



INSTITUTE OF TECHNOLOGY OF CAMBODIA

# **CONSORTIUM MEETING INTERNATIONAL SUPPORT**

Phnom Penh, 26-27 March 2025

## **REPORT OF ACTIVITIES**

**2024-2025**

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**Program**  
**of International Consortium Meeting at ITC**  
**26-27 March 2025**

**Wednesday, March 26, 2025:**

*7:30 - 8:30: Welcome of participants*

**8:30 - Plenary session in the room A-110**

*8:30 - 10:30*

- Welcome address by H.E. PHOEURNNG Sackona, President of the Board of Trustees
- Working methodology and objectives of the 2025 consortium meeting
- Report of Activities 2024 - 2025

*10:30 - 11:00: Coffee break*

*11:00 - 12:00: Perspective & Strategy 2025-2026*

*12:00 - 13:00: Lunch*

**13:00 Sessions by group**

*13:00 - 17h30: Group work by Department/Graduate School/Research*

*Group 1 (AMS, GIC, GTR, MIT), Group 2 (GCI, GAR, GTI, GGG, MSS), Group 3 (GEE, GIM, ECAM, ETM), Group 4 (GCA, GRU, WAE&FTN), Group 5 (DTC)*

*18:30 - Welcome Dinner organized by ITC Direction*

**Thursday, March 27, 2025:**

**8:30 : Plenary session in the room A-110**

*8:30 - 12:00: Presentation of Discussion Result by Department/GS/RIC*

# Members of Consortium 2025

## I. Établissements partenaires

| No | Nom de l'établissement  | Sigle                  | Pays      |
|----|---|------------------------|-----------|
| 1  | Ministère de l'Éducation, de la Jeunesse et des Sports                            | MoEYS                  | Cambodge  |
| 2  | Ambassade de France   | AF                     | France    |
| 3  | JICA Cambodia Office  | Jica                   | Japan     |
| 4  | Ministère des Mines et de l'Énergie   | MME                    | Cambodge  |
| 5  | Agence Universitaire de la Francophonie   | AUF                    | AUF       |
| 6  | Centre international de recherche agricole pour le développement                  | CIRAD                  | France    |
| 7  | Chambre de Commerce et d'Industrie France Cambodge                                | CCIFC                  | France    |
| 8  | DevKhmer SARL   | DevKhmer               | Cambodge  |
| 9  | École Nationale Supérieure de l'informatique pour l'Industrie et l'Entreprise     | ENSIIE                 | France    |
| 10 | École Catholique des Arts et Métiers  | ECAM LaSalle           | France    |
| 11 | École Nationale des Ponts et Chaussées  | ENPC                   | France    |
| 12 | École Nationale Supérieure en Génie des Technologies Industrielles (ENSGTI), UPPA | ENSGTI                 | France    |
| 13 | IMT Mines Alès, représentant Institut Mines-Télécom                               | IMT Mines Alès         | France    |
| 14 | INSA Lyon   | INSA Lyon              | France    |
| 15 | INSA Toulouse   | INSA Toulouse          | France    |
| 16 | Institut National des Sciences appliquées de Rennes                               | INSA Rennes            | France    |
| 17 | Institut de Recherche pour le Développement                                       | IRD                    | France    |
| 18 | Institut National Polytechnique de Toulouse                                       | INP Toulouse           | France    |
| 19 | Institut Pasteur du Cambodge  | IPC                    | Cambodge  |
| 20 | Institut Universitaire de Technologie d'Orsay                                     | IUTO                   | France    |
| 21 | IUT de Saint-Nazaire  | IUT                    | France    |
| 22 | Kasetsart University  | KU                     | Thaïlande |
| 23 | Kyushu University   | KU                     | Japon     |
| 24 | Montpellier SupAgro   | Montpellier SupAgro    | France    |
| 25 | Northeastern Illinois University  | NIU                    | USA       |
| 26 | Polytech Lille  | Polytech Lille         | France    |
| 27 | Schoolab / Hexagon  | Schoolab               | France    |
| 28 | Institute of Science Tokyo  | Tokyo Tech/IST         | Japon     |
| 29 | Université catholique de Louvain  | UCLouvain              | Belgique  |
| 30 | Université de la Réunion  | UR                     | France    |
| 31 | Université de Liège   | ULiège                 | Belgique  |
| 32 | Université de Liège, Gembloux Agro-Bio Tech                                       | Gembloux Agro-Bio Tech | France    |
| 33 | Université de Mons  | UMONS                  | Belgique  |

|    |                                |             |          |
|----|--------------------------------|-------------|----------|
| 34 | Université de Namur            | UN          | Belgique |
| 35 | Université de Rennes           | UNIV Rennes | France   |
| 36 | Université Libre de Bruxelles  | ULB         | Belgique |
| 37 | Université Paris-Sud           | UPS         | France   |
| 38 | Université Paul Sabatier       | UPS         | France   |
| 39 | Université Sorbonne Paris Nord | UP 13       | France   |
| 40 | VOLTRA Co., Ltd.               | VOLTRA      | Cambodge |

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2. Mr. Einosuke KAMEGAI, Second Secretary for Economic & ODA Section, Embassy of Japan
3. S.E. le Dr. OM Romny, Secrétaire d'État au ministère de l'éducation, de la jeunesse et des sports
4. S.E. Mme PEN Chhorda, Secrétaire d'État au ministère des mines et de l'énergie
5. M. Nicolas MAINETTI, Directeur Asie-Pacifique de l'AUF
6. Mme BOUCHER Sandrine, Directrice au Cambodge chez l'AFD
7. M. KOICHIRO Watanabe, Senior Advisor of JICA
8. M. Luc LE CALVEZ, Représentant au pays chez l'IRD
9. M. ROGER François, Centre international de recherche agricole pour le développement
10. M. JULLIARD Charles, Chambre de Commerce et d'Industrie France Cambodge (CCIFC)

## **III. Entreprises**

11. M. Franck TOUCH, DevKhmer SARL Co., Ltd.,
12. M. VAUDIN Yann, VOLTRA Co., Ltd.,
13. M. Arthur Mossa, Schoolab / Hexagon

## **IV. Membres invités**

14. Mme TRAN Thi Anh-Dao, Attachée de Coopération scientifique et universitaire, Ambassade de France
15. Mme KASEL Alexandra, Responsable Campus France - Chargée de mission universitaire Ambassade de France
16. M. Sanui Kazumasa, Chief Representative of JICA Cambodia Office
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18. Mme Assia TRIA, Directrice, IMT Mines Ales
19. M. DESPLANCHE Didier, Directeur général, ECAM LaSalle de Lyon
20. Mme Aveline Darquennes, Professeure, Responsable Master MMGCM, INSA Rennes
21. M. Bruno Darracq, Professeur, Université Paris-Saclay
22. Mme Chikako SASAKI, Industrial Linkage/ Project Coordinator, JICA INACON Project
23. M. Christian OBRECHT, Représentant, INSA Lyon
24. M. Etienne Chevalier, Co-Head of master's in applied mathematics, University Paris-Saclay
25. M. François Louis Roger, Directeur Régional Asie du sud-est, CIRAD
26. Mme Françoise ANDRE, Coordinatrice de la coopération internationale, IMT Mines Ales
27. M. IM Kravong, Représentant AUF - Cambodge
28. Mme Isabelle BOKHARI, Advisor to HE Vice-Prime Minister, Minister of Education, Youth and Sport/MJES - Expertise France (AFD)
29. M. Jacques Mercadier, Professeur, Université de Pau et des Pays de l'Adour
30. M. Jun-ichi TAKADA, "Executive Vice President for Global Affairs/Chief Advisor, Institute of Science Tokyo/INACON Project
31. M. Kévyn JOHANNES, Professeur, INSA LYON

32. M. Kotaro Yonezu, Professor Kyushu University
33. M. Manuel AZIBI, Resident Twinning Advisor (EU), France Education International
34. M. Masami Furuuchi, PI of Air SATREPS, Kanazawa University
35. Mme Mathilde Sester, Researcher, CIRAD
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70. M. COLBEAU-JUSTIN Christophe, Université Paris-Sud
71. M. DOSSANTOS-UZARRALDE Pierre, École Nationale Supérieure de l'informatique pour l'Industrie et l'Entreprise
72. M. MERCADIER Jacques, Professeur, École Nationale Supérieure en Génie des Technologies Industrielles (ENSGTI), UPPA



73. M. Vincent HERBRETEAU, chargé de Recherche à l'IRD, basé au Cambodge depuis 2018 et à l'ITC depuis 2023 co-Directeur de KHEOBS à l'ITC
74. M. Lionel MOULIN, directeur de Recherche à l'IRD, basé à l'ITC depuis 2022 co-Directeur LMI LEAD à l'ITC
75. M. Pascal JOUQUET, directeur de Recherche à l'IRD, basé à l'ITC depuis 2023 P.I. of FSPI RéaSol
76. M. Paul BAUDRON, chargé de Recherche à l'IRD, basé à l'ITC depuis 2023, P.I. du FEF-R « InverSap »
77. M. Raphael CAIRE, professeur, Université Grenoble Alpes
78. Mme Karine BUGUET, Référente Relations Internationales, Université Grenoble Alpes
79. Mme Sunil Herat, Program Director of the Master of Environmental Engineering and Pollution Control, Griffith University

## **V. Équipe de direction de l'ITC**

### **V. 1. Direction**

80. S.E. Dr. PHOEURNNG Sackona, présidente du Conseil d'Administration et ministre de la culture et des beaux-arts
81. S.E. Prof. Dr. PO Kimtho, directeur de l'ITC
82. M. SOY Ty, directeur adjoint
83. M. BUN Kim Ngun, directeur adjoint
84. M. NGUON Kollika, directeur adjoint
85. M. BUN Long, directeur adjoint
86. M. PROTIN Ludovic, directeur honoraire de l'ITC
87. M. CHUNHIENG Thavarith, conseiller pour la coopération
88. M. NUTH Sothân, conseiller pour les affaires académiques
89. M. PENH San, conseiller pour l'administration

### **V.2. Facultés, départements et sections**

90. M. SIM Tepmony, directeur de la formation de 3<sup>ème</sup> cycle (GS)
91. M. OR Channmoly, directeur du centre de recherche et d'innovation ((RIC)
92. M. LIN Mongkulserey, Vice-directeur du Centre de Recherche et d'innovation, Responsable du campus de l'ITC à Tbongkhum et Chef du département de mathématiques appliquées et statistiques
93. M. HIN Raveth, vice-directeur de l'école doctorale et responsable du campus de l'ITC à Kep
94. M. HAN Virak, doyen de la faculté de génie civil (GCI)
95. M. CHHUON Kong, doyen de la Faculté d'Hydrologie et des Ressources en eau (GRU)
96. M. IN Sokneang, doyenne de la faculté de génie chimique et alimentaire (GCA)
97. M. ENG Chandoeurn, doyen de la faculté de génie de géo-ressources et de géotechnique (GGG)
98. M. CHRIN Phok, vice-doyen de la faculté de génie électrique et Responsable du département de génie électrique et énergétique (GEE)
99. M. CHAN Sarin, vice-doyen de la faculté de génie électrique et Responsable du département de génie industriel et mécanique (GIM)
100. M. LAY Héng, doyen de la faculté de génie électrique, responsable du département de génie informatique et communication (GIC)
101. M. PHUN Veng Kheang, chef de département de génie des transports et des infrastructures (GTI)
102. M. HASH Chanly, chef du département d'architecture
103. Dr. SRENG Sochenda, chef du département télécommunications et réseaux (GTR)
104. Mme SREY Malis, chef du département du Tronc Commun (TC)
105. Mme KHEMTRAN Krasel, responsable de la section de français (SF)
106. M. SO Phea, responsable de la section d'anglais (SA)
107. Mme HANG Vinchothy, chef du bureau d'administration

108. M. KHOUN Rithymean, chef du bureau des études
109. Mme HANG Leakhena, chef du bureau de l'assurance de qualité interne (QA)
110. Mme YIN Molyka, chef du bureau de la cellule d'interface (UIL)
111. M. SOK Kimheng, responsable de la Bibliothèque
112. Mme SUONG Malyna, chef adjoint du bureau des relations internationales
113. Mlle SANG Davin, chef adjoint des relations avec les entreprises (UIL)
114. M. KHIEV Samnang, responsable du service informatique (IT)
115. Dr. SRANG Sarot, responsable du génie mécanique et des systèmes de contrôle au Département de génie industriel et mécanique et coordinateur du programme international ECAM LaSalle-ITC
116. M. CHEA Samneang, coordinateur du programme international
117. M. NHEM Sophal, chef du bureau des achats
118. M. SIEANG Phen, chef du bureau des relations internationales

# **1. Summary of activities**

## **– Current state**

In 2024, a number of remarkable events have been organized in close cooperation with national and international stakeholders.

Moreover, different meetings of ITC councils have been taken place online as follows:

- International Consortium Meeting at ITC, 27-28 March 2024 (Annex 1).
- 32<sup>nd</sup> Board of Trustees Meeting, 27 June 2024 (Annex 2).
- Study Council and University Life meeting, 11 December 2024 (Annex 4).

An overview of the consortium opinions and CA recommendation in 2024 is presented in Annex 3.

## **1.1. Remarkable events at ITC in 2024-2025**

### **1.1.1. Launching the Cambodian Cyber University Network (CCUN)**

Launch of the Cambodia Cyber University Network (CCUN): A New Era for Digital Education in Cambodia

On June 25, 2024, the Cambodia Cyber University Network (CCUN) officially launched, the result of the significant efforts of the Royal Government of Cambodia and the Ministry of Education, Youth and Sports.

A network of 12 higher education institutions. The CCUN brings together 12 leading academic institutions, united by a common mission: to revolutionize distance learning through digital technologies and ICT:

1. Institute of Technology of Cambodia
2. Royal University of Phnom Penh
3. Svay Rieng University
4. Heng Samrin University, Tboung Khmum
5. Royal University of Agriculture
6. National University of Battambang
7. Battambang Institute of Education
8. Angkor University
9. International University of Phnom Penh
10. National University of Management
11. Chea Sim Kamchay Mer National University
12. University of Kratie

By the end of 2024, members of CCUN increased to 18 universities.



### 1.1.2. The 13<sup>th</sup> Scientific Day

The 13th Scientific Day is a key annual event organized by ITC, dedicated to promoting advancements in Science, Technology, and Engineering. This event serves as a dynamic platform for academicians, researchers, industry professionals, entrepreneurs, and policymakers from Cambodia and abroad to share knowledge, research findings, and technological innovations aligned with industry-driven economic development. It plays a pivotal role in disseminating successful technological developments in Cambodia and fostering stronger research collaborations between ITC and its diverse network of national and international partners.

Held on 6-7 June 2024 at the Institute of Technology of Cambodia (ITC) in Phnom Penh, the event coincided with two significant symposia: the International Symposium on Urban Water Supply and Sanitation Engineering, and the 1st Symposium of Food Technology Research and Innovation. Under the theme, “Catalyzing Innovation: Human Capital, Research, and Industry Linkages,” this year’s conference aimed to facilitate deeper dialogue and strategic collaborations among stakeholders. The opening address was delivered by H.E. Hang Chuon Naron, Deputy Prime Minister and Minister of Education, Youth and Sports.



### 1.1.3. The 60<sup>th</sup> Anniversary Celebration of ITC

The 60th anniversary of the establishment of the Institute of Technology of Cambodia (ITC) was celebrated on September 27, 2024, under the chairmanship of His Excellency Dr. Hang Chuon Naron, Deputy Prime Minister and Minister of National Education, Youth, and Sports.



Several distinguished figures were present on this occasion, including His Excellency Jacques Pellet, Ambassador of the French Republic to Cambodia, His Excellency Anatoly Borovik, Ambassador of the Russian Federation to Cambodia, and Mr. Nagase Kensuke, representative of

the Embassy of Japan. Numerous representatives of international organizations such as AUF, JICA, IRD, CIRAD, AfDB, and the World Bank, as well as ITC faculty, staff, and students, also took part in this event, bringing together a total of over 1,000 participants.



