Dear Readers,

2020 was an unusual year marked by the COVID-19 related disruptions around the world. At AIT and in our school, we did not miss our academic beat but successfully carried out our academic and research activities. The online delivery of courses, as COVID-19 struck in March, was later carried out through the hybrid mode of instruction from the Smart Modified Classrooms. In later months, we could even bring the majority of our students back to the classrooms assisted by our Organizational Quarantined (OQ) which Government of Thailand generously allowed AIT to operate on campus under a close oversight of health ministry and the hospital partner as Thammasat University Hospital.

Our student enrollment in 2020 was on par with the previous year. In 2020 new research projects worth of 117 million were initiated. We could forge new partnerships with key global institutions such as Bill and Melinda Gates Foundation, Bangchak PLC, IDEA Japan, several UN agencies and multilateral Banks, government agencies and other private sector companies. SERD started to offer three new degree programs from the 2020 fall semester (August) - Food Innovation, Nutrition and Health, Marine Plastic Abatement, and Urban Sustainability, Planning and Design. The Energy Program transformed and started offering as Sustainable Energy Transition Program from August 2020. The school faculties initiated deliberations and dialogues to enhance few existing programs, namely – Rural and Regional Development to Development Planning Management and Innovation and Urban Environmental Management to Urban Innovation and Sustainability. The school faculties also positively responded to the call to explore new and innovative degree programs for future to support AIT’s transformative agenda with series of dialogues and discussions. These deliberations led to further strengthen the two key SERD themes- environmental governance and water and sustainable development. Accordingly, the groundwork carried out in 2020 will lead into three new degree programs from August 2021- Society and Environmental Governance, Water Security and Global Change (with School of Engineering and Technology), and Regenerative Sanitation.

Our quest for good quality education, solution-oriented research to make social impact, and our desire to work closely with our stakeholders will continue. SERD has been practicing student-centered-learning approaches and aiming at innovation in technology applications, policies and practices, which remain a key element of our education and research. Further, the school has closely worked with the institute to embed the exchange programs and internships into the curriculum and is also exploring how to benefit from the hybrid mode of instruction to bring more flexible programs into the post-COVID education landscape.

I take this opportunity to thank each of our faculties, staffs and students for their continued support, cooperation and the contributions which only made it possible for SERD to achieve what we could even in this difficult year. The willingness and pro-activeness of our faculties and staff to adapt to the new courses deliver modes and ensuring seamless operation of digital infrastructure is commendable.

Needless to say, we need to further work together to confront the challenge of procuring more financial resources, better student enrollments, and the delivery of high quality education, research and outreach activities with high social impact. I am confident that, together, we can bring SERD programs to a new height.

I wish you all a happy and successful year ahead.

Professor Shobhakar Dhakal
Dean, School of Environment, Resources and Development
AT A GLANCE
484 Students
8223 Alumni
30 Students Nationalities
108 Staff
86 Students Enrolled with Full Scholarship
56% International Students
40% Doctoral Students
30.25 Faculty Strength in FTE
117 Million THB in Total Sponsored Research Budget
14 Students Funded by External Donors
20+ Academic Programs
4 Research and Outreach Programs
100+ Courses Offered
42 Sponsored Research Projects in 2020
55 : 45 Male : Female Overall Gender Distribution

1. Equivalent full-time active student load
2. Faculty Strength in Full-Time Equivalent (FTE)
3. Total staff full-time equivalent (FTE) including research, fixed-term and technical staff
4. Administrative cost for RC
* Intake in 2020

Annual Report 2020
ORGANIZATIONAL STRUCTURE

Figure 1: SERD Organizational Structure
INTRODUCTION

The School of Environment, Resources and Development (SERD) was established in 1993 and the name SERD was adopted after the EARTH Summit in Rio in 1992, emphasizing the important co-existence of environment and development. SERD has been in the forefront developing the new programs as and when it sees the opportunity to provide needed higher education for human resources capacity building in the region.

SERD at The Asian Institute of Technology (AIT) responds to the regional needs by mobilizing and enhancing capacities for socially, economically, and environmentally sound development in partnerships with public and private sector enterprises by offering Masters, Doctoral and Professional Master’s degree programs. The academic programs are offered in an international environment with focus on interdisciplinary education and applied research geared towards sustainable development. The programs are suitably blended with technological, policy, development and management components to qualify as integrated education for providing solutions to contemporary issues.

SERD Mission

SERD responds to the regional needs by mobilizing and enhancing capacities for socially, economically and environmentally sound development in partnership with public and private sectors. The School’s interdisciplinary approach integrates technological, natural, and social sciences.

SERD Vision

- SERD will continue its leadership role in offering excellent academic programs relevant to regional needs.

- SERD research will be concentrated toward focal area and are to be conducted by core teams.

- SERD outreach will be community-service oriented.

- SERD Programs will be consolidated and financially viable. The School/Program activities including the students, staff, faculty and curricula will be subjected to quality assessment.
SERD deals with emerging sustainability issues that confront Asia and beyond. We deal with food, energy, water, natural resources, environment and climate change, urbanization and social and regional development. We have over 18 academic programs spread across three departments as seen below.

Four key pillars through which we aim to provide social impacts are: (a) human resource development through degree programs, (b) knowledge and Thought-Leadership, (c) innovation in technology applications, policies and practices, and (d) partnerships with Governments, private sectors, international organizations and the civil society.

