatics Center (GIC)		●											●	●	●			Geoinformatics Center
Regional Resource Center for Asia & the Pacific (RRC.AP)							●				●	●	●				●	Resource Center for Asia & the Pacific (RRC.AP)
Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI)	●	●	●	●				●	●	●	●	●	●				●	Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI)
Internet Education & Research Laboratory (intERLab)				●					●		●							Internet Education and Research Laboratory (intERLab)
AIT AI Technology (AIT2) Center	●		●	●		●	●	●	●	●	●	●	●			●		AIT AI Technology (AIT2) Center
Yunus Center AIT	●	●	●	●	●	●	●	●	●	●	●	●	●				●	Yunus Center AIT
AIT Center in Vietnam (AITCV)																		AIT Center in Vietnam (AITVN)
Institute Service Centers																		
Facilities		●				●	●				●	●	●		●			Office of Facilities & Assets Management
Student Affairs	●	●			●					●						●		Admissions / Career Center
Human Resources			●															Human Resources Office

Asian Institute of Technology (AIT)
P.O. Box 4, Klong Luang,
Pathumthani 12120,
Thailand

Tel   : +(66 2) 5245000
     : +(66 2) 5160110-44
Fax   : +(66 2) 5162126

Website : *www.ait.ac.th*
E-mail : *director-oaa@ait.ac.th*

AIT
Asian Institute of Technology