His Excellency Prof. Dr. PO Kimtho, Director of ITC, emphasized that the institute currently has 478 managers, civil servants, professors, and staff, including 148 women. He also highlighted the significant increase in the number of doctoral professors, from 48 in 2014 to 107 in 2024. This increase aims to strengthen teaching and, above all, research in order to address Cambodia's current challenges and maintain the Institute's competitiveness. He also emphasized the central role of research and the importance of knowledge transfer to society.

His Excellency Dr. Hang Chuon Naron emphasized that, for nearly a year, the new Prime Minister of Cambodia has continued to lead the nation by ensuring peace, prosperity, and the smooth running of public and private institutions, while benefiting from the support of friendly countries and international organizations. He took this opportunity to express his gratitude to the embassies of France, Belgium, and Japan, as well as to development partners such as JICA, AUF, the World Bank, the Asian Development Bank (ADB), IRD, and other organizations. Their continued commitment contributes to promoting the education sector and improving the quality of training and research in higher education, particularly through strengthening human resources and developing ITC infrastructure.

#### **1.1.4. The 3rd International Conference on Earth Resources and Geo-Environment Technology 2024 (EraGET2024)**

The International Conference on Earth and Geo-Environment Technology (EraGET) is an annual event initiated by the Faculty of Geo-resources and Geotechnical Engineering at ITC since 2022. EraGET aims to enhance educational opportunities, strengthen research capabilities among young geoscientists, promote the sharing of recent research trends, and expand collaborative networks involving researchers, industries, communities, and international institutions.

The 3rd EraGET took place on 12-13 December 2024, attracting approximately 500 participants, including professors, researchers, students, engineers, ministry officials, and industry representatives from Cambodia, Japan, China, India, Thailand, Malaysia, Indonesia, the Philippines, France, and Bangladesh. The conference accepted 72 research papers for presentation, highlighting significant advancements in geoscience and engineering under the theme “Innovation in Geoscience and Engineering: Cultivating Human Capital for Sustainable Growth.” This edition was jointly organized with the IGCP-700 project of Mahasarakham University, Thailand.

Additionally, a post-conference field trip was organized on 14-15 December 2024, taking approximately 100 participants to explore a candidate geopark area in Siem Reap province. This field excursion provided participants with hands-on experience and deeper insights into geoscience practices and geo-environmental management.



### 1.1.5. Life Mechatronics Symposium

The International Symposium on Life Mechatronics 2024 (LMS2024) was held from December 26 to 28, 2024, at ITC (<https://lifemechatronics.com/lms2024/index.html>). The symposium aimed to promote international and cultural exchange, fostering friendship, research collaboration, and educational development among participants through research presentations.

The theme of LMS2024 was "Smart Agriculture and STEAM Education," with STEAM representing Science, Technology, Engineering, Art, and Mathematics. The symposium covered a broad range of topics, including smart agriculture, STEM education, media art, entertainment, sensing, optics and imaging, digital transformation, knowledge platforms, digital twin, computational modeling, simulation, AI, data science, pattern recognition, social design, environment design, recycling, food security, protein crisis, nutrition science, telecommunication, networking, and visualization.

The symposium attracted a diverse group of participants, including researchers, educators, and industry professionals from various countries. The agenda featured a total of 13 oral presentations and 7 poster presentations, covering a wide array of topics within the symposium's scope.

LMS2024 was organized by the Committee of Life Mechatronics Symposium (LMS) and the Cooperative Research Committee on Life Mechatronics for Smart Agriculture, Perceptual Information on C-branch (CPI) in the Institute of Electrical Engineers of Japan (IEEJ). The event was co-organized by ITC and supported by the JICA project.

Overall, LMS2024 successfully facilitated the exchange of knowledge and ideas among professionals in the fields of smart agriculture and STEAM education, contributing to the advancement of life mechatronics technologies and their applications.



### 1.1.6. Construction of the Center of Research and Technology Transfer at another ITC campus

The Institute of Technology of Cambodia (ITC) has launched a new construction project to erect its third building on campus, located near the "Win-Win" monument.

On December 30, 2024, His Excellency Professor Dr. Po Kimtho presided over a religious ceremony, called "Krong Peali," marking the official opening of the construction site for this new building. This building will be entirely dedicated to research and technology transfer at ITC.

This initiative represents a major milestone in ITC's development, strengthening its research capabilities and aligning with the Royal Government of Cambodia's ten-year strategy. Construction is scheduled for completion by early March 2026.



### 1.1.7. Another Campus of ITC in Kep Province

On September 5, 2024, an ITC working team, led by His Excellency Prof. Dr. PO Kimtho, met and paid a courtesy visit to His Excellency SOM Piseth, Governor of the Board of Governors, and the provincial leaders of Kep. During this meeting, His Excellency the Director informed the participants of the support and trust extended by the Ministry of Education, Youth and Sports, which enabled ITC to open a new campus under the name "Institute of Technology of Cambodia, Mondul Techo Hun Sen Chamkar Doung." This campus benefits from existing infrastructure, including academic and administrative buildings, dormitories, and sports facilities, and is located in Kep province.



His Excellency the Director also provided an update on preparations for the launch of the academic program for the 2024-2025 academic year on this new campus. Initially, the ITC will focus on ensuring the quality of engineering education and training leading to a University Diploma of Technology (DUT) in several specialties, including electricity, construction, food chemistry, and electronics.

For his part, His Excellency the Governor of the province welcomed this initiative and expressed his joy at seeing the ITC, a higher education institution renowned for its training expertise, establish itself in Kep. He emphasized that this presence will be a major asset for the educational and economic development of the province.

For the academic year 2024-2025, 22 students (12 females) enrolled in the foundation year (TC) of the engineering degree programs, while 13 students (2 females) enrolled for the Electrical and Mechatronics technician program (GEE).



Beyond degree programs, the new campus has hosted additional activities. With support from AUF, training sessions on entrepreneurship and the use of ICT tools were provided to students. Furthermore, the IRD visited the campus to assess the feasibility of installing a new laboratory.



### 1.1.8. An Award for ITC Robot Team

On July 19, 2024, His Excellency Prof. Dr. PO Kimtho, Director of ITC, convened a meeting with the professors who supervised the robot preparation work of Teams 1 and 2. These teams participated in the competition on July 14, 2024, at the Elephant Hall, Morodok Techo Stadium, under the chairmanship of three ministers: His Excellency Heng Sour, Minister of Labor and Vocational Training; His Excellency HEM Vandy, Minister of Industry, Science, Technology and Innovation; and His Excellency Net Pheaktra, Minister of Information.

It is worth noting that ITC Robot Team 02 won first prize and will represent Cambodia at the regional competition in Vietnam in early August 2024. ITC Robot Team 01 received the Engineering Honor Award. As a token of encouragement, His Excellency the Director stated: "This success is not due to chance, but is the result of the hard work of teachers, administrators, and all students. Therefore, I would like to join you in congratulating and appreciating this victory."

He also emphasized that the collaboration between students in Electrical Engineering (GEE), Mechanical Engineering (GIM), and Computer Engineering (GIC) was a key element of this success.

Finally, he concluded by sending a message of support to the participants: "Good luck in the competition in Vietnam!"



### 1.1.9. MOU Signing Ceremony with University of Central Missouri, USA



The Institute of Technology of Cambodia (ITC), represented by its Director H.E. Prof. Dr. P.O. Kimtho, and the University of Central Missouri (UCM), represented by its President, officially signed a Memorandum of Understanding (MoU) on March 11, 2025, at ITC's main campus in Phnom Penh. This ceremony marks the beginning of a partnership focused on

developing academic exchanges, articulation programs, joint research, and other collaborative initiatives.

This new cooperation aims to address:

- 1) Bachelor's and Master's Programs: ITC and UCM agree to explore and implement an articulation/double degree program in the form of a 2+2 program combining the fields of computer science, AI and cybersecurity, software engineering, and big data engineering.
- 2) Academic Exchange Programs: ITC and UCM will collaborate to offer short- and long-term student and faculty exchange opportunities, thus promoting greater international exposure and intercultural learning.
- 3) Collaborative Research and Discovery, Learning, and Teaching: The two institutions will collaborate on innovative research initiatives aimed at addressing industrial needs and global challenges.
- 4) Professional Development Initiatives: The institutions will jointly develop training programs and workshops aimed at enhancing professional skills in various sectors.

### 1.1.10. MOU Signing Ceremony with Macquarie University, Australia

The Institute of Technology of Cambodia (ITC) and Macquarie University in Sydney, Australia, formalized their partnership by signing a Memorandum of Understanding (MOU) during the Australia-Cambodia Education Forum, which was held on March 14, 2025, at the Sofitel Phnom Penh Phokeethra.



The MOU was signed by senior representatives of both institutions: H.E. Prof. Dr. P.O. Kimtho, Director of ITC, and Dr. Matthew Monkhouse, Director for Southeast Asia and Eurasia at Macquarie University. H.E. Dr. Hang Chuon Naron, Deputy Prime Minister and Minister of Education, Youth and Sports, and H.E. Derek Yip, Australian Ambassador to Cambodia, attended the signing.

Both parties are committed to strengthening academic collaboration, establishing an articulation program (2+2), promoting student exchanges and stimulating innovation through joint research initiatives between the two institutions.

#### 1.1.11. Inauguration of Air Conditioner Training Center and MOU Signing Ceremony with Panasonic Company



On March 18, 2025, Panasonic and the Institute of Technology of Cambodia (ITC) signed a memorandum of understanding (MoU) and inaugurated the Panasonic Training Center, aimed at developing technological infrastructure and technical skills for young Cambodians. This equipment is crucial for students' hands-on and practical experience.

The ceremony was attended by Cambodian Deputy Prime Minister Dr. Hang Chuon Naron, who praised the initiative for its impact on the country's industrial and economic growth. Japanese Ambassador Atsushi Ueno also expressed his support, highlighting the key role of ITC graduates in strengthening economic relations between Japan and Cambodia.

Panasonic representative Hisakazu Maeda emphasized the importance of equipping students with practical skills adapted to technological advances. For his part, ITC Director Prof. Dr. PO Kimtho highlighted the sustainable partnership between industry and higher education, which is beneficial to the future of students and Cambodia's industrial development.



#### 1.1.12. Honda Y-E-S Award Program 2024

The HONDA Y-E-S AWARD PROGRAM is implementing in Vietnam, Burma, India, Bangladesh, Laos and Cambodia.





As one of the important ASEAN countries, Cambodia is expected to experience dramatic growth in the near future. Higher education institutions are still in the process of growing and training future leaders, especially in the field of science and technology. Human exchanges and trade with Japan keep growing day by day, and expectations for expansion in these areas were high. This is why this program for Cambodia

began in 2008. As for the establishments concerned, they are the Institute of Technology of Cambodia (ITC), the Royal University of Phnom Penh (RUPP) and the Royal University of Agriculture (RUA).

This year, there are 4 Cambodian laureates, including one from ITC, two from RUA and another one from RUPP. The following table highlights this data.

| Year | Name   | Total Number     | ITC |
|------|--|------------------|-----|
| 2024 | Mr. LUN Sokharaboth (GCI)  | 4 (ITC/RUPP/RUA) | 1   |
| 2023 | Mr. LEY Satya (GCI)<br>Mr. LENG Mengthong (GIM)                          | 4 (ITC/RUPP/RUA) | 2   |
| 2022 | Ms. DET Mouykeang (GCA)<br>Mr. VIRAK Alexander (GIM)                     | 4 (ITC/RUPP)     | 2   |
| 2021 | Ms. CHHUOR Sochan Vimul (GCA)  | 4 (ITC/RUPP)     | 1   |
| 2020 | Mr. KEO Seiha (GCI)<br>Ms. LAY Cheavita (GCA)                            | 4 (ITC/RUPP)     | 2   |
| 2019 | Mr. KONG Rathaseyhak (GCA)<br>Mr. CHHENG Ilay (GCI)                      | 4 (ITC/RUPP)     | 2   |
| 2018 | Mr. SONG Vergenylundy (GEE)  | 4 (ITC/RUA/RUPP) | 1   |
| 2017 | Ms. NY Vourchnea (GCA)   | 4 (ITC/RUA/RUPP) | 1   |
| 2016 | Mr. KOUCH Keang Ang (GCI)<br>Mr. THAI Sereyvuth (GCA)                    | 4                | 2   |
| 2015 | Ms. EA Somuynea (GAR)<br>Ms. CHHIM Panchapor (GCA)                       | 4                | 2   |
| 2014 | Mr. KOUCH Henghok (GCI)<br>Mr. PHON Bunheng (GAR)                        | 4                | 2   |
| 2013 | Mr. SRENG Mengkoing (GIM)<br>Ms. SROY Sengly (GCA)                       | 4                | 2   |
| 2012 | Mr. RITH Monorom (GIM)<br>Mr. KHY Kimleng (GCI)                          | 4                | 2   |
| 2011 | Ms. EK Pichmony (GCA)<br>Mr. SAY Vortana (GIC)<br>Mr. CHHOR Marady (GCI) | 4                | 3   |
| 2010 | Mr. CHEA Ratha (GRU)<br>Ms. Rath Sovannsathya (GCI)                      | 4                | 2   |
| 2009 | Mr. Ngor Pengsieang (GIM)<br>Mr. En Sovann (GIC)                         | 4                | 2   |
| 2008 | Ms. Kim Keosopanha (GCA)<br>Ms. Khuysien Soveary (GCI)                   | 4                | 2   |

### 1.1.13. Admission to Ecole Polytechnique

Since 2007-2008, Cambodian students of the ITC have been present among other foreign students in a highly reputed school in France and around the world, the École Polytechnique. It is indisputable that our students have the basic knowledge solid enough to be recruited by the very difficult competition of this school. The list below illustrates the names of students who are studying or have studied at our polytechnic in other major schools and their careers.

For this year, 11 students took part in this competition organized at Institut Français du Cambodge, of which 6 students succeeded. It should be noted that there are two students for the École Polytechnique.