The followings are the SERD academic programs offered at Master’s and Doctoral level in the three respective departments:

**Department of Food, Agriculture and Bioresources:**
1. Agribusiness Management
2. Agricultural Systems and Engineering
3. Aquaculture and Aquatic Resources Management
4. Food Engineering and Bioprocess Technology
5. Food Innovation, Nutrition and Health (initiated in 2020)

**Department of Energy, Environment and Climate Change:**
1. Climate Change and Sustainable Development
2. Environmental Engineering and Management*
3. Marine Plastics Abatement (initiated in 2020)
4. Regenerative Sanitation (initiated in 2020)
5. Sustainable Energy Transition (formally known as Energy)
6. Urban Water Engineering and Management*

**Department of Development and Sustainability:**
1. Disaster Preparedness, Mitigation and Management
2. Development and Sustainability
3. Gender and Development Studies
4. Natural Resources Management
5. Regional and Rural Development Planning
6. Urban Environmental Management*
7. Urban Sustainability Planning and Design (initiated in 2020)

**Professional Master’s Program (PM):**
1. Environmental Engineering and Management (in Vietnam)
2. Environment and Sustainable Development (in Vietnam)
We are introducing new initiatives because we understand the changing education landscape in this globalized world. In addition to the traditional 2-year master's degrees, and in line with AIT’s policy, new 1-year master's degree option is made available in various SERD programs. Almost all SERD programs are open to this new option along with the regular offerings.

New programs introduced in 2020 are shown in figure 2:

*Programs not offering 1-Year Master’s option.
The COVID-19 pandemic has created the largest disruption of education systems and has also had a severe impact on higher education as universities closed their premises and countries shut their borders in response to lockdown measures. Although higher education institutions were quick to replace face-to-face lectures with online learning, these closures affected learning and examinations as well as the safety and legal status of international students in their host country. With no exception, AIT/SERD also experienced interruption in students’ learning and disruptions in internal assessments.

During this extremely challenging and volatile situation, AIT made sure that learning never stops. AIT was quick in responding to this pandemic by cancelling all face-to-face classes effective from March 18, calling on students to go back home if needed and initiating online instructions from April 24. To ensure that students’ education will continue online so that all courses will be completed as scheduled, the institute established the hybrid mode of education by reinventing the learning environment. AIT immediately sought to use technology and offer online classes and learning experiences as a substitute for in-class time. Digitalization of 8 classrooms in SERD was completed by end of July, for the August 2020 session.
Out of this 8 smart modified classroom, one classroom is equipped with smart board. All classrooms are fully equipped to conduct classes in hybrid mode. Classes are being scheduled in Zoom with instructor teaching from the classroom. Table 1 below shows SERD classroom equipped to conduct classes online and in-campus following the social distancing protocol as set by the government.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Room No</th>
<th>Current capacity</th>
<th>Students number with social distancing</th>
<th>Department</th>
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<tbody>
<tr>
<td>1</td>
<td>ET238</td>
<td>60</td>
<td>30</td>
<td>EECC</td>
</tr>
<tr>
<td>2</td>
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<td>EECC</td>
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<tr>
<td>3</td>
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<td>12</td>
<td>FAB</td>
</tr>
<tr>
<td>4</td>
<td>A221</td>
<td>30</td>
<td>12</td>
<td>FAB</td>
</tr>
<tr>
<td>5</td>
<td>E206</td>
<td>38</td>
<td>21</td>
<td>DS (Enhanced smart modified classroom)</td>
</tr>
<tr>
<td>6</td>
<td>E131</td>
<td>28</td>
<td>14</td>
<td>DS</td>
</tr>
<tr>
<td>7</td>
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<td>EECC</td>
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<td>8</td>
<td>Milton Bender</td>
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<td>45</td>
<td>EECC, MPA</td>
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</table>

International students were particularly badly hit at the start because of the lockdown and travel restrictions. For August 2020 semester, we had students taking classes online and in campus. Technology has not just changed methods of teaching and learning, but it also elevated the role of faculty members who took up the challenge of learning and teaching with innovation.

As and when situation became favorable in their home country, students flew back to the campus quarantine center to join the regular classes after completing all the required quarantine and self-isolation procedures.

Unfortunately, there were some students (about 10-12) who declined the offer because they preferred to join face-face classes rather than the hybrid mode due to various reasons. Some had internet connection problem and some preferred to experience the social life on campus and have inspiring conversations with faculty and friends than a closed door virtual class experience.
SERD received a total of 1,697 applications in the year 2020 including applications for exchange and visiting students (Table 1). The application number is the highest since past 5 year, but pay factor is the lowest.

12% of total applications received was enrolled in 2020, which was comparatively less than 16% in 2019, 22% enrolled in 2018, 31% in 2017 and 39% in 2016. The pay factor ranged from 0.77 to 0.84 over the years, which was very satisfactory and was the highest in 2019. The reasons for declining enrollment were lack of large number of available full scholarships, better opportunity for some applicants to study in other universities, personal reasons and the Covid situation.

<table>
<thead>
<tr>
<th>Admission Year</th>
<th>No. of application received</th>
<th>No. of students enrolled</th>
<th>Pay factor</th>
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<td>.82</td>
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<td>2017</td>
<td>695</td>
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<tr>
<td>2020</td>
<td>1697</td>
<td>204</td>
<td>.78</td>
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</table>

Program-wise details on applications, offer and enrolments are presented in Figure 1. A total of 1454 (86%) applicants were offered admission in SERD, 204 applicants (17 were exchange/visiting students) or 14% of offered applicants got enrolled and attended various SERD programs. At the end of 2020, there were 508 continuing students in SERD.

As per budget planning, the projected students’ intake was 189 in 2020 and SERD was able to achieve 108% of the projected number. SERD achieved 74%, 73% and 83% of our projected student intake in the year 2019, 2018 and 2017, respectively. Overall, the intake is highest as compared to past. The main credit for high intake is the new MPA program which has large number of scholarships funded by the Japanese Government.
STUDENT ENROLLMENT

MPA, a 1-year master’s degree program’s student number was not forecasted but an enrollment of 39 students and application of 188 helped in increasing SERD’s intake in 2020. Hence, it is clear that availability of full scholarships will certainly help recruit more students as there are several applicants who are academically very sound.