The table below illustrates this data.

| Academic Year | Full Name            | Sex | Degree    | Workplace                                   | Responsibility          |
|---------------|----------------------|-----|-----------|---|-------------------------|
| 2024-2025     | CHHOY Zurich         | M   | Étudiant  |   |                         |
|               | UTH Rathana          | M   | Étudiant  |   |                         |
| 2023-2024     | CHOUV You Y          | F   | Étudiant  |   |                         |
|               | SEN Sovatheakna      | M   | Étudiant  |   |                         |
|               | KHUN Sivluy          | F   | Étudiant  |   |                         |
| 2022-2023     | SENG Hok             | M   | Étudiant  |   |                         |
| 2021-2022     | MOK Yong             | M   | Étudiant  |   |                         |
| 2020-2021     | Covid-19 Pandemic    |     |           |   |                         |
| 2019-2020     | NORNG Vannvatthana   | M   | Étudiant  |   |                         |
|               | CHHOUT Laychiva      | M   | Étudiant  |   |                         |
| 2018-2019     | VENG Namchhoen       | M   | Étudiant  |   |                         |
| 2016-2017     | CHAO Kimhong         | M   | Ingénieur | Institut Polytechnique                      | Etudiant en Master      |
|               | SAMBATH Vibolroth    | F   | Ingénieur | Institut Polytechnique                      | Etudiant en Master      |
|               | THY Vathana          | M   | Ingénieur | Institut Polytechnique                      | Etudiant en Master      |
| 2015-2016     | EANG Chanpaya        | M   | Abandon   |   | Ingénieur               |
|               | NOU Sithea           | M   | Master    | Suisse                                      | Ingénieur               |
| 2014-2015     | HEANG Kitiyavirayuth | M   | Master    | Ecole des Ponts ParisTech (Paris)           | Etudiant Architecte     |
|               | KHUN Kimang          | M   | Master    | INRIA (Grenoble)                            | Ingénieur Doctorant     |
|               | THAN Poseng          | M   | Master    | Paris Partner (Paris)                       | Ingénieur Informaticien |
| 2013-2014     | IEA Bunthan          | M   | Master    | Ministère du Développement Durable (France) | Ingénieur Corps d'Etat  |
|               | DIN Ratanak          | M   | Master    | Vinci Construction (Paris)                  | Ingénieur d'Etudes      |
| 2012-2013     | KHOUN Ladyya         | M   | PhD       | Naval Group                                 | Ingénieur-Chercheur     |
|               | SENG Sodarith        | M   | Master    | Vinci Construction (Phnom Penh)             | Ingénieur d'Etudes      |
| 2011-2012     | UCH Bunnarith        | M   | Master    | Suez (Rennes et Phnom Penh)                 | Ingénieur de Projet     |

|           |               |   |           |                                |                             |
|-----------|---------------|---|-----------|--------------------------------|-----------------------------|
| 2010-2011 | IM Seyha      | M | Master    | Corsicasole (Paris)            | Ingénieur, Chef de projet   |
|           | HUY Seav Er   | M | Master    | AFD (Phnom Penh)               | Ingénieur, Chef de projet   |
|           | SE Dara       | M | Master    | Suez (Rennes et Phnom Penh)    | Ingénieur, Chef de projet   |
| 2009-2010 | SVAY Angkeara | M | PhD       | LBL International (Phnom Penh) | Directeur Technique (CTO)   |
|           | CHEY Sopheak  | M | Ingénieur | TC (Cambodge)                  | Enseignant à temps partiels |
| 2008-2009 | MUY Sokseiha  | M | PhD       | EPFL (Suisse)                  | Post-Doctorat               |
| 2007-2008 | MANG Chetra   | M | PhD       | IRT SystèmeX (Paris)           | Ingénieur R&D Senior        |

## **2. Recruitment, Evolution of Number of Students and Others Activities**

## 2.1. Recruitment in 2024-2025

Students of engineering program (both national and international programs) have been recruited through an entrance writing examination (on site) on mathematics, physic/chemistry and logic. Recruitment of technician program is based on documentation from high school.

### 2.1.1. Preparation of Entrance Exam

Some information campaigns to high school students had been done on site. ITC also receives many visits of high school students at the campus. Online campaign and social network had also been implemented.

Lecturers of ITC were requested to propose writing tests based on curriculum in high school. The Direction Board of ITC was responsible for the final selection of the best tests with confidentiality.

The date, the tests and all regulations of the exam in the 3 campuses (Phnom Penh, Tbong Khmum and Kep Provinces) are the same.

### 2.1.2. Registration to the exam

Registration to the entrance exam of Engineering Program took place from 28 October 2024 to 24 November 2024. Total number of candidates is 3756 in which 1310 females. Table below shows the number of candidates in all campuses.

|           | Phnom Penh |      | Intl. Programs |    | Tbong Khmum |    | Kep     |    | Grand Total |      |
|-----------|------------|------|----------------|----|-------------|----|---------|----|-------------|------|
|           | Total 1    | F    | Total 2        | F  | Total 3     | F  | Total 4 | F  | Total       | F    |
| Candidate | 3589       | 1250 | 94             | 25 | 41          | 22 | 32      | 13 | 3756        | 1310 |

The entrance examination was held at ITC-Phnom Penh, ITC-Tbong Khmum and ITC-Kep on 27 November 2024 under supervision of ITC's Direction Board. No fraud had been reported and the tests were conducted in a satisfactory and transparent manner.

Figure 1 shows that number of candidates is slightly lower than last year.

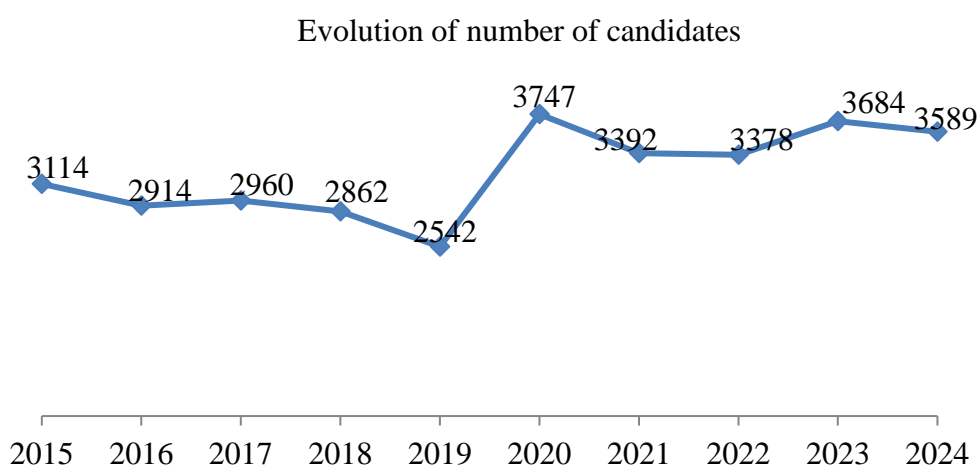


Figure 1. Number of Candidates registered in the entrance exam at ITC-Phnom Penh.



### 2.1.3. Result of the Entrance Exam

Result of the Entrance Exam was announced on 29 November 2024. There are 1502 successful candidates (487 Females) and 405 candidates in reserved list (140 Females).

Figure 2 shows that number of successful candidates remained around 800 from 2015 to 2016. Due to new building and equipment, number of successful candidates were increased every year from 1002 in 2017 to 1700 during Covid-19 period from 2020 to 2022 but slightly decreased to around 1500 in 2023 and 2024.

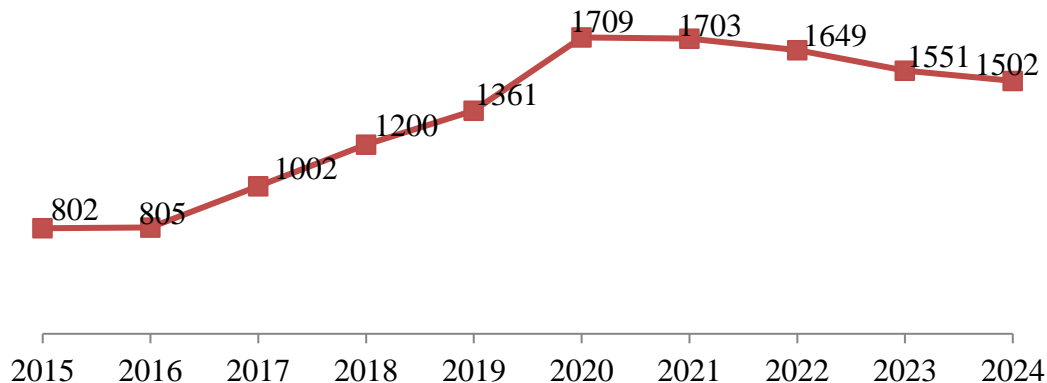


Figure 2. Evolution of number of successful candidates the last 10 years.

### 2.1.4. Enrollment in 1st Year

The academic year 2024-2025 of 1<sup>st</sup> Year students was commenced on 16 December 2024 which is about 2 months late comparing to others students who started their classes since 7 October 2024.

#### a) Engineering Program (ITC-Phnom Penh)

In total, 1408 students (458 females) have enrolled to 1<sup>st</sup> year of Engineering Program in the academic year 2024-2025.

#### b) International Engineering Program (ITC-Phnom Penh)

The International Engineering Program at ITC has launched from the academic year 2023-2024. Table 1 below presents number of high school graduates registered in the entrance examination, number of successful candidates and the one enrolled in the first year of international engineering programs.

Table 1. Number of students enrolled to 1st Year of International Program.

|                       | Total  | Female |
|-----------------------|--|--------|
| Candidate             | 94   | 25     |
| Successful candidates | 60   | 17     |
| Reserved list         | 7  | 1      |
| Enrolled to I1        | 68 (26 students transferred from National Program) | 14     |

**c) Associate Degree Program (ITC-Phnom Penh)**

For Associate Degree Program, 610 students (237 females) have enrolled in the first year in 2024-2025.

**d) Engineering Program (ITC-Tbong Khmum)**

Table 2 below presents number of high school graduates registered in the entrance examination, number of successful candidates and the one enrolled in the first year of engineering program at the second campus in Tbong Khmum Province. It is noted that all students enrolled in Tbong Khmum Campus are scholarship holders.

Table 2. Number of students enrolled to 1st Year at ITC-Tbong Khmum.

|                              | <b>Total</b> | <b>Female</b> |
|------------------------------|--------------|---------------|
| <b>Candidate</b>             | <b>41</b>    | 22            |
| <b>Successful candidates</b> | <b>30</b>    | 16            |
| <b>Enrolled to I1</b>        | <b>28</b>    | 15            |

**e) Engineering Program (ITC-Kep)**

Following the recommendation of the Minister of Education, Youth and Sport, ITC sets up another campus in Kep Province which is located in the southwest of Cambodia and which about 160 kilometers from Phnom Penh. Table 3 below presents number of high school graduates registered in the entrance examination, number of successful candidates and the one enrolled in the first year of engineering program at ITC Kep Campus for the academic year 2024-2025. It is noted that all students enrolled in Kep Campus are scholarship holders.

Table 3. Number of students enrolled to 1st Year at ITC-Kep.

|                              | <b>Total</b> | <b>Female</b> |
|------------------------------|--------------|---------------|
| <b>Candidate</b>             | <b>32</b>    | 13            |
| <b>Successful candidates</b> | <b>21</b>    | 12            |
| <b>Enrolled to I1</b>        | <b>22</b>    | 12            |

**f) Associate Degree Program (ITC-Kep)**

For Associate Degree Program, 13 students (2 females) have enrolled in the first year.

**2.1.5. Remark and Conclusion**

Due to its previous achievements, ITC gets trust from the Minister to expand its capacity to another campus in Kep Province. Maintaining the entrance examination is very important in order to keep a positive impression and a very strong brand in mind and appreciation of teachers, students, public and society. It is noted that expense of this examination was fully covered by the Ministry of Education, Youth and Sports, and ITC.

The direction board of ITC should continue to strengthen recruitment strategy of 1<sup>st</sup> year student of both engineering and technician program by sending staffs to high school in some provinces for advertising and distributing brochures to show the importance and benefit of studying of STEM (Science, Technology, Engineering and Mathematics), especially studying at ITC. The promotion activities can be also implemented online.

## 2.2. Pathway to 3rd Year Engineering Program

### 2.2.1. Pass from T2 to 3rd Year Engineering

The pathway is for Associate Degree graduates or equivalent degree. This year 2024-2025, 43 candidates applied for this pathway. Candidates have to pass the following criteria:

- Pre-select and Interview by relevant department,
- Join intensive class on mathematics and physic.

Table 4 below indicates number of candidates and successful candidates to 3<sup>rd</sup> Year distributed by department over the last five years.

Table 4. Number of technician graduates accepted to 3<sup>rd</sup> Year Engineering Program.

| Dept.        | Number of candidates and successful candidates to Year 3 (I3) |                      |           |               |           |               |           |               |           |               |
|--------------|---|----------------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|
|              | 2020-2021   |                      | 2021-2022 |               | 2022-2023 |               | 2023-2024 |               | 2024-2025 |               |
|              | Candidate   | Successful Candidate | Candi.    | Succe. Candi. | Candi.    | Succe. Candi. | Candi.    | Succe. Candi. | Candi.    | Succe. Candi. |
| GCA          | 27  | 10                   | 27        | 15            | 13        | 9             | 13        | 13            | 11        | 11            |
| GCI          | 16  | 9                    | 12        | 10            | 6         | 2             | 12        | 11            | 13        | 11            |
| GAR          | -   | -                    | -         | 2             | -         | -             | -         | 1             |           | 2             |
| GEE          | 4   | 1                    | 6         | 3             | 2         | 2             | 2         | 2             | 14        | 14            |
| GTR          |   | 1                    | -         | 3             | -         | -             | -         | -             | 4         | 4             |
| GIM          | 7   | 5                    | 2         | 2             | 3         | 2             | 1         | 1             | 0         | 0             |
| GRU          | -   | -                    | -         | -             | -         | -             | -         | -             | 1         | 1             |
| GIC          | 1   | 1                    | -         | -             | -         | -             | -         | -             | -         | -             |
| <b>Total</b> | <b>55</b>   | <b>27</b>            | <b>47</b> | <b>35</b>     | <b>24</b> | <b>15</b>     | <b>28</b> | <b>28</b>     | <b>43</b> | <b>43</b>     |

### 2.2.2. Entry into 3<sup>rd</sup> Year Engineering Program

Third year Engineering students may come from:

- Engineering students who finished successfully 2<sup>nd</sup> year of foundation year,
- DUT and technician graduates if they pass writing test and interview,

Table 5 shows actual number of 3<sup>rd</sup> year Engineering students.

Table 5. Actual number of 3<sup>rd</sup> year engineering students.

| Department   | I2 to I3    | T2 to I3  | Repeating students | Total       |
|--------------|-------------|-----------|--------------------|-------------|
| GCA          | 172         | 11        | 6                  | <b>189</b>  |
| GCI          | 199         | 11        | 6                  | <b>216</b>  |
| GAR          | 83          | 2         | 7                  | <b>92</b>   |
| GEE          | 140         | 14        | 16                 | <b>170</b>  |
| GGG          | 71          |           | 4                  | <b>75</b>   |
| GIC          | 86          |           | 3                  | <b>89</b>   |
| GIM          | 104         |           | 3                  | <b>107</b>  |
| GRU          | 75          | 1         | 7                  | <b>83</b>   |
| GTR          | 69          | 4         | 0                  | <b>73</b>   |
| GTI          | 64          |           | 3                  | <b>67</b>   |
| AMS          | 85          |           | 4                  | <b>89</b>   |
| <b>Total</b> | <b>1148</b> | <b>43</b> | <b>59</b>          | <b>1250</b> |

## 2.3. Total number of students in 2024-2025

### 2.3.1. Total number of students in February 2025

As of February 2025, there are 7332 students (2585 females, 35.3%) in both Engineering and Technician programs (ITC-Phnom Penh) in academic year 2024-2025 shown in Table 6 below.

Table 6. Total number of students in 2024-2025 at ITC-Phnom Penh.

| Dept.        | T-1        | T-2        | Total 1     | I-1         | I-2         | I-3         | I-4         | I-5         | Total 2     | Total 1+2   |
|--------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>DTC</b>   |            |            |             | 1408        | 1109        |             |             |             | <b>2517</b> | <b>2517</b> |
| <b>GCA</b>   | 190        | 157        | <b>347</b>  |             |             | 189         | 178         | 208         | <b>575</b>  | <b>922</b>  |
| <b>GCI</b>   | 134        | 122        | <b>256</b>  |             |             | 216         | 238         | 203         | <b>657</b>  | <b>913</b>  |
| <b>GAR</b>   | -          | -          | -           |             |             | 92          | 81          | 83          | <b>256</b>  | <b>256</b>  |
| <b>GEE</b>   | 169        | 165        | <b>334</b>  |             |             | 170         | 159         | 134         | <b>463</b>  | <b>797</b>  |
| <b>GGG</b>   | -          | -          | -           |             |             | 75          | 83          | 75          | <b>233</b>  | <b>233</b>  |
| <b>GIC</b>   | -          | -          | -           |             |             | 89          | 98          | 65          | <b>252</b>  | <b>252</b>  |
| <b>GIM</b>   | 68         | 45         | <b>113</b>  |             |             | 107         | 147         | 147         | <b>401</b>  | <b>514</b>  |
| <b>GRU</b>   | 17         | 10         | <b>27</b>   |             |             | 83          | 87          | 99          | <b>269</b>  | <b>296</b>  |
| <b>GTR</b>   | 32         | 14         | <b>46</b>   |             |             | 73          | 26          | 48          | <b>147</b>  | <b>193</b>  |
| <b>GTI</b>   | -          | -          | -           |             |             | 67          | 42          | 71          | <b>180</b>  | <b>180</b>  |
| <b>AMS</b>   | -          | -          | -           |             |             | 89          | 94          | 76          | <b>259</b>  | <b>259</b>  |
| <b>Total</b> | <b>610</b> | <b>513</b> | <b>1123</b> | <b>1408</b> | <b>1109</b> | <b>1250</b> | <b>1233</b> | <b>1209</b> | <b>6209</b> | <b>7332</b> |

Table 7 presents total number of students in 2024-2025 at ITC-Tbong Khmum Campus.

Table 7. Total number of students in 2024-2025 at ITC-Tbong Khmum.

| Dept.        | I1        |           | I2        |           | I3        |          | I4        |           | I5        |           | Total      | F         |
|--------------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|------------|-----------|
|              | Total     | F         | Total     | F         | Total     | F        | Total     | F         | Total     | F         |            |           |
| <b>DTC</b>   | 28        | 15        | 27        | 13        |           |          |           |           |           |           | <b>55</b>  | <b>28</b> |
| <b>GCA</b>   |           |           |           |           |           |          | 10        | 10        | 11        | 7         | <b>21</b>  | <b>17</b> |
| <b>GCI</b>   |           |           |           |           | 14        | 5        | 11        | 0         | 16        | 5         | <b>41</b>  | <b>10</b> |
| <b>Total</b> | <b>28</b> | <b>15</b> | <b>27</b> | <b>13</b> | <b>14</b> | <b>5</b> | <b>21</b> | <b>10</b> | <b>27</b> | <b>12</b> | <b>117</b> | <b>55</b> |

### 2.3.2. Reorientation

The reorientation represents number of students who quitted ITC due to some reasons such as:

- Recipient of scholarship to study abroad
- Changing of institution
- Dropping out since beginning of academic year
- Etc.

Table below summarizes number of reoriented students from 2<sup>nd</sup> to 5<sup>th</sup> Year. It is noted that 1<sup>st</sup> Year students do not finish their 1<sup>st</sup> semester yet. Therefore, number of reoriented students is not yet available at the time of reporting.

Table 8. Number of Reorientation of Engineering and Technician students.

|              | T-1 | T-2 | Total 1   | I-1 | I-2 | I-3 | I-4 | I-5 | Total 2    | Total      |
|--------------|-----|-----|-----------|-----|-----|-----|-----|-----|------------|------------|
| <b>Total</b> | 0   | 18  | <b>18</b> | 0   | 167 | 48  | 29  | 9   | <b>253</b> | <b>271</b> |

### 2.4. Final Exam (End of Semester)

This academic year 2024-2025, final exam during the 18<sup>th</sup> week of semester was organized onsite at ITC. The examination of some subjects has been made in advance because of special character (oral exam of language, projects...). The score is allocated according to the following scale:

- Attendance in class, TD and TP: 10%,
- Mid-term exam, project report, assignment, report of TP: 30-40%,
- Final exam: 50-60%.

It is noted that ITC management system has been developing under support of ARES-CCD project, Belgium. Score input is entered into this system by each lecturer.

## 2.5. Continuing Education

Continuing Education is designed for associate degree or equivalent degree holders who would like to continue their study in order to upgrade their degree to Bachelor Degree of Engineering.

This year, 230 new students (87 Females) have enrolled in this program. Among them, 68 students (61 Females) enrolled in GCA Department, 69 (10 Females) in GCI, 67 (10 Females) in GEE and 26 (6 Females) in GIM department.

Table 9 shows total number of students registered for the continuing education.

Table 9. Number of students enrolled in the Continuing Education Program.

| Start        | End  | GCA        |            | GCI        |           | GEE        |           | GIM       |           |            |            |
|--------------|------|------------|------------|------------|-----------|------------|-----------|-----------|-----------|------------|------------|
|              |      | Total      | F          | Total      | F         | Total      | F         | Total     | F         | Total      | F          |
| 2022         | 2025 | 46         | 35         | 37         | 5         | 48         | 10        | 12        | 6         | <b>143</b> | <b>56</b>  |
| 2023         | 2026 | 32         | 30         | 46         | 8         | 43         | 12        | 19        | 5         | <b>140</b> | <b>55</b>  |
| 2024         | 2027 | 57         | 53         | 80         | 14        | 54         | 16        | 20        | 4         | <b>211</b> | <b>87</b>  |
| 2025         | 2028 | 68         | 61         | 69         | 10        | 67         | 10        | 26        | 6         | <b>230</b> | <b>87</b>  |
| <b>Total</b> |      | <b>203</b> | <b>179</b> | <b>232</b> | <b>37</b> | <b>212</b> | <b>48</b> | <b>77</b> | <b>21</b> | <b>724</b> | <b>285</b> |

Figures 3, 4, 5 and 6 below show number of students enrolled and graduated in GCI, GEE GCA and GIM departments respectively.

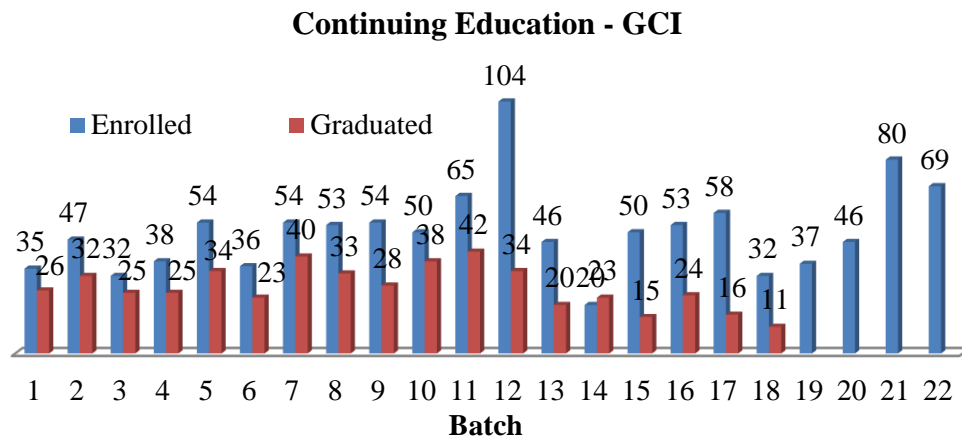


Figure 3. Number of students enrolled and graduated in continuing education (GCI).

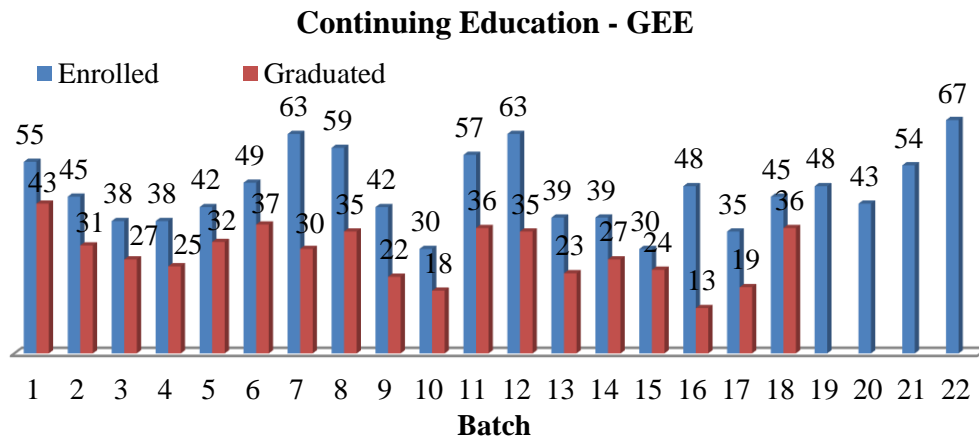


Figure 4. Number of students enrolled and graduated in continuing education (GEE).

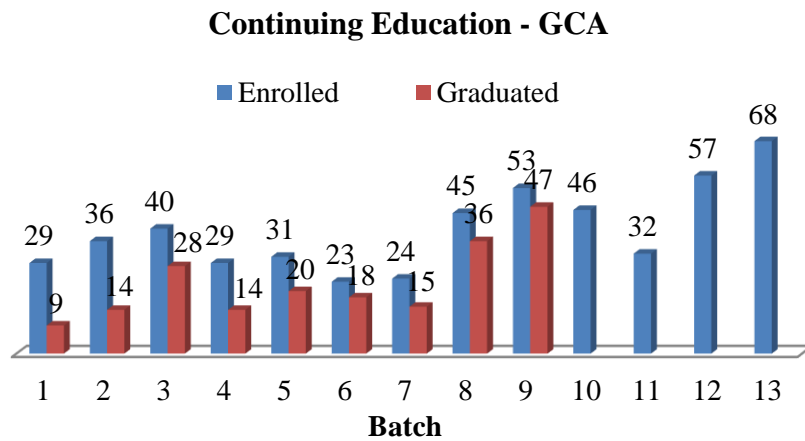


Figure 5. Number of students enrolled and graduated in continuing education (GCA).

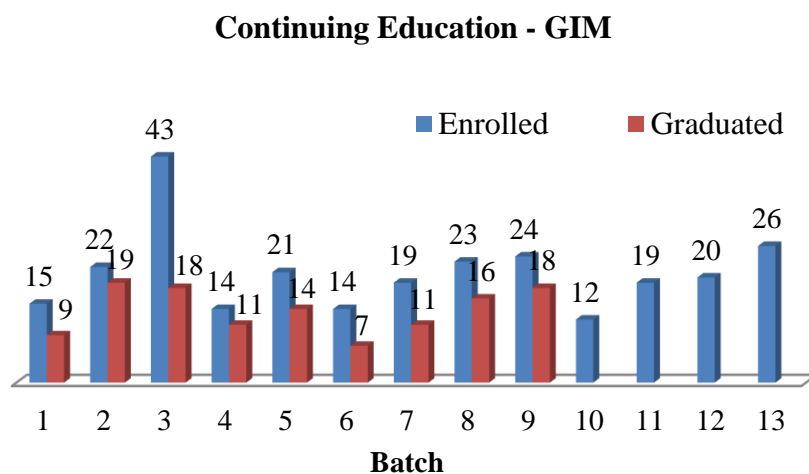


Figure 6. Number of students enrolled and graduated in continuing education (GIM).

## 2.6. Preparation of ITC students for exam of Grandes Ecoles in France

The cooperation between ITC and Ecole Polytechnique ParisTech was launched in 2007. It is mainly reflected by receiving at Department of Foundation Year long-term polytechnician trainees and organizing international exam of Ecole Polytechnique at ITC. A partnership agreement was signed between the two institutions.

An intensive session of preparation for Institut Polytechnique de Paris (IP Paris) was set up from 14 to 19 October 2024 for 11 eligible ITC students. This preparation has involved two French professors of preparatory classes of Grandes Ecoles (Olivier GRANIER and Philippe BARLIER).

The exam was conducted at Institut Francais du Cambodge from 4 to 9 November 2024 by an International Committee of Institut Polytechnique de Paris. Finally, six candidates have been accepted. Two of them will study at Ecole Polytechnique and Four at École nationale supérieure d'informatique pour l'industrie et l'entreprise (ENSIIE).

Since academic year 2007-2008, 68 ITC students integrated in one of the Grande Ecole in France:

- 30 at Ecole Polytechnique,
- 4 at Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI),
- 3 at Ecole Nationale Supérieure des Techniques Avancées (ENSTA),
- 22 at Ecole Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise (ENSIIE),
- 1 at Ecole Nationale Supérieure des Mines d'Albi,
- 2 at Ecole Nationale Supérieure des Mines d'Alès,
- 2 at Ecole Telecom Sud Paris, and
- 4 at Ecole Nationale de la Statistique et de l'Administration Economique (ENSAE).

These students get systematically scholarships, usually Eiffel Scholarship from Government of France.

Figure 7 below shows number of ITC students integrated in an engineering school since beginning of cooperation.

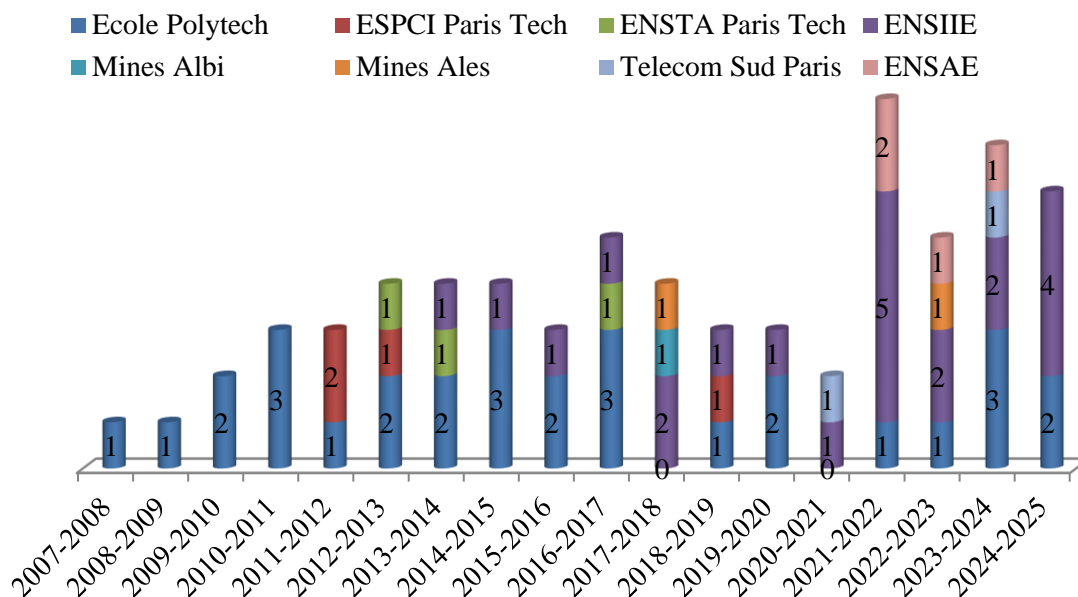


Figure 7. Number of ITC students integrated in an engineering school since 2007-2008.



## 2.7. Preparation for the exam of Japanese Government Scholarship

Table 10 shows the number of ITC students who pass successfully the exam of Japanese Government Scholarship. In 2024-2025, 8 students of ITC among 31 successful candidates won this Scholarship.