Program-wise pay factor in SERD ranged from 0.53 to 1 with a school average of 0.78.

Figure 3: Admission status of DFAB, SERD, 2020
Figure 4: Admission status of DDS, SERD, 2020

Figure 5: Admission status of DEECC, SERD, 2020

Figure 6: Admission status Department wise
86 applicants joined SERD through various scholarships available and selected by AIT in 2020 for SERD applicants. Out of this, 29 students received the prestigious full Thai Government Scholarship.

Figure 7 & 8: Scholarships received in SERD
A total of 12 Thai master students received full Royal Thai Government (RTG) Fellowship of 48 credits, whereas 42 Thai students had received in the year 2019. The number is comparatively less due to various reasons like:

1. The applicants could not get the required English score of 5.0 until the stipulated deadline.

2. Due to limited number of RTG fellowship available for 2020 and due to its over use, SERD applicants were not able to get it. Other schools had more qualified applicants.

3. 4 master students received 36 credits and 9 doctoral students received 64 credits RTG fellowship.

Beside the regular AIT scholarships, our students are also funded by their organizations and other funding organizations. There were 14 students who were funded externally by their respective organizations and /or projects. These external funding organizations are:

i. The Department of Science and Technology (DOST)
   - Mimaropa, Philippines

ii. National Agricultural Technology Program
    - Phase II Project, Bangladesh Agricultural Research Council (BARC)
    - Bangladesh

iii. Local Government Engineering Department (LGDE), Bangladesh

iv. Environmental Conservation Department, Myanmar

v. Project - River Basin Adaptation, Tetra Pak’s UBC Project + Rainwater Harvesting

vi. Project CC-Hydro

vii. Provincial Electricity Authority (PEA)
    - AIT Education Cooperation Project

viii. Bangabandhu Science & Technology Fellowship Trust

ix. World Bank

x. Thailand Incentive and Convention Association (TICA)
A total of 129 courses (61 courses in January semester, 12 courses in Inter-semester and 56 in August semester) were offered school-wide in 2020.

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<td>5</td>
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<td>58</td>
<td>12</td>
<td>53</td>
<td>61</td>
<td>12</td>
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Table 3: Courses offered in the school
## GRADUATES

### Programs

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<td><strong>22</strong></td>
<td><strong>16</strong></td>
<td><strong>161</strong></td>
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</table>

| **Total**                                             | **143** | **28** | **22** | **16** | **161** |

*Table 4: Number of SERD graduates from*
The total operating revenue for 2020 was 108.857 Million THB. Further, the operating expenses was 73.822 Million THB. Therefore, net surplus operating fund was 35.049 Million THB. In addition, the school received 94.823 Million THB as project revenue. The net surplus from the project was 15.074 Million THB, and this made the school net surplus as 50.124 Million THB.

The forecasted total operating revenue for 2021 is 158.918 Million THB. In addition, the operating expenses is projected as 87.336 Million THB. Therefore, net surplus operating fund will be 71.582 Million THB. In add-on, the school has estimated 69.438 Million THB as project revenue. The net surplus from the project is expected to be 11.627 Million THB, and this will make the school expected net surplus as 83.210 Million THB. However, this data does not include institute overhead.
We pay special attention to SDGs, we aim to support achieving 2030 SDGs. At the same time we address the longer-term sustainability issues beyond 2030 such as climate change, biodiversity and others. We are very active in research. In 2020 alone, our revenue from sponsored programs (research, outreach/capacity building) as per our records is about 117 mn Baht, including funding from Bill and Melinda Gates Foundation and others.

A total of 42 research sponsored projects were initiated in 2020 with a gross total budget of Baht 117.43 million THB, of which the overhead to the institute was Baht 15.07 million THB (Table 6).


<table>
<thead>
<tr>
<th>Total Budget (Baht)</th>
<th>Administrative cost for RC (Baht)</th>
<th>Direct Honorarium to PI (Baht)</th>
<th>Buyback Time (Baht)</th>
<th>PDF (Baht)</th>
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<td>117,425,857</td>
<td>15,074,677</td>
<td>490,490</td>
<td>2,476,798</td>
<td>755,535</td>
</tr>
</tbody>
</table>

Table 5: Sponsored research projects
SERD has few Centers and dedicated laboratory, which mainly serve the students for their research and are also associated with research and innovations. Their major activities in 2020 are listed below:

**Bangchak Initiative and Innovation Center**

The purpose of BIIC@AIT (Bangchak Initiative and Innovation Center@AIT) is to inculcate entrepreneurship and create enterprises on knowledge-based innovation, specially focused on green and sustainable technologies. The four pillars of the center’s operation include student scholarships, innovative R&D projects, living lab and co-working space for start-up incubation. The achievements made by BIIC@AIT as of 2020 are summarized below.

1. **Living Lab**

   The BIIC@AIT Astaxanthin Pilot Plant has been operating since March 2020 in a showcase mode. Created with collaboration of Bangchak Corporation PCL, the pilot plant brings industrial infrastructure and advanced equipment addition to AIT. The plant shall also provide access to the faculty and students to industrial grade laboratories and experimental setups.