Table 10. Number of awardees of Japanese Government Scholarship 2024.

| Year    | Research |     | Undergraduate |     | College of Technology |     | Specialized Training College |     | Total (ITC) |
|---------|----------|-----|---------------|-----|-----------------------|-----|------------------------------|-----|-------------|
|         | Total    | ITC | Total         | ITC | Total                 | ITC | Total                        | ITC |             |
| 2010-11 | 9        | 0   | 0             | -   | 0                     | -   | 2                            | 2   | 11 (2)      |
| 2011-12 | 11       | 0   | 2             | 1   | 8                     | 8   | 7                            | 1   | 28 (10)     |
| 2012-13 | 11       | 0   | 0             | -   | 14                    | 13  | 12                           | 3   | 37 (16)     |
| 2013-14 | 11       | 0   | 1             | 0   | 16                    | 15  | 9                            | 3   | 37 (18)     |
| 2014-15 | 12       | 2   | 2             | 0   | 15                    | 12  | 13                           | 7   | 42 (21)     |
| 2015-16 | 12       | 2   | 1             | 1   | 6                     | 3   | 7                            | 3   | 26 (9)      |
| 2016-17 | 12       | 3   | 1             | 1   | 7                     | 4   | 10                           | 5   | 30 (13)     |
| 2017-18 | 12       | 1   | 2             | 1   | 5                     | 4   | 3                            | 3   | 22 (9)      |
| 2018-19 | 12       | 5   | 1             | 1   | 7                     | 3   | 5                            | 0   | 25 (9)      |
| 2019-20 | 10       | 5   | 0             | 0   | 11                    | 8   | 8                            | 4   | 29 (17)     |
| 2020-21 | -        | -   | 0             | 0   | 14                    | 7   | 8                            | 3   | 22 (10)     |
| 2021-22 | 12       | 1   | 1             | 1   | 14                    | 11  | 9                            | 5   | 36 (19)     |
| 2022-23 | 10       | 1   | 0             | 0   | 10                    | 5   | 6                            | 1   | 27 (7)      |
| 2023-24 | 11       | 1   | 1             | 0   | 12                    | 6   | 10                           | 4   | 34 (11)     |
| 2024-25 | 12       | 1   | 2             | 1   | 10                    | 1   | 11                           | 5   | 31 (8)      |

## 2.8. Activities Report of E-learning Center

### 2.8.1. Background

ASEAN Cyber University project was first proposed at the ASEAN – South Korea Summit in 2009. The project is expected to help establishing a foundation for sharing experiences, knowledge, and skills in higher education and long-distance education among ASEAN countries and South Korea. At the first stage, the project is designed to help the CLMV (Cambodia, Laos, Myanmar and Vietnam) countries acquire the technology and knowledge related to e-learning systems, to help students in remote areas access higher education.

In 2011, ITC was selected by the selection committee from Korea for setting up ASEAN Cyber University (ACU) and also mandated by the Ministry of Education, Youth and Sport (MoEYS) of Cambodia to implement the ACU Project. In the project, an e-learning center and multimedia studio had been installed in May 2012 with a content development room, an operation room and learning management system (LMS) servers to host the e-learning course contents. The e-learning center is

directly connected to the ACU hub center in Vietnam to share online courses among CLMV countries using TEIN (Trans-Eurasia Information Network) high speed network connection.

From January 2020, the ASEAN Cyber University project finished. There is no support from ACU for course development and course operation. ITC has moved all the courses (including the courses of our partners) to our own LMS for course operating in ITC.

The mission of this center are the follows:

- Capacity building of staff and students for e-learning
- Increase access to higher education using ICT as the tool for learning, teaching, and sharing information
- Promote Cambodia life-long learning
- Promote the collaboration on e-learning in CLMV countries
- Advocate best practice, strategy and policy for e-learning

### **2.8.2. Cambodian Cyber University Network (CCUN)**

In 2022, ITC supports the Directorate General of Higher Education of the Ministry of Education, Youth and Sport (DGHE/MoEYS) to prepare the concept note for the CCUN project. This project aims to improve higher education quality by using online and digital Teaching and Learning (T&L) materials. The project will connect the Higher Education Institutes (HEIs) in Cambodia through a common network infrastructure and LMS (Moodle). And through this common infrastructure and platform, Member Institutes (MIs) can share their digital content among each other's. The project will also promote the credit transfer among MIs and allow them to connect to global cyber universities network.

In the pilot phase of this project, in 2023, the CCUN involves six HEIs (ITC, RUPP, RUA, NUBB, SRU, UHST) as MIs. With the experience ITC gained from ACU project, ITC played a role as technical lead and support other five HEIs to development their e-learning activities.

On June 25<sup>th</sup>, 2024, CCUN was officially launched under the high presidency of Samdech Moha Borvor Thipadei Hun Manet, Prime Minister of the Kingdom of Cambodia, and His Excellency Dr. Hang Chuon Naron, Deputy Prime Minister and Minister of the Ministry of Education, Youth and Sport, with 12 member universities. By the end of 2024, CCUN has total 18 member universities joining the network.



From 2023, the activities of e-Learning Center of ITC are not only to promote the e-learning in ITC, but we put more focus to support all the CCUN's member to develop and implement their e-learning activities, while ITC handle also the CCUN's infrastructure and LMS.

In early 2024, to support the development of CCUN, the direction board of ITC decided to integrate ITC's LMS with CCUN. All the courses' materials (340+ courses from different programs (e-learning and non-learning) at ITC are moved to CCUN's platform.

### **2.8.3. Activities 2024**

Below paragraphs show a summary activities and result of CCUN implementation in 2024

- Increase capacity of CCUN infrastructure (at ITC) to support more or double users and learners. Four new additional servers (two for LMS, two for infrastructure) were added to the existing infrastructure.
- Organize 2 training on “e-Learning and Digital Content Development” with total 133 participants from 13 organizations.
- Organize 2 training on “Learning Management System (LMS) – Moodle Administration” with total 89 participants from 14 organizations.
- Organize 2 monitoring and support mission to 4 member universities on network campus design, monitoring and troubleshooting
- Organize 2 monitoring and support mission to 4 member universities on e-learning content development and operation. The main activities during the mission are 1) follow up progress and study about challenges, 2) support members to develop e-learning content, 3) provide support on LMS operation and studio operation as required.
- Convert 8 courses into e-learning materials
- Operate 5 courses developed in 2023: For academic year 2023-2024, there are total 680 enrollment (equal to 454 learners or individuals) to the 5 courses (in the program Computer Science, Engineering Degree).

Remark: one learner can take several online courses which count as enrollment. For example, if one learner takes two courses, then there are two enrollments (to two different courses) while there is one learner.

In 2024, ITC signed the MOU with Southern University of Science and Technology (People's Republic of China) and International Center for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) to work together to promote online learning and CCUN's activities in the future.

## 2.8.4. E-learning Content

Below table summary the content that the e-learning center developed by December 2024.

| E-learning content: 222 |  |  |
|-------------------------|--|--|
| 57                      | Courses at ITC<br><b>- 8 courses developed (4 new, 4 update) in 2024 under the CCUN</b> (total 13 courses) | Some content are shared to partners        |
| 11                      | Courses for UNESCO-BEEP  | Currently hosted and operated by DIT/MoEYS |
| 3                       | Courses for partners   | NUM, UHS, Ministry of Rural Development    |
| 77                      | Content for CIESF – IT Passport Examination Preparation Book   | Video production<br>Hosting with ITC       |
| 74                      | Math and Khmer contents grade 12 for MoEYS   | Video production during COVID-19 pandemic  |

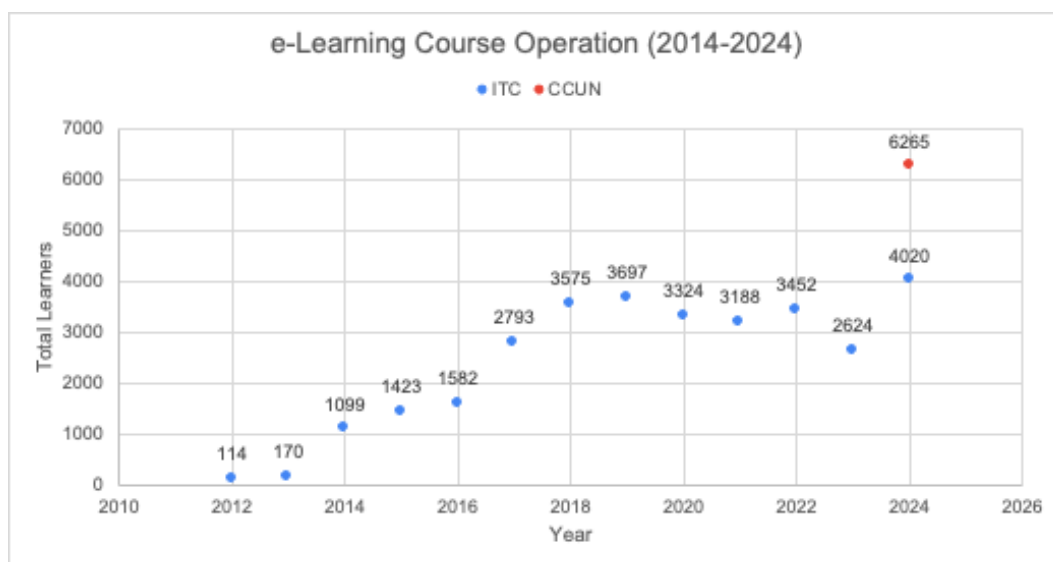
Besides the courses and content above, the e-learning center also host the content of our partner on <https://moodle.ccun.edu.kh>

| E-learning content |   |                                |
|--------------------|---|--------------------------------|
| 92                 | Courses of CCUN, from six member universities: ITC (13), RUPP (12), RUA (29), NUBB (8), SRU (15), UHST (15) | Hosting on CCUN's LMS platform |
| 13                 | Courses integration of CIRAD (RUA)  | Agroecology content            |
| 4                  | Contents of AUF   | Moodle training                |

## 2.8.5. E-learning Content operation

In early 2024, to support the development of CCUN, the direction board of ITC decided to integrate ITC's LMS with CCUN. All the courses' materials (e-learning and non-learning) at ITC are moved to CCUN's platform. With this integration, in academic year 2023-2024, there are 340+ courses from different programs at ITC were operated on CCUN's platform, in which there are 50+ e-learning courses (developed in different projects/programs) spread over 8 different programs. And there are 5000+ learners and 300+ teachers at ITC using CCUN's platform to support their teaching and learning.

Below figure illustrate the e-learning courses operation in ITC from 2014 to 2024 plus the e-learning courses operation on CCUN's platform by all member (including ITC) in academic year 2023-2024.



## 2.9. Activities of library of ITC

### 1. Introduction

The STEM Library, inaugurated in 2017 to a new building I at the Institute of Technology of Cambodia, is a brand-new facility designed to support academic and research activities in the fields of Science, Technology, Engineering, and Mathematics (STEM). The library is managed by a dedicated team of six librarians and houses an extensive collection of **13,000 books, 2,000 theses, 110 printed journal, may open educational resources and open access database**. It offers a variety of spaces to cater to diverse user needs, including **10 discussion rooms, 1 meeting room, 1 self-study room, and 3 startup rooms** for innovative projects and collaborative work. Since its establishment, the STEM Library has become a central hub for learning, research, and innovation, providing students, faculty, and researchers with the resources and environment necessary for academic success.

### 2. Access and Registration

The STEM Library is a popular destination for students, with an average of **200 students** visiting daily and **31000 yearly**. These students utilize the library for a variety of purposes, including **reading, completing assignments, self-study, and conducting research using the internet**. To ensure smooth access, the library has implemented an efficient registration system that allows users to create accounts and access resources seamlessly. At the beginning of each academic year, **new student orientations** are conducted to familiarize users with the library's facilities, services, and policies. These orientations have proven effective in helping users navigate the library's resources and spaces.

### 3. Circulation

The circulation desk is one of the busiest sections of the library, The library uses an **automated circulation system** to manage loans, returns, and overdue items, which has significantly improved efficiency and reduced errors. The most frequently borrowed items include **textbooks and theses**. The circulation service is very flexible to student need, for example if students are doing internship at a very far area, we allow students to borrow book with a very long duration by discussing with librarian.

#### 4. Catalog

The library is currently in the process of transitioning from the **PMB library management system** to **Koha library management system**, an open-source system widely used by other university libraries. This transition is expected to be completed within the year and aims to improve catalog management, enhance user experience, and ensure compatibility with other institutions. Koha offers advanced features such as a **user-friendly interface**, **customizable search options**, and **integration with digital resources**. The new system will also allow users to access the catalog remotely, making it easier to search for and reserve materials. Training sessions for staff and users will be conducted to ensure a smooth transition.

#### 5. Reference Service

The reference service is a critical component of the library's offerings, providing users with assistance in locating resources, conducting research, and using digital tools. In the past year, the reference team handled **many inquiries**, ranging from simple book searches to complex research assistance. While the service has been helpful, there is a need for improvement through **staff capacity building**. Plans are underway to organize **training sessions** and **workshops** focused on enhancing skills in research assistance, digital resource management, and user support. These initiatives will ensure that the reference team is equipped to meet the evolving needs of users.

#### 6. Symposium Room Usage

The symposium room is one of the most frequently used spaces in the library, operating at **full capacity** throughout the year. Within the **last 6 months** there are **1365 teams** book the room. It serves as a venue for **student discussions**, **teamwork**, **projects**, and **presentations**. Equipped with **smart TV and WiFi**, the room has become a preferred space for collaborative activities and academic events. The library plans to continue promoting the use of this space for academic and creative endeavors.

#### 7. Partnership and Collaboration

The STEM Library has established **partnerships** with other university libraries to facilitate **webinars**, **training sessions**, **knowledge exchange**, and **mutual support**. These collaborations have enriched the library's resources and provided users with access to a broader range of materials and expertise. For example, the library has joint initiatives such as **webinars on digital literacy** and **workshops on research methodologies** have been organized to benefit users and staff alike. These partnerships have strengthened the library's role as a center for academic excellence.

#### 8. Capacity Building

To enhance the quality of services, library staff have participated in **seminars**, **workshops**, and **capacity-building programs** in Thailand. These initiatives have focused on improving skills in **reference services**, **digital resource management**, and **user engagement**.

### **3. Educational Report**

### 3.1. Overview of teaching/research staffs at ITC

#### 3.1.1. Number of lecturers/researchers

In 2024-2025, ITC has 389 (106 females) full-time, trainee and part-time lecturers, lecturer-researchers and full-time researchers. Table 11 below shows the number of lecturers in different departments. Among these 389 lecturers, there are 121 PhD (31.1%), 224 Masters (57.6%) and 44 other degrees (11.3%). They give lectures and also participate in research project, as well as other administrative tasks.

Table 11. Number of lecturers/researchers in different departments in 2024-2025.

| Degree      |           | GCA | GCI | GAR | GEE | GGG | GIC | GIM | GRU | GTR | GTI | MAS | DTC | SF | SA | Total |
|-------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-------|
| PhD         | Full-time | 14  | 15  | 0   | 7   | 10  | 1   | 8   | 13  | 5   | 1   | 3   | 0   | 0  | 0  | 77    |
|             | Trainee   | 6   | 5   | 2   | 1   | 4   | 0   | 1   | 6   | 1   | 1   | 1   | 0   | 0  | 0  | 28    |
|             | Part-time | 3   | 3   | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 2   | 3   | 0   | 0  | 1  | 16    |
| Sub-Total 1 |           | 23  | 23  | 2   | 8   | 14  | 1   | 9   | 23  | 6   | 4   | 7   | 0   | 0  | 1  | 121   |
| Msc.        | Full-time | 3   | 3   | 0   | 6   | 2   | 9   | 14  | 6   | 4   | 1   | 5   | 9   | 5  | 2  | 69    |
|             | Trainee   | 20  | 3   | 4   | 17  | 4   | 8   | 11  | 9   | 3   | 1   | 1   | 0   | 0  | 0  | 81    |
|             | Part-time | 3   | 5   | 8   | 1   | 1   | 2   | 2   | 4   | 1   | 6   | 13  | 9   | 9  | 10 | 74    |
| Sub-Total 2 |           | 26  | 11  | 12  | 24  | 7   | 19  | 27  | 19  | 8   | 8   | 19  | 18  | 14 | 12 | 224   |
| Bsc.        | Full-time | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 4  | 0  | 7     |
|             | Trainee   | 0   | 0   | 0   | 0   | 0   | 6   | 1   | 0   | 0   | 0   | 0   | 0   | 0  | 0  | 7     |
|             | Part-time | 0   | 0   | 5   | 1   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 1   | 15 | 6  | 30    |
| Sub-Total 3 |           | 0   | 0   | 5   | 1   | 0   | 6   | 1   | 2   | 0   | 0   | 0   | 4   | 19 | 6  | 44    |
| Total       |           | 49  | 34  | 19  | 33  | 21  | 26  | 37  | 44  | 14  | 12  | 26  | 22  | 33 | 19 | 389   |

Number of lecturers/researchers increases slightly each year. The evolution of number of lecturers/researchers in the last 10 years is shown in Figure 8.

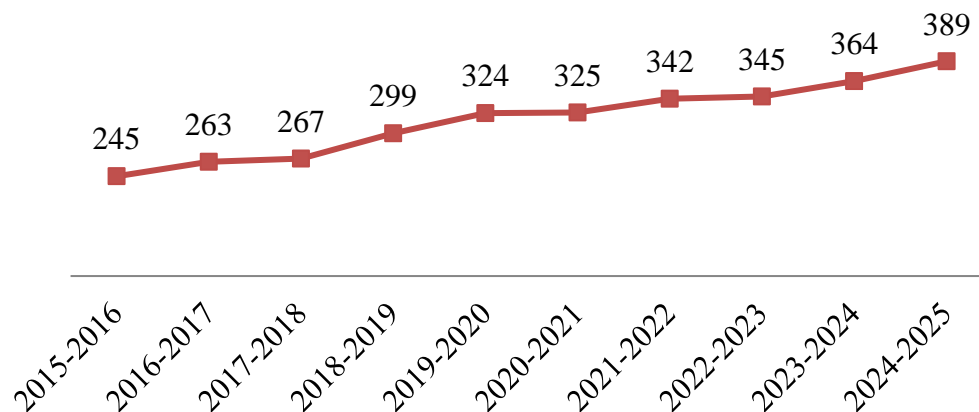


Figure 8. Evolution of Number of Lecturers/Researchers.



Evolution of number of lecturers/researchers with PhD and Master Degree is shown on Figure below. Through regional and international cooperation, number of PhD holders increases about 2.5 times over the past 10 years, from 50 in 2015-2016 to 121 in 2024-2025. Number of Master holders also increases from 118 in 2015-2016 to 224 in 2024-2025. They are potential human resources for teaching and research at ITC.

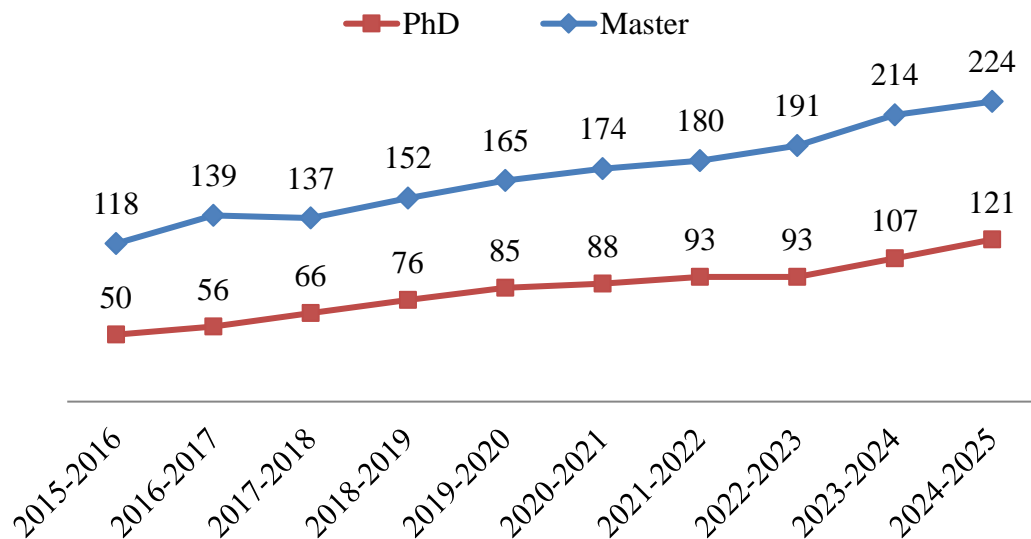


Figure 9. Evolution of number of PhD and Master holders.

### 3.1.2. Lecturers/researchers graduated from different countries

Lecturers/Researchers of ITC were graduated from different countries and regions in the world:

- At local level in Cambodia (37.5%) in which most of them are lecturers in Department of Foundation Year, English and French Sections.
- At regional level (19.3%) in 5 ASEAN countries: Thailand, Indonesia, Philippines, Malaysia, and Vietnam.
- At international level (43.2%) in 13 countries: France, Japan, Belgium, South Korea, Russia, Australia, China, Canada, USA, India, Mexico, Netherlands, New Zealand and Spain.

Figure 10 below indicates percentage by country that ITC lecturers/researchers were graduated from. Abroad, ITC lecturers/researchers graduated from France the most, followed by Japan, Thailand, Indonesia and Belgium.

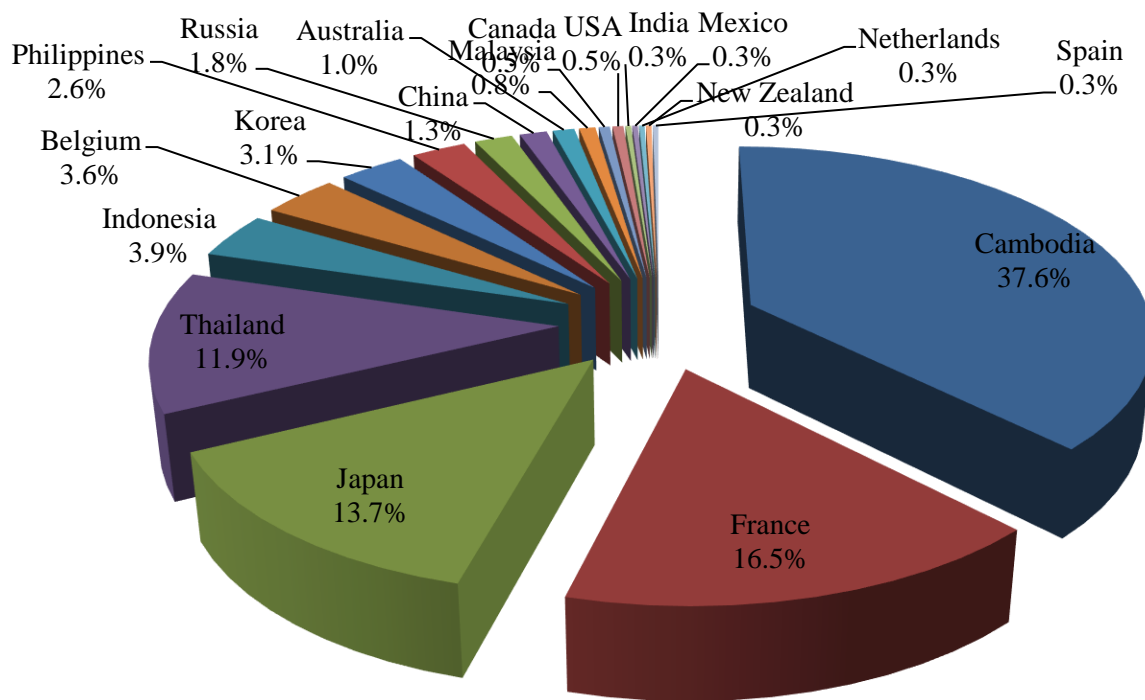


Figure 10. ITC lecturers/researchers graduated from different countries.

### 3.1.3. Conclusion

Human resources of ITC have increased in recent years with PhD's Degree holders. This year, number of PhD (121) is higher than last year (107), also number of PhD with civil servant status in 2024-2025 (77) is slightly increased comparing to last year (72).

With strong collaboration with partners and through some projects, young lecturers and students have been sent to partner universities abroad to continue their PhD's Degree abroad and will come back in the upcoming year. To ensure quality of teaching, research and also technology transfer, ITC needs to recruit and also maintain young Master and PhD holders who are dynamic for both academy and research.

## 3.2. Student Employability

An online survey on student employability was conducted in October and November 2024. 569 engineering students graduated in 2024 responded which is about 70% of total graduates (814). Result of this survey is shown graphically in Figure 11.

Figure 11 shows that 80% of engineers graduated in 2024 are employed; 13% are continuing their studies mostly in overseas; and 7% are waiting for result of scholarship or are seeking employment.

Among the employed graduates, 89% works with private sector, 8% with public sector and 3% with others sectors.

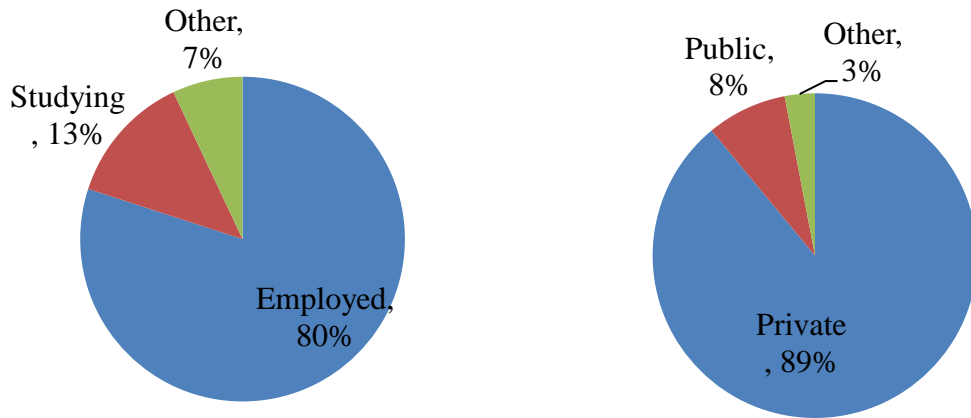


Figure 11. Engineering students graduated in 2023-2024.

Figure 12 shows that 89% of technicians graduated in 2024 are employed; 11% are continuing their studies.

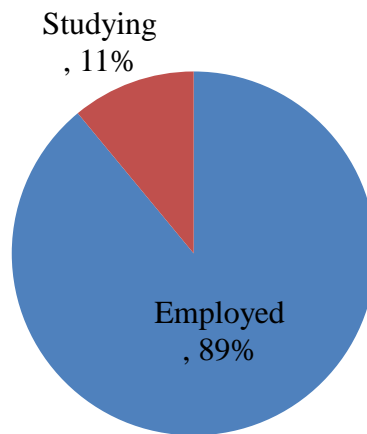


Figure 12. Technician students graduated in 2023-2024.

### 3.3. Graduate School of ITC

#### 3.3.1. Introduction

Graduate School of the Institute of Technology of Cambodia (GS-ITC) plays an important role in supporting and providing services regarding the development of human resources at graduate (Master and Doctoral) levels at ITC. Its prime objective is to increase the number of highly qualified human resources in fields of Sciences, Engineering, Technology and Architecture, to meet the demands of Cambodian economic development and society.

### ***Vision***

Excellence in graduate education in STEM so that graduates have full potentials and skills to meet the requirement of the Cambodia's 2030 vision.

### ***Mission***

GS-ITC commits to achieving the long-term vision of ITC concerning graduate education by providing services to the campus community that maintain integrity and excellence in graduate education in STEM through clear and consistent policies, high standards, efficient procedures, and direct student support. We seek to support and serve as a resource for all graduate students, and to support faculty and staff by fostering relationships, increasing communications and collaborations, and delivering comprehensive research and data resources to inform about graduate education. The graduate school:

1. Improve and develop graduate training programs in STEM to align with national, regional, and international standards.
2. Educate graduate students to have full potentials and skills in STEM to meet the requirement of the Cambodia's 2030 vision.

### ***Core Values***

- Excellence in graduate education
- Recruitment and graduation of outstanding students
- Ethical conduct and integrity in graduate studies and research
- Diversity among students, faculty, and staff
- Communication and collaboration throughout the graduate community
- Accountability and transparency
- Graduate-student professional development
- Preservation of academic standards
- Maintaining accurate data and records.

### ***Goals (2021-2030)***

1. Improve and develop **10 graduate training programs** in STEM to align with national, regional, and international standards.
2. Educate **952 graduate students** to have full potentials and skills in STEM to meet the requirement of the Cambodia's 2030 vision.

### **3.3.2. Summary of Realized Activities in 2024-2025**

| No | Activities   |                                | Based line<br>(2023-24)     | Target<br>(2024-25)  | Realized<br>(Mar 2025)      | Plan<br>2025-26  | Indicator              |
|----|--|--------------------------------|-----------------------------|--|-----------------------------|--|------------------------|
| 1  | Increase number of partnerships  | Academic institutions          | 21                          | 21   | 21                          | 23   | Number                 |
|    |  | Development agencies           | 4                           | 4  | 4                           | 4  | Number                 |
|    |  | Government/Private sectors/NGO | 3                           | 5  | 4                           | 5  | Number                 |
| 2  | Operate thematic programs (Master)   |                                | 8                           | 9  | 8                           | 9  | Number                 |
| 3  | Operate research-based program (Master)  |                                | 8                           | 9  | 7                           | 9  | Number                 |
| 4  | Seek for funds/scholarships to support students  | Master programs                | 44 students enrolled        | 60 students enrolled                                       | 61 students enrolled        | 60 students enrolled                                       | Number                 |
|    |  | Doctoral programs              | 54 students enrolled        | 54 students enrolled                                       | 57 students enrolled        | 57 students enrolled                                       |                        |
| 5  | Conduct fresh graduate employment survey of master and doctoral graduates (annually).  | Master                         | 91                          | 90   | 52 (all fresh graduates)    | 90   | Number of responses    |
|    |  | PhD                            | 8                           | 18   | 26 (9 new graduates)        | 10   | Number of responses    |
| 6  | Internationalize Master programs through our regional and international partnerships.  | Programs involved              | 5                           | 6  | 5                           | 7  | Number                 |
|    |  | Student inbound mobility       | 1                           | 5  | 1                           | 5  | Number                 |
|    |  | Student outbound mobility      | 15                          | 15   | 22                          | 15   | Number                 |
|    |  | Staff mobility                 | 2                           | 5  | 6                           | 9  | Number                 |
|    |  | Guest lecturer                 | 0                           | 3  | 6                           | 9  | Number                 |
| 7  | Increase communication among campus community, faculty staff and prospective students. |                                | Website, Facebook, Telegram | Website, Facebook, Telegram, study fair, promotional video | Website, Facebook, Telegram | Website, Facebook, Telegram, study fair, promotional video | Means of communication |

|    |   |        |                             |                                  |                              |                                |                                   |
|----|---|--------|-----------------------------|----------------------------------|------------------------------|--------------------------------|-----------------------------------|
| 8  | Develop E-learning courses  |        | -                           | -                                | -                            | 5                              | Number                            |
| 9  | Increase number of research topics that respond to the societies needed through support from research fund institutions such as ministries, LBE/JICA project, WB project. | Master | 38                          | 40                               | 35                           | 40                             | Number                            |
|    |   | PhD    | 10                          | 10                               | 13                           | 10                             | Number                            |
| 10 | Increase number of students' publications in journals/conferences   | Master | 29<br>(27 journal articles) | 60                               | 49<br>(all journal articles) | 55                             | Number                            |
|    |   | PhD    | 24<br>(21 journal articles) | 20                               | 18<br>(15 journal articles)  | 30                             | Number                            |
| 11 | Enroll PhD students   |        | 61                          | 10 new enrolled                  | 57<br>(13 new enrolled)      | 10 new enrollments             | Number                            |
| 12 | Number of PhD students graduated  |        | 19                          | 37<br>(planned 18 new graduates) | 28<br>(9 new graduates)      | 38<br>(plan 10 new graduates)  | Number                            |
| 13 | Enroll Master students for the full-time thematic master programs   |        | 124                         | 150                              | 139                          | 150                            | Number                            |
| 14 | Number of Master students graduated (accumulated)   |        | 411                         | 500<br>(planned 89 new)          | 463<br>(52 new graduates)    | 553<br>(plan 90 new graduates) | Number                            |
| 15 | Implementation of EDC-AFD-EU project to support Master and Doctoral program in Energy and Technology Management 2023-2027   |        | 13<br>(2 PhD)               | 25<br>(3 PhD)                    | 27<br>(4 PhD)                | 10<br>(new, 0 PhD)             | Number of master and PhD students |

### 3.3.3. Master Programs

#### 3.3.3.1. Overview

The master programs at ITC were authorized by the Ministry of Education Youth and Sport of Cambodia since 2007 and launched the first promotions of different programs successively from 2010. The curricula were continuously updated from which a remarkable change from departments-based operation to a centralization at Graduate School in 2017. Six master programs were transformed to be thematic so that the students can be trained in multi-disciplinary skills.