2. **Scholarships**

   BIIC@AIT has provided 1 doctoral scholarship in January 2020, and 2 masters and 1 post-doctoral scholarship in August 2020. As of December 2020, BIIC@AIT has granted 17 scholarships, supporting 11 Masters, 2 Doctoral and 4 Post-Doctoral researchers, in fields of Environmental Engineering and Management (EEM), Sustainable Energy Transition (Energy, SE), Food Engineering and Bioprocess Technology (FEBT). This BIIC@AIT research team includes multinational scholars from Bangladesh, India, Nepal, Pakistan, and Thailand.
3. Innovative Research & Development Funds

So far, BIIC@AIT has provided 4.94 Million THB for supporting 6 innovative research projects in the fields of EEM, FEBT and Energy. These projects are in collaboration with multiple industries. The project ‘Perpetual Sun’, a data-driven solar radiation and demand forecasting approach, is being used in a microgrid energy management system called GEMS, being developed by Leonics Co. Ltd. The project, ‘Two-step solar power wastewater treatment system for biological treatment for at Bangchak gas stations’ was carried out in conjunction with BCP. Two patents are being filed from another R&D project titled, ‘Development of photoactivated antimicrobial bio-nanocomposite packaging materials.’

4. Co-Working Space

BIIC@AIT has completed the construction of its modern co-working space in December 2020. This facility shall be used for start-up incubation and is located on the top floor of pulp and paper building. This facility shall be available for collaboration with the research and start-up partners.

5. Extension of BIIC

Considering the smooth operation of the center, the exemplary industry-academia relationship with BCP, and the continued availability of an industrial environment for AIT researchers, the center’s operation was extended until 24th July 2027. BIIC@AIT will continue to seek additional financial sources of funding through industrial and commercial partnerships, locally and globally to sustain our operations.

Centre for Aquaculture Development (Aqua-Centre)

The Mission of Aqua-Centre is to develop highly skilled human resource required for developing, disseminating, and applying practical and innovative aquaculture technologies for the continuous growth of sustainable aquaculture and efficient management of aquatic resources.

Some of the notable activates of Aqua-Centre during the year 2020 are as follows:

1. Trainings

   a. March 3-June 17, 2020: Training program for a group of students from the College of Fisheries, Odisha University of Agriculture and Technology (OUAT), Odisha, India. The top 10 students were selected by the university. This training was conducted partially in campus and later by Zoom due to the lock down.

   b. Sep 24-Oct 9, 2020: A group of four from Nigeria including 1 member from the Embassy of Nigeria were trained on aquaculture and agriculture which included seminar and visits to farms such as chicken, goat, cattle, fish, prawn, rice and mushroom. They were all in Thailand during this training.

   c. Oct 28-Nov 8, 2020: An advanced Aquaculture and Biotechnology training was organized for two persons, one was serving as Regional Sales Coordinator for a German company called Leiber based in Bangkok and the other worked for Shiok Meat Company in Singapore, which has started to produce cell-based meat from stem cells especially shrimp, crab and lobster.
d. Dec 14-18, 2020: An online Training/Webinar training was organized. The participants who attended the training were from Fiji (3), Guatemala (1) and Solomon Islands (6).

2. Projects

a. Swiss-Cambodia

Partnering with Zurich University of Applied Sciences, Wädenswil (ZHAW), Switzerland and Smiling Gecko, Cambodia (SGC), an NGO, a project proposal entitled, “Sun-Oxygen-System: Energy efficient fishpond aeration enhancing integrated small-scale farming in Cambodia” was developed and submitted. It has been principally accepted. This project is to scale up of the currently tested tilapia cage culture and hatchery project which was successfully launched at the SGC’s facility after training at AIT. It is 3-yr project and has a training component for 30 personnel at AIT and target beneficiaries of 500 families in the communities.

b. BRAC, Bangladesh

Due to COVID19, a series of online training for the BRAC staff was organized during 2020. BRAC (http://www.brac.net) is a partner which has signed an MoU with AIT. It is the largest non-governmental organization (NGO) with over 100,000 employees in 11 countries.

c. EU project

A training of teachers from Indonesia was organized during 2020 June 22-26 using Zoom (15-18:00 hrs. each day) as a part of EU Erasmus+ Project – Curriculum Development on Sustainable Seafood and Nutrition Security (SSNS) hosted by University of Gajdah Mada (UGM) and Jakarta Fisheries University (JFU), Indonesia.

d. Feed stability test

An agreement was signed with a private company named Anpario based in the UK to test a product (feed binder). Research trial have been completed and report has been submitted. Two students were involved in this project.

e. AIT model tilapia, Pakistan

A series of online meeting was organized to guide the managerial team of the company to establish this second AIT model tilapia hatchery and farm in Pakistan. An agreement has been signed with a company based in Sindh Province of Pakistan to upgrade its existing fish farm to a large commercial fish farm using latest technology.
f. Aflatoxin in Tilapia feed (AFT)

A project sponsored by PATENT Co. from Serbia to test Minazel Plus, a product to bind mycotoxins in feed and feed ingredients. It has been used in livestock feed but not used in aquaculture yet. The company wants to test before selling to aqua feed companies.

3. Promotional events:

In 2020, due to COVID-19, several international travels were cancelled or postponed. Only two international trips were made as follows:

a) Cambodia – project inception meeting for a Swiss government funded project in Cambodia, January 23-25, 2020).

b) Philippines – visit to AIT model tilapia farm hatchery to give seminar to their staff and other interested people, February 28-March 2, 2020.

More opportunities were available to promote the Aqua-Centre/SERD/AIT through Webinars and Zoom. Dr Ram Bhujel was invited to deliver Keynote speeches and as invited speaker in various occasions in different webinars organized across the continent.

Naturally Acceptable and Technologically Sustainable (NATS)

NATS team comprises of diverse group of enthusiastic experts from Asian Institute of Technology (AIT) that adheres in building tools for planning and execution of sustainable FSM project. Objective of NATS is to utilize market-led approach to commercialize expertise and innovative system to change and improve the water-waste management system. Some notable events of NATS in 2020 are:

Events organized:

1. Prof. Thammarat Koottatep was invited to be the speaker of the meeting on the topic "Faecal sludge management in eradicating helminth-led liver diseases in Thailand" (7th January 2020).

2. NATS LAB was requested to arrange the training of advance microbiology for three staffs from Centre for Science and Environment (CSE), India. The objective of the training was to learn and practice the analysis methods for wastewater and faecal sludge from Fecal sludge treatment system (13th – 17th January 2020).
3. During July 8-10, 2020, NATS Team lead by Dr. Atitaya Panuvatvanich together with Pollution Control Department (PCD); Dr. Yutthachai Sarathai - Environmental Officer Senior Professional Level and German International Cooperation (GIZ); Mr. Werner Kossmann – GIZ Project Director visited Nakhon Sawan Municipality (NSM), Nakhon Sawan Province under the project "Study on systematic approach and climate change of domestic wastewater management in Thailand".

4. On 29th - 30th January 2020, auditors from the Department of Science Services carried out competency assessment of Testing Laboratory at NATS LAB.

5. "NATS LAB" received an ISO/IEC 17025: 2017 Certificate from the Bureau of Laboratory Accreditation, Department of Science Service, Ministry of Higher Education, Science, Research and Innovation. It is the first laboratory on wastewater and sludge analyses at high concentrations in Thailand. The NATS LAB on 15 October 2020 was inaugurated by President Dr. Eden Woon with the Dean of SERD, faculty members and the NATS team. On November 9th, 2020 an official certificate was handed over by Dr. Pathom Sawanpanyalert, General Director, Department of Science Service to the lab. NATS LAB was one of 42 laboratories in this ceremony.

6. The lab team received training on "ISO/IEC 17043: 2010 Conformity Assessment – General requirements for proficiency testing" on 21 -22 October 2020 by Central Laboratory (Thailand) Company Limited (CLT).

7. On the occasion of United Nations (UN) "WORLD TOILET DAY", Thailand Ministry of Public Health by Department of Health on 16 November 2020 organized an event themed "The New Normal Public Toilet for All". NATS lab participated in this event representing AIT. AIT President was awarded "The Organization for Driving the Thai Public Toilet" from Dr. Satit Pituthecha, Deputy Minister of Public Health during this event.
NEW COLLABORATION INITIATIVES

Working closely with different universities, organizations, industry etc, to address shared concerns and to grow together is important for our school to innovate and adapt in a time of rapid and continuous change. Our school has initiated some important collaborations during the year to focus on strengthening and stretching our school and faculty expertise in terms of capacity building and research. Some agreements/ collaborations initiated are:

- MoU between AIT and The Van Lang University (Vietnam) for unified programs.
- MoA between AIT and Prefectural University of Hiroshima for student, faculty and staff exchange.
- MoU between AIT and University of Tsukuba, Japan for student exchange.
- MoU between AIT and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD).
- MoU renewed between AIT and Provincial Electricity Authority (PEA) for capacity building.
- MoU between AIT and PIRIKA for MPA curriculum and research development.
- MoU between AIT and SINTEF for MPA curriculum and research development.
- MoU between AIT and BayWa r.e. (Thailand) Co., Ltd. for Master student internship programs and industrial collaboration.
- MoA between AIT and Grobest Group Holdings Ltd. Hong Kong for research partnership.
- MoA between AIT and The University of Liberal Arts Bangladesh (ULAB) for unified programs.
- MoA between AIT and Vaidya Group, Nepal for knowledge transfer (tilapia farming).
- MoU between AIT and Royal University of Phnom Penh for capacity building.
- MoU between AIT and Montpellier SupAgro, France for research and capacity building.
- MoU between AIT and The Indian Council of Agricultural Research (ICAR) for collaborative research programs and academic activities.
There are millions of people using social media platforms. It is a great opportunity to reach a large pool of people that are interested in us. Our school focuses sharing, learning, interacting, and marketing mainly in SERD Instagram, Facebook and website.

Due to the Covid-19 outbreak, regular promotional visits to local universities in Thailand and oversea was not possible, but, maintaining the continuity of marketing promotions and outreach activities, SERD faculty members were active online with regular webinars and seminars. AIT marketing taskforce also organized a number of Zoom Webinars and FB live events.

Below is a list of few selected online activities to show how our faculty members remained engaged and connected using technology and eliminating the need to travel during the pandemic.

1. 11 June: Keynote speech (Zoom) - Seminar on Innovative tilapia hatchery technology – organized by University of Gadjah Mada (UGM), Yogyakarta, Indonesia. Registered by 700 people. (Dr. Bhujel).


3. 2 June 2020: An Innovative Career Path in Fisheries and Aquaculture. Webinar to students from Junagadh Agricultural University, India (Dr. Salin).

4. 24 June 2020: Application of Biofloc Technology in Aquaculture; Webinar for students from Kerala University of Fisheries and Ocean Studies (Dr. Salin).

5. 15 August 2020: Conducted Hybrid Webinar on “IoT and AI for Energy Professionals: Data Analytics and Machine Learning Applications in the Energy Sector” (Prof.Kumar).

6. 2 September: Speaker on “Concept of dialogue on sustainable lifestyles focusing on Food” A webinar to launch a series of policy dialogue on sustainable lifestyles in Asia and an offline course on Circular Economy, UNCC (TBC) BKK (Prof. Anil).

7. 14 September: Online training to BRAC Fisheries Managers as a part of joint collaboration (Dr. Bhujel)
8. 22 September: Webinar on “Integrated Multitrophic Aquaculture: A sustainable aquaculture option” organized by Junagadh Agricultural University, Gujarat, India (Dr. Salin)


10. 1 October: A webinar titled “Air Quality Data to Drive Stronger Clean Air Action” under the “Clean Air Solutions Webinar Series” (Prof. Kim Oanh).