In the academic year 2024-2025, the Graduate School of ITC offers 8 full-time thematic Master programs in the field of engineering and applied science (cf. table below). The calendar of semester 1 is from October 28, 2024 to February 14, 2025 and the semester 2 from March 03, 2025 to July 04, 2025.

#### *List of Thematic Master Programs*

| No | Program<br>(Master of<br>Engineering)                                      | Eligible student's<br>background                      | Promo.                | Descended<br>from | Remark  |
|----|--|---|-----------------------|-------------------|---|
| 1  | Master of<br>Materials and<br>Structural<br>Engineering<br>(M-MSE)         | GCI, GIM, GGG,<br>GRU, others<br>equivalent field     | 14<br>(since<br>2010) | MGCI<br>(+MGIM)   | <ul style="list-style-type: none"> <li>• In operation</li> <li>• Program Head: <i>Dr. LIM Sovanvichet</i></li> <li>• <b>Double degree with INSA de Rennes since 2010</b></li> <li>• <b>Double degree with Université de Rennes and Université Toulouse III-Paul Sabatier since 2023</b></li> <li>• <b>Double degree with Université Sorbonne Paris Nord since 2024</b></li> </ul> |
| 2  | Master of Energy<br>Technology and<br>Management<br>Engineering<br>(M-ETM) | GIM, GEE,<br>others equivalent<br>field               | 8<br>(since<br>2011)  | MGIM<br>(+MGEE)   | <ul style="list-style-type: none"> <li>• In operation</li> <li>• Program Head: <i>Dr. KHON Kimsrornn</i></li> <li>• <b>Double degree with Grenoble INP since 2024</b></li> <li>• <b>Financial support by EDC-AFD-EU project 2023-2027</b></li> </ul>  |
| 3  | Master of Water<br>and Environmental<br>Engineering<br>(M-WEE)             | GRU, GCA, GCI,<br>GGG, others<br>equivalent field     | 10<br>(since<br>2012) | MGRU              | <ul style="list-style-type: none"> <li>• In operation</li> <li>• Program Head: <i>Dr. THENG Vouchlay</i></li> </ul>   |
| 4  | Agro-industrial<br>Engineering<br>(M-AIE)                                  | GCA, GGG,<br>RUPP, RUA,<br>others equivalent<br>field | 10<br>(since<br>2012) | MGCA              | <ul style="list-style-type: none"> <li>• In operation</li> <li>• Program Head: <i>Dr. TY Boreborey</i></li> </ul>   |

|   |   |  |                 |                     |  |
|---|---|--|-----------------|---------------------|--|
| 5 | Master of Computer Science (M-ECS)  | GIC, GTR, others equivalent field                      | 10 (since 2013) | MGIC                | <ul style="list-style-type: none"> <li>In operation</li> <li>Program Head: <i>Mr. HENG Rathpisey</i></li> </ul>  |
| 6 | Master of Mechatronics, Information and Communication Engineering (M-MIC) | GTR, GIM, GEE, GIC, others equivalent field            | 8 (since 2012)  | MGIM (+MGEE, +MGIC) | <ul style="list-style-type: none"> <li>In operation</li> <li>Program Head: <i>Dr. PEC Rothna</i></li> <li><b>Double degree with IMT Mines Alès since 2021</b></li> </ul> |
| 7 | Master of Transport Engineering (M-TIE)                                   | GTI, GCI, GIM, GIC, GEE, others equivalent field       | 4 (since 2020)  | -                   | <ul style="list-style-type: none"> <li>In operation</li> <li>Program Head: <i>Dr. SAUM Narith</i></li> </ul>   |
| 8 | Master of Data Science (M-DAS)  | AMS, GIC, GEE, MATH, others equivalent field           | 2 (since 2022)  | AMS (+MGIC)         | <ul style="list-style-type: none"> <li>In operation</li> <li>Program Head: <i>Dr. PHAUK Sökkhey</i></li> </ul>   |
| 9 | Master of Architectural Engineering                                       | GAR, GTI, GRU, GCI, GIM, RUFA, others equivalent field | In 2025-2026    | -                   | <ul style="list-style-type: none"> <li>Licensed by MoEYS on November 27, 2024</li> <li>Operate in next year</li> <li>Program Head: <i>Ms. KET Kannary</i></li> </ul>     |

### ***Enrollment and Scholarship in 2024-2025***

The official announcement has been disclosed at ITC, at Graduate School and on ITC Facebook pages and Telegram channels. In general, the duration for each Master program is 2 or 3 years, classified as year 1 level (M1) and year 2 level (M2). For students holding ITC Engineer's degree, they are allowed to enter directly the M2 program, thus being able to spend only 1 year more in addition to 5 years in engineering program to complete the master's degree (5+1 program). However, this opportunity is selective.

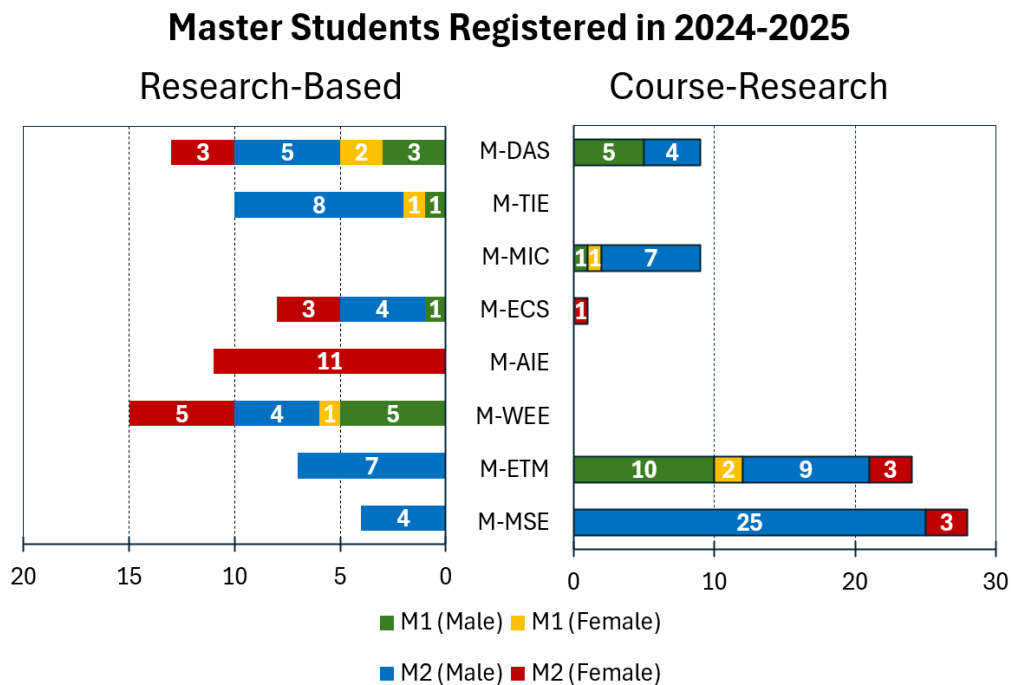
In the academic year 2024-2025, there are in total 139 students (36 females) enrolled into 8 master programs and 61 students receive scholarships. For the double degree programs, there are 14 students registered in the M-MSE under the double degree framework, 15 students receive the mobility supports of Erasmus+ (9 at INSA Rennes, 1 at USPN, 2 at Uni. Rennes and 2 at Uni. Toulouse 3) and 3 students registered at IMT Mines Alès for the M-MIC with supports of HEIP, ITC-IMT, Eiffel and 5 students registered at Grenoble INP for the M-ETM with supports of EDC-AFD-EU. On the other hand, there are 7 outbound exchange master students: 3 to INSA Rennes, 2 to University of Namur (supported by Erasmus+), 2 to Grenoble INP (supported by EDC-AFD-EU); and 1 inbound exchange master student from INP Grenoble. The details are presented in the tables below.



***Number of Students enrolled in 2024-2025***

| Master Programs | Partial or Full Scholarship Students |   |       |    | Non-scholarship Students |   |       |    | Total | Female |
|-----------------|--------------------------------------|---|-------|----|--------------------------|---|-------|----|-------|--------|
|                 | M1                                   |   | M2    |    | M1                       |   | M2    |    |       |        |
|                 | Total                                | F | Total | F  | Total                    | F | Total | F  |       |        |
| M-MSE           | -                                    | - | 11    | 1  | -                        | - | 21    | 2  | 32    | 3      |
| M-ETM           | 12                                   | 2 | 13    | 3  | -                        | - | 6     | 0  | 31    | 5      |
| M-WEE           | 1                                    | 1 | 6     | 3  | 5                        | 0 | 3     | 2  | 15    | 6      |
| M-AIE           | -                                    | - | 7     | 7  | -                        | - | 4     | 4  | 11    | 11     |
| M-ECS           | -                                    | - | 2     | 2  | 1                        | 0 | 6     | 2  | 9     | 4      |
| M-MIC           | 2                                    | 1 | 6     | 0  | -                        | - | 1     | 0  | 9     | 1      |
| M-TIE           | -                                    | - | -     | -  | 2                        | 1 | 8     | 0  | 10    | 1      |
| M-DAS           | -                                    | - | 1     | 0  | 10                       | 2 | 11    | 3  | 22    | 5      |
| Total           | 15                                   | 4 | 46    | 16 | 18                       | 3 | 60    | 13 | 139   | 36     |

The following graph shows the distribution of students by study's pathways.



In the academic year 2024-2025, there are in total 61 students (20 females) receive the scholarship supports. The detail sources of scholarships are reported in the table below.

### *Sources of Scholarships/funding in 2024-2025*

| N°    | Type /Funder   | Benefit                              | Number of beneficiaries | Remark |
|-------|----------------|--------------------------------------|-------------------------|--------|
| 1     | EDC-AFD-EU     | 100% Tuition Fee + Monthly allowance | 23                      |        |
| 2     | HEIP-NUBB      | 100% Tuition Fee                     | 2                       |        |
| 3     | HEIP2          | 100% Tuition Fee                     | 3                       |        |
| 4     | HEIP-C1        | 100% Tuition Fee                     | 3                       |        |
| 5     | ITC            | 100% Tuition Fee                     | 2                       |        |
| 6     | ITC-IMT        | 100% Tuition Fee + Mobility          | 1                       |        |
| 7     | IRD            | Tuition Fees/Research Fund           | 10                      |        |
| 8     | ARES-CAMBOFISH | Tuition Fees/Research Fund           | 1                       |        |
| 9     | DCLab          | Tuition Fees/Research Fund           | 3                       |        |
| 10    | Erasmus+       | Mobility                             | 11                      |        |
| 11    | Eiffel         | Mobility                             | 1                       |        |
| 12    | ADB            | 100% Tuition Fee                     | 1                       |        |
| Total |                |                                      | <b>61</b>               |        |

### *Graduates and Tracer study*

The number of graduated master students from the academic year 2010-2011 to 2023-2024 is in total 463 graduates (119 females). In the last academic year, there are 52 new graduates (13 females) in which 19 graduates (7 females) benefitted from partial and full scholarships. For graduates in M-MSE who received double degree from INSA Rennes (cf. section 3.3.3.2), there are in total 94 graduates (11 females), 1 graduate (0 female) is from Université de Rennes and 1 graduate (0 female) is from Université Toulouse III-Paul Sabatier, from the first to fourteenth promotion, in which there are 7 new graduates (0 female) in 2023-2024. For the graduates in M-MIC who received double degree from IMT Mines Alès, there are in total 2 graduates (1 female) from the first to second promotion, in which there is 1 new graduate (1 female) in 2023-2024. Lists of Master Thesis posted on the webpage of the Graduate School (GS-ITC).

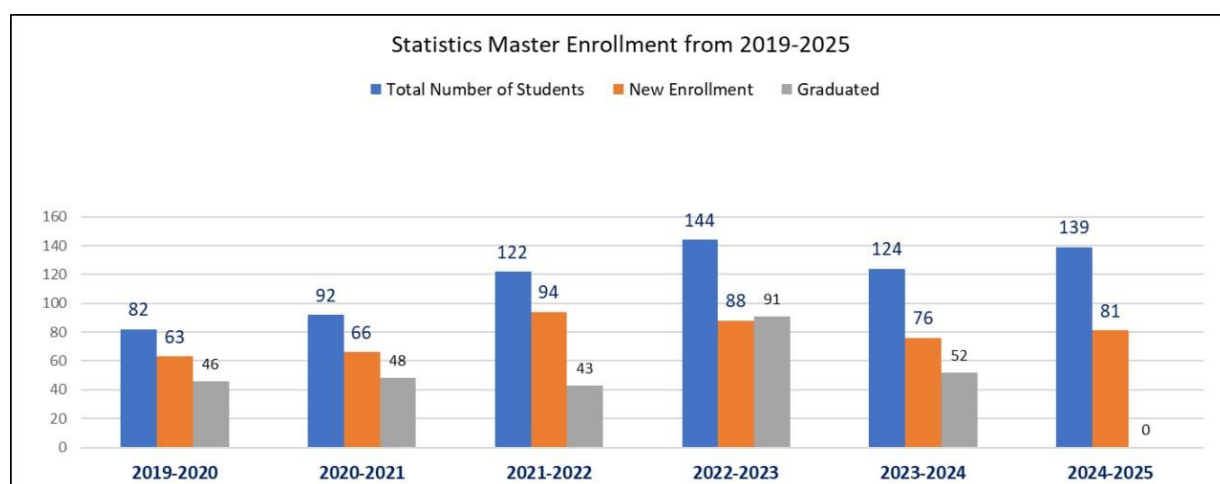


The statistics of master graduates are reported in Table below.

***Number of Students graduated from master programs in 2023-2024***

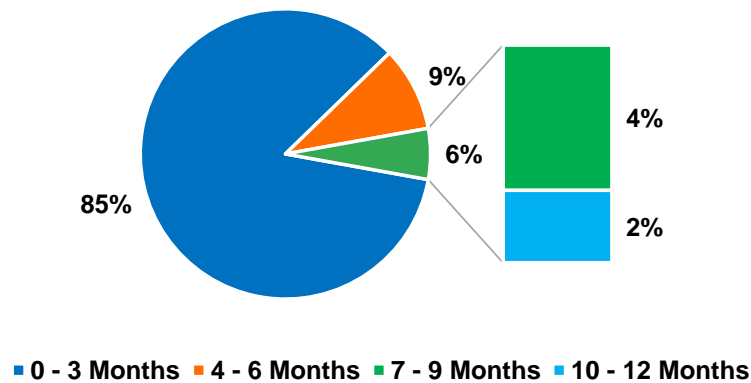
| Program      | Number of students graduated in 2023-2024 |          |                          |          |           |           | Cumulative graduated students from Promotion 1 |            |            |
|--------------|---|----------|--------------------------|----------|-----------|-----------|--|------------|------------|
|              | Partial or Full Scholarship Students      |          | Non-scholarship students |          | Total     | Female    |  |            |            |
|              | Total                                     | F        | Total                    | F        |           |           | Number of promotions                           | Total      | Female     |
| M-MSE        | 7   | 0        | 4                        | 0        | <b>11</b> | <b>0</b>  | 14   | <b>130</b> | <b>14</b>  |
| M-ETM        | 2   | 1        | 4                        | 0        | <b>6</b>  | <b>1</b>  | 9  | <b>45</b>  | <b>1</b>   |
| M-WEE        | 2   | 1        | 1                        | 1        | <b>3</b>  | <b>2</b>  | 10   | <b>131</b> | <b>54</b>  |
| M-AIE        | 2   | 2        | 1                        | 1        | <b>3</b>  | <b>3</b>  | 9  | <b>45</b>  | <b>35</b>  |
| M-ECS        | 1   | 0        | 3                        | 1        | <b>4</b>  | <b>1</b>  | 10   | <b>44</b>  | <b>6</b>   |
| M-MIC        | 4   | 3        | 8                        | 0        | <b>12</b> | <b>3</b>  | 9  | <b>44</b>  | <b>5</b>   |
| M-TIE        | -   | -        | 4                        | 0        | <b>4</b>  | <b>0</b>  | 4  | <b>13</b>  | <b>1</b>   |
| M-DAS        | 1   | 0        | 8                        | 3        | <b>9</b>  | <b>3</b>  | 2  | <b>11</b>  | <b>3</b>   |
| <b>Total</b> | <b>19</b>                                 | <b>7</b> | <b>33</b>                | <b>6</b> | <b>52</b> | <b>13</b> | <b>Total</b>                                   | <b>463</b> | <b>119</b> |

The following figure displays the evolution of enrollments and graduates from 2019 to the present time.