12. 17-22 November 2020: Keynote speaker at the “ASEAN Energy Business Forum 2020” (Prof. Shobhakar Dhakal)

SERD participated in AIT Roadshows, Webinars via Zoom and Live Facebook events organized by AIT Marketing Task Force (MTF) to promote for the upcoming semesters. Though travel was restricted, we did not stop promoting. Table 7 shows a list of all such event organized by MTF:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT Roadshow Mandalay</td>
<td>18 January</td>
</tr>
<tr>
<td>AIT Roadshow Yangon</td>
<td>19 January</td>
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<tr>
<td>AIT Roadshow Nepal</td>
<td>25 January</td>
</tr>
<tr>
<td>AIT Roadshow Khon Kaen</td>
<td>1 February</td>
</tr>
<tr>
<td>AIT Roadshow Phnom Penh</td>
<td>2 February</td>
</tr>
<tr>
<td>AIT Roadshow Hat Yai</td>
<td>15 February</td>
</tr>
<tr>
<td>AIT Roadshow FB live</td>
<td>27 February</td>
</tr>
<tr>
<td>AIT Roadshow Bangkok (column tower)</td>
<td>29 February</td>
</tr>
<tr>
<td>AIT Roadshow FB live</td>
<td>5 March</td>
</tr>
<tr>
<td>AIT Pop up booth (United center building, Bangkok)</td>
<td>9 March</td>
</tr>
<tr>
<td>AIT Roadshow FB Live</td>
<td>2 April</td>
</tr>
<tr>
<td>AIT Roadshow FB live (Chinese)</td>
<td>16 April</td>
</tr>
<tr>
<td>AIT Roadshow FB live (Student)</td>
<td>23 April</td>
</tr>
<tr>
<td>AIT Roadshow FB live (Student)</td>
<td>30 April</td>
</tr>
<tr>
<td>AIT Roadshow FB live (SOM)</td>
<td>7 May</td>
</tr>
<tr>
<td>AIT Roadshow FB live (SERD)</td>
<td>14 May</td>
</tr>
<tr>
<td>AIT Roadshow FB live (SET)</td>
<td>28 May</td>
</tr>
<tr>
<td>AIT Roadshow FB live (MPA, Thai)</td>
<td>6 June</td>
</tr>
<tr>
<td>AIT Roadshow FB live (MPA, English)</td>
<td>9 June</td>
</tr>
<tr>
<td>AIT Roadshow FB live (MPA, English)</td>
<td>13 June</td>
</tr>
<tr>
<td>AIT Roadshow FB live (AIT President)</td>
<td>30 June</td>
</tr>
<tr>
<td>AIT Roadshow FB live (Dean’s Talk)</td>
<td>29 October</td>
</tr>
<tr>
<td>AIT Roadshow Live Hybrid (Column Tower)</td>
<td>14 November</td>
</tr>
<tr>
<td>AIT Roadshow China (Webinar)</td>
<td>23 November</td>
</tr>
<tr>
<td>CRMA exhibition</td>
<td>23-24 November</td>
</tr>
</tbody>
</table>

All three departments in SERD also conducted various activities related to students’ promotions. Online seminars, webinars and Zoom sessions were organized to keep continuity to their promotional and marketing activities.
S.E.R.D Faculty Achievements

- Dr. Shobhakar Dhakal of the Department of Energy, Environment and Climate (EECC), was appointed Dean of SERD effective from 1 July 2020.

- Dr. Anil Kumar Anal of The Department of Food, Agriculture and Bioresources was promoted to the rank of full Professor. His promotion was announced by President in Jan 2020.

- Dr. Nophea Sasaki of The Department of Development and Sustainability was promoted to the rank of full Professor. His promotion was announced by President in Jan 2020.

- Fisher folk in Cambodia, India and Sri Lanka - Migration, Gender and Well-being - the first edition of the book co-edited by Prof. Kyoko Kusakabe, Head of Department of Development and Sustainability was published in August.

- Drought Risk Management in South and South-East Asia - a book co-edited by Dr. Indrajit Pal, faculty member and Chair in the Disaster Preparedness, Mitigation and Management (DPMM) program was published in August.

- A Book titled “An Interdisciplinary Approach for Disaster Resilience and Sustainability” Co-edited by Dr. Indrajit Pal and Dr. Sangam Shrestha was announced on 28 October 2019.

- AIT_SERD launched Marine Plastics Abatement one year MSc program with US$ 3 Mil. Japanese Grant under the Department of Energy, Environment and Climate Change.

- Dr. Mokbul Morshed Ahmad (#RRDP Faculty) published an article on the E-International Relations titled “The COVID-19 Outbreak: A Testing Time for NGOs in Bangladesh” in May edition.

- An article on “Ensuring safety in food systems during and after Covid-19 pandemic” has been published in Nepali's top online newspaper in the May edition. This article is authored by Prof. Anil Kumar Anal (HoD of FAB Department) and Mr. Sushil Koirala, Research Associate.

- Prof. C. Visvanathan, and his Research Associate was awarded the Rising Star Award 2019 in September 2020 for their paper “Management strategies for anaerobic digestate of organic fraction of municipal solid waste: Current status and future prospects”.

- The Rising Star Award is an annual award recognizing papers with strong early citation performance and awarded by SAGE publishing and the editorial group of Waste Management & Research.

- The breakthrough for the newest campus landmark, “Freshwater Mangrove Museum on Swan lake’s edges,” was established in July from the academic work of PhD candidate Ms. Arlene Gonzales guided by her supervisor Dr. Oleg Shipin, a faculty member of the Environmental Engineering and Management program.

- Special Issue on FOOD SAFETY in SOUTH EAST ASIA as part of FOOD CONTROL JOURNAL (CITE SCORE: 8.4; IMPACT FACTOR: 4.258), Published in August by ELSEVIER was edited by Prof. Anil Kumar Anal and colleagues.

- The NATS LAB at AIT_SERD received an ISO/IEC 17025:2017 Certificate from the Department of Science Service, Ministry of Higher Education, Science, Research and Innovation (MHESI) in October. The achievement recognized the laboratory to be the very first certified lab in Thailand for high-concentration wastewater analyses.

- According to a paper published by Stanford University researchers, Prof. C. Visvanathan (Environmental Sciences), Prof. Shobhakar Dhakal (Energy), Prof. Weerakorn Ongsakul (Energy), Prof. Gopal Bahadur Thapa (Agronomy & Agriculture), Prof. Ram M. Shrestha (Energy) and Prof. Sivanappan Kumar (Energy) are amongst the world’s top 2% scientists based on career-wide scientific impact to respective sub-disciplines.

- Prof. C. Visvanathan and Prof. Shobhakar Dhakal have been placed in the top 1% of the global scientific community in a study published in PLOS Biology Journal.

- Prof. Peter Edwards (Fisheries), Prof. Anil Kumar Anal (Food Science), appeared in the top 2% list of scientists for research impact based on the most recent single year (2019) achievement.
AIT Professor Chettiyappan Visvanathan has been awarded the International Conference on Solid Waste Management and Circular Economy (IconSWM-CE) – Lifetime Achievement Award for 2020. He was conferred with the award at a virtual ceremony held on 7 December 2020 as part of the 10th International Conference on Sustainable Waste Management towards Circular Economy held in Jadavpur University, Kolkata, India.

**S.E.R.D Alumni Achievements**

- Ms. May Sabe Phyu an alumna of the Gender and Development Studies program, Department of Development and Sustainability was awarded The 2019 N-Peace Awards in January 2020.
- Dr Deepak Bhandari (graduated as PhD in Agricultural Systems and Engineering Academic Program, Department of Food, Agriculture and Bioresources, School of Environment, Resources and Development in 2010) has been appointed as Executive Director (ED) of Nepal Agricultural Research Council (NARC), Government of Nepal in October.
- Prof. Dr. Punya Prasad Regmi who was appointed as a Vice Chancellor of the Agriculture and Forestry University, Nepal in October. Prof. Dr. Regmi received his Master of Science in Human Settlements and Development, 1992 and Doctor of Philosophy in Regional and Rural Development Planning, 1999 from AIT School of Environment, Resources and Development. He is also a member of AIT Board of Trustees.
- Cambodia’s Mr. Sopheap Sreng is a first recipient of the Xulhaz Mannan Inclusive Development Award conferred by the U.S. Agency for International Development (USAID) for his commitment to the inclusion of marginalized populations in USAID’s development efforts. He graduated from the SERD in 2010 with an M.Sc Degree in Gender and Development Studies.
- Professor Dr. Udaya Rathnayaka, has been appointed as the Vice-Chancellor of the Sabaragamuwa University of Sri Lanka since 3rd November 2020. He is the 7th and the youngest Vice-Chancellor of the Sabaragamuwa University of Sri Lanka. Professor Rathnayaka graduated from AIT_SERD in 2009 with a Doctor of Philosophy in Food Engineering and Bioprocess Technology.

**S.E.R.D Students Achievements**

- Two doctoral students, Mr.Chaiachawin Chavapradit and Ms.Nuntarat Bunlao from The Department of Food, Agriculture and Bioresources were awarded The Thailand Graduate Institute of Science and Technology Scholarship (TGIST) award for 2020.
- Research poster prepared by doctoral student Ms. Panaya Sudta from Sustainable Energy Transition academic program was chosen to be displayed at the Chulachomklao Royal Military Academy Exhibition which took place on 22-23 November 2020 at its campus in Nakhon Nayok Province.
- The breakthrough for the newest campus landmark, “Freshwater Mangrove Museum on Swan lake’s edges,” was established in July from the academic work of PhD candidate Ms. Arlene Gonzales guided by her supervisor Dr. Oleg Shipin, a faculty member of the Environmental Engineering and Management program.

**Prize for different academic programs**

<table>
<thead>
<tr>
<th>Prize Name</th>
<th>Recipient Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Hisamatsu Prize for Food Engineering and Bioprocess Technology</td>
<td>Ms. Pimonpan Phasupan</td>
</tr>
<tr>
<td>The C. Kweil Lin Prize for Aquaculture and Aquatic Resources</td>
<td>Ms. Nguyen Giang Thu Lan</td>
</tr>
<tr>
<td>The Yoshiro Takasaki Prize for Energy</td>
<td>Mr. Shubham Tiwari</td>
</tr>
<tr>
<td>The Robert B. Banks Prize for Environmental Engineering and Management</td>
<td>Ms. Nichakul Phosirikul</td>
</tr>
<tr>
<td>The Chongrak Polprasert Prize for Environmental Engineering and Management (with specialization in Water and Wastewater engineering)</td>
<td>Ms. Withanage Buddhima S. Siriveera</td>
</tr>
<tr>
<td>The Tim Kendall Memorial Prize for Natural Resources Management</td>
<td>Ms. Sarathanjali Manoharan</td>
</tr>
<tr>
<td>The James A. Linen III Memorial Prize for Regional and Rural Development Planning</td>
<td>Ms. Thilani Lavanga Navaratne</td>
</tr>
<tr>
<td>The Yoh Krosoawa Prize for the most outstanding woman graduate in SERD</td>
<td>Ms. Thilani Lavanga Navaratne</td>
</tr>
<tr>
<td>The AIT Alumni Association Prize for the most outstanding graduate in SERD</td>
<td>Ms. Sarathanjali Manoharan</td>
</tr>
</tbody>
</table>
Ten faculty’s contracts whose contracts were expiring in 2020 were assessed; 8 were renewed, and 2 were re-employed beyond retirement age of 60. Similarly, 9 administrative and technical staff contracts were expiring in 2020 with 8 contracts assessed and renewed. No new administrative staff and technical staff were hired as replacement in 2020. Four new faculty hiring processes started in 2020.
MEMBERS

Prof. Shobhakar Dhakal,
shobhakar@ait.ac.th
Professor
Research Areas
Energy policy and climate policy;
Climate change mitigation;
Improving energy access;
Regional electricity trade and market integration;
Low carbon and climate resilient cities;
Climate finance and carbon market.

Prof. Kyoko Kusakabe,
kyokok@ait.ac.th
Professor
Research Areas
Economic globalization and women’s work;
Women’s employment in the informal economy;
Labor migration and gendered mobility;
Gender issues in fisheries and aquaculture.

Dr. P. Abdul Salam,
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Associate Professor
Research Areas
Bioenergy;
Waste to energy;
Sustainable and renewable energy;
Energy efficiency and energy conservation;
Climate change mitigation; Clean coal technologies;
Carbon capture and storage.

Prof. Anil K. Anal,
anilkumar@ait.ac.th
Professor
Research Areas
Bioprocessing & value addition of Agro-Industrial waste; Functional Foods, Neutraceuticals and product analysis; Food safety and risk assessment in Food Supply chain; Nanotechnology application; Agriculture and Pharmaceutics; Delivery and Pharmacokinetic studies of Bioactive Compounds including Neutraceuticals, drugs in human and veterinary applications.

Prof. Chettiyaappan Visvanathan,
Professor visu@ait.ac.th
Research Areas
Membrane technology;
Integrated solid waste management;
Water and wastewater treatment;
Cleaner production/Sustainable production and consumption;
Industrial environment management.

Prof. Joyashree Roy,
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Bangabandhu Chair Professor
Research Areas
Economics of pollution and climate change;
Modeling of energy demand; Water quality demand modeling; Water pricing; Sustainable development; Economy wide modeling exercises for driving policy implications; Developmental and environmental issues relevant for informal sectors; Coastal ecosystem service evaluation.

Prof. Sivanappan Kumar,
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Professor
Research Areas
Renewable energy resources and technologies;
Climate change and green house gas mitigation;
Solar energy and sustainable development.

Prof. Rajendra P. Shrestha,
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Professor
Research Areas
Land use and land degradation assessment;
Land use planning and management; Climate change and land; Natural resources management; Ecosystem indicators & Sustainability assessment; Geoinformatics application.

Prof. Nguyen Thi Kim Oanh,
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Adjunct Professor
Research Areas
Short-lived climate forcing pollutants (BC and ozone precursors) and co-benefit; Agro-residue field/open burning; Integrated management strategies; Emission inventory and modeling tools; Synoptic climatological patterns; Development of VOC emission profiles for refinement of photochemical model results; Enhanced adsorption/catalytic oxidation for VOC treatment by nanoscale metallic particles.

Prof. Thammarat Koottatep,
thamarat@ait.ac.th
Professor
Research Areas
Sustainable decentralized wastewater treatment; Systems; Waste/wastewater reuse/recycle; Innovative sanitation systems; Fecal sludge management; Uses of constructed wetlands for waste/wastewater treatment.
FACULTY MEMBERS

Prof. Weerakorn Ongsakul,
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Professor
Research Areas
Intelligent System Applications to Energy Systems;
Power System Operation & Control;
Power System Restructuring & Deregulation;

Prof. Nophea Sasaki,
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Professor
Research Areas
REDD+; Forest carbon monitoring and modeling;
Forest management; Green technoation for sustainability;
Selective logging; Biodiversity conservation;
Impact investment in forestry.

Dr. Avishek Datta,
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Associate Professor
Research Areas
Crop water management; Climate change and food security; Climate change adaptation;
Climate-smart agriculture; Crop stress tolerance;
Conservation agriculture; Organic farming;
Integrated nutrient and pest management; Crop protection.

Dr. Loc Thai Nguyen,
locnguyen@ait.ac.th
Associate Professor
Research Areas
Non-thermal food processing technologies;
Mathematical modeling of foods and food processes;
Chemical sensors and biosensors for food safety application;
Food waste recycling and utilization.

Dr. Krishna R. Salin,
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Associate Professor
Research Areas
Sustainable aquaculture intensification;
Genetic improvement of aquaculture stocks;
Management of aquaculture effluents;
Hatchery production of fish and crustaceans;
Adaptation to climate change in aquaculture.

Dr. Ram C. Bhujel,
bhujel@ait.ac.th
Research Associate Professor
Research Areas
Biostatistics and research design; Curriculum development;
Tilapia farming; Industry linkages;
Aquaculture business; Broodstock management and fry production;
Technology transfer/extension/commercialization/internship.

Dr. Philippe Doneys,
philippe@ait.ac.th
Associate Professor
Research Areas
Gender Politics;
Empowerment and Human Rights;
Migration and Human Security;
Gender, Health and HIV.

Dr. Jai Govind Singh,
jgsingh@ait.ac.th
Associate Professor
Research Areas
Electric Vehicles; Smartgrid and Microgrid;
Renewable Energy Generation and Integration;
Power System Planning; Operation and Control;
Flexible AC Transmission Systems Controllers;
Distribution System Automation; Vehicle-to-Grid;

Dr. Mokbul Morshed Ahmad,
morshed@ait.ac.th
Associate Professor
Research Areas
Regional and rural development planning;
Community development;
NGOs/Civil society;
Adaptation to climate change;
Human conflicts.

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Ecological Engineering for climate change adaptation;
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