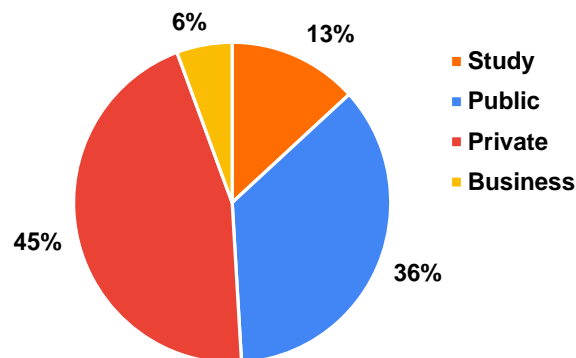
A survey on fresh graduates in 2023-2024 was conducted via Google Form. The objectives of this survey are to trace the employability and skills development of the graduates. 52 graduates responded to the questionnaires, that is 100%. The result of the survey shows that 85% of fresh graduates could find jobs immediately, 9% needed more than 3 months to find jobs and 6% spent more than 6 months to find jobs.

### Employment Delay

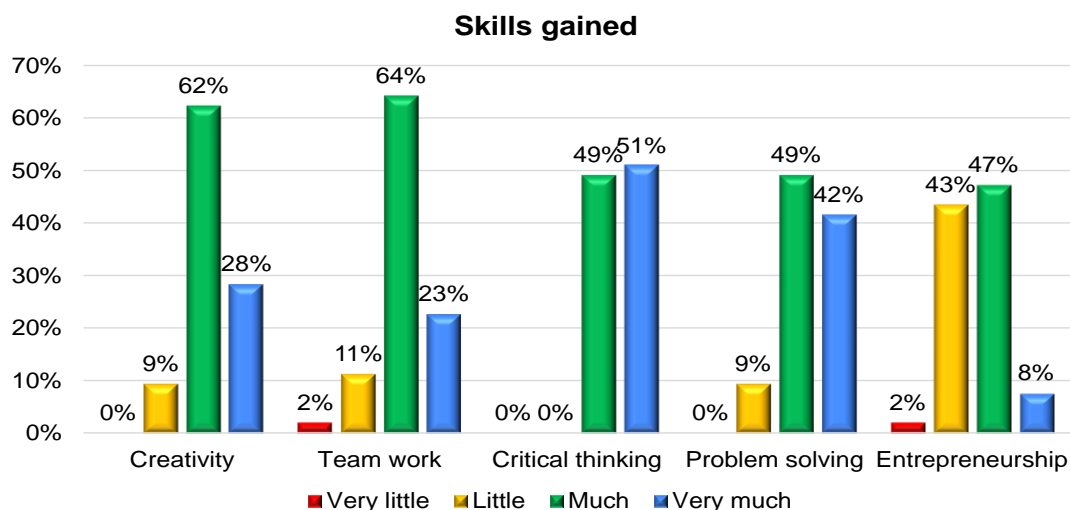


The survey also reveals the distribution of job sectors for fresh graduates. Thirty-six percent of them work for public sector, 45% work for private sector, 13% continue their study and 6% run their own business.

### Job sector



When asking the question “Please evaluate the level of 5 following skills that you gained from your study in master program: creativity, teamwork, critical thinking, problem solving, and entrepreneurship (1 = Very little, 2 = Little, 3 = Much, 4 = Very much)”, more than 88% of them said that they gained (much or very much) the creativity skill, 87% gain the team work skill, 100% gain the critical thinking skill and 91% gain the problem solving skill. However, the rating on entrepreneurship skill remains behind other skills (only 55% of them are satisfied). The observation on job sector also shows that only 6% or 3 of all graduates have run startup or self-businesses after freshly graduating. Therefore, in order to promote startups and self-businesses, strengthening on entrepreneurship and business skills should be considered. Overall, the result shows an improvement if we compare with the 2021-2022 and 2022-2023 surveys (see table below).



**Table: Average score (scale 4) for each skill**

| Year      | # of Graduate | # of Respondent | Creativity | Team-work | Critical thinking | Problem solving | Entrepreneurship |
|-----------|---------------|-----------------|------------|-----------|-------------------|-----------------|------------------|
| 2023-2024 | 53            | 53              | 3.2        | 3.1       | 3.5               | 3.2             | 2.6              |
| 2022-2023 | 91            | 91              | 3.0        | 3.0       | 3.2               | 3.1             | 2.4              |
| 2021-2022 | 43            | 33              | 3.0        | 3.2       | 3.2               | 3.2             | 2.5              |

### 3.3.3.2. Program M-MSE

#### *Program's objective*

Master's Degree Program of Materials and Structural Engineering, codeveloped by professionals and experts of INSA Rennes, France, is designed to provide students expertise in research, innovation, and complex problem solving of diverse engineering topics related to materials properties and structural engineering. In this program, qualified students can apply for double degrees issued by ITC and by INSA Rennes, and they can choose to study at ITC or at INSA Rennes.

**Program Coordinator:** Dr. LIM Sovannvichet

#### *Curriculum and syllabus*

M-MSE is a full-time program (1 to 3 years), classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 52 credits, 40 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis, and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

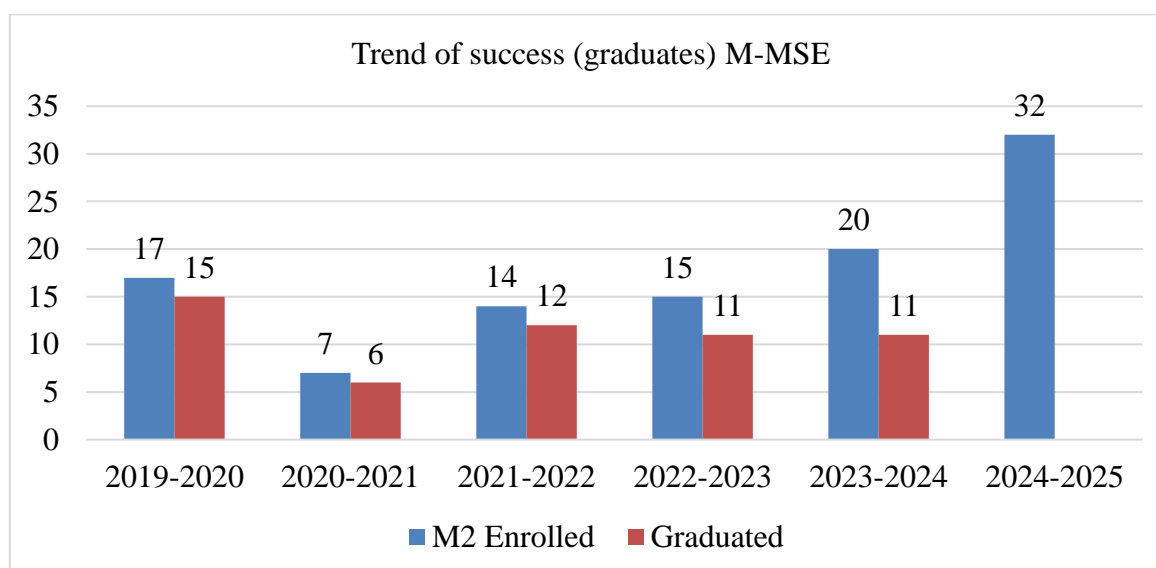
#### *Students and alumni*

Starting in 2010-2011 academic year, in total, 130 students (14 females) graduated from the program, in which 94 (11 females) or 72% (8% females) of them obtained double degrees from

INSA Rennes, 1 (0 female) from Université de Rennes and 1 (0 female) from Université Toulouse III-Paul Sabatier. In the academic year 2024-2025, there are 32 students (3 female) enrolling in the program and the details are reported in the table below.

| Pathway         | M1       |          | M2        |          | Total     | Female   | Remark  |
|-----------------|----------|----------|-----------|----------|-----------|----------|---|
|                 | Total    | F        | Total     | F        |           |          |   |
| Course-research | 0        | 0        | 28        | 3        | 28        | 3        | Double degree: (9) INSA Rennes, (1) USPN, (2) Uni. Rennes, (2) Uni. Tls 3 |
| Research-based  | 0        | 0        | 4         | 0        | 4         | 0        |   |
| <b>Total</b>    | <b>0</b> | <b>0</b> | <b>32</b> | <b>3</b> | <b>32</b> | <b>3</b> |   |

The records of enrollments in M2 and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is 75% across these time periods.



### *Scholarships*

In this academic year 2024-2025, 11 students obtain scholarships and funding support from Erasmus+ for international mobilities to study or to do internship in partner universities.

### *Lecturers*

This program involves over 15 faculty members whose specializations are in materials science and engineering, civil engineering, and structural engineering, etc. All of them hold doctoral degrees from Europe, Japan, and ASEAN. They serve as teaching resources and superiors for the master students M-MSE. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-MSE can be found in Annex 5 or on the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, eleven master theses were successfully defended, in which 2 of them are co-supervised and defended to the committee with Université de Rennes and Université Toulouse III-Paul Sabatier. The list of published theses can be found in Annex 6 or on the website of GS-ITC.

Regarding the dissemination and publication, 2 articles were published to national journals, 4 conference papers, 8 posters. The list of publications can be found in Annex 7 or on the website of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

### **3.3.3.3. Program M-ETM**

#### ***Program's objective***

Master's Degree Program of Energy Technology and Management Engineering, technically supported by professionals and experts from European and ASEAN partner universities, is designed to provide students with technical skills, competencies, and expertise in the field of energy technology and management. Students will be equipped with advanced research methods, energy-related techniques and regulations, project management, and problem-solving methods. Graduates of M-ETM will be able to design effective techniques and tools, manage projects, and propose suitable solutions toward solving real-world energy-related problems.

***Program Coordinator:*** Dr. KHON Kimsornn

#### ***Curriculum and syllabus***

M-ETM is a full-time program (1 to 3 years), classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis, and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

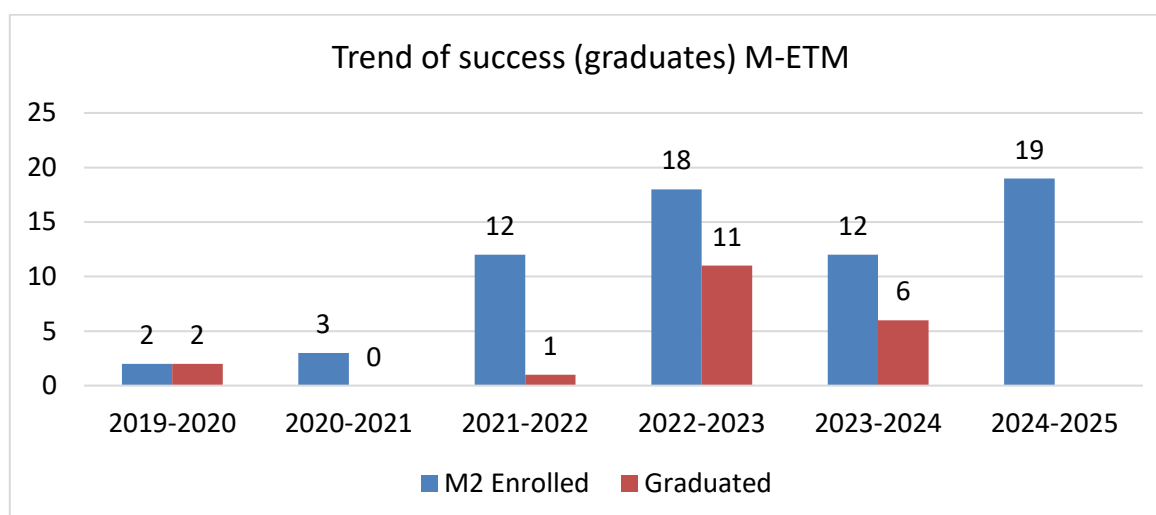
The curriculum of M-ETM is reviewed annually by the program's curriculum committee with consultation with stakeholders and partner universities, especially with INP Grenoble, France. In 2023, this program was evaluated as satisfactory by external expert panels (both technical and educational aspects) as it met the criteria set by the higher education's educational experts from the MoEYS and the World Bank (WB).

#### ***Alumni and Students***

From 2016-2017 academic year, in total, 45 students (1 female) graduated from the program. Currently, there are 31 students (5 females) enrolling in the program and the details are reported in the table below.

| Pathway         | M1        |          | M2        |          | Total     | Female   | Remark                          |
|-----------------|-----------|----------|-----------|----------|-----------|----------|---------------------------------|
|                 | Total     | F        | Total     | F        |           |          |                                 |
| Course-research | 12        | 2        | 12        | 3        | 24        | 5        | Double degree: (5) Grenoble INP |
| Research-based  | 0         | 0        | 7         | 0        | 7         | 0        |                                 |
| <b>Total</b>    | <b>12</b> | <b>2</b> | <b>19</b> | <b>3</b> | <b>31</b> | <b>5</b> |                                 |

The records of M2 enrollments and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is only 43% across these time periods, marking one of the low graduate rates.



### ***Scholarships***

In this academic year 2024-2025, in total 25 students (5 females) obtain scholarships and funding support: 23 from EDC-AFD-EU (4 females) under the Platform for Research and Training on the Power System, 1 from HEIP-NUBB, and 1 from HEIP (1 female).

### ***Lecturers***

This program involves over 14 faculty members whose specializations range from electrical energy, renewable energy to energy power management. Half the faculty members (7) hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and supervisors for the master students M-ETM. The list of faculty members for M-ETM can be found in Annex 5 or on the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, six master theses were successfully defended. All of them were conducted under the research-based pathway. The list of published theses can be found in Annex 6 or on the website of GS-ITC.

Regarding the dissemination and publication, the list of publications can be found in Annex 7, on the website of GS-ITC, or the webpage: <https://techno-srj.itc.edu.kh/>.



### 3.3.3.4. Program M-WEE

#### *Program's objective*

Master's Degree Program of Water and Environmental Engineering, technically supported by professionals and experts from European and ASEAN partner universities, is designed to provide students with technical skills, competencies, and expertise in the field of water and environment. Students will be equipped with advanced research methods, water-related techniques, modern modeling tools and problem-solving methods, and after graduation, they will be able to design effective techniques and tools, manage projects, and propose suitable solutions toward solving real-world problems including water supply and sanitation, irrigation and drainage, disaster management, wastewater treatment and disposal systems, transport and disposal systems and drainage systems.

**Program Coordinator:** Dr. THENG Vouchlay

#### *Curriculum and syllabus*

M-WEE is a full-time program (1 to 3 years), classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. There are three specializations in M-WEE, namely, (1) Water Resources Engineering (WRE), (2) Urban Water and Sanitation Engineering (UWE), which receives full financial supports from AFD-EU to support both curriculum development and student scholarships, and (3) Environmental Engineering and Management (EEM). Detailed curriculum can be found on the website of GS-ITC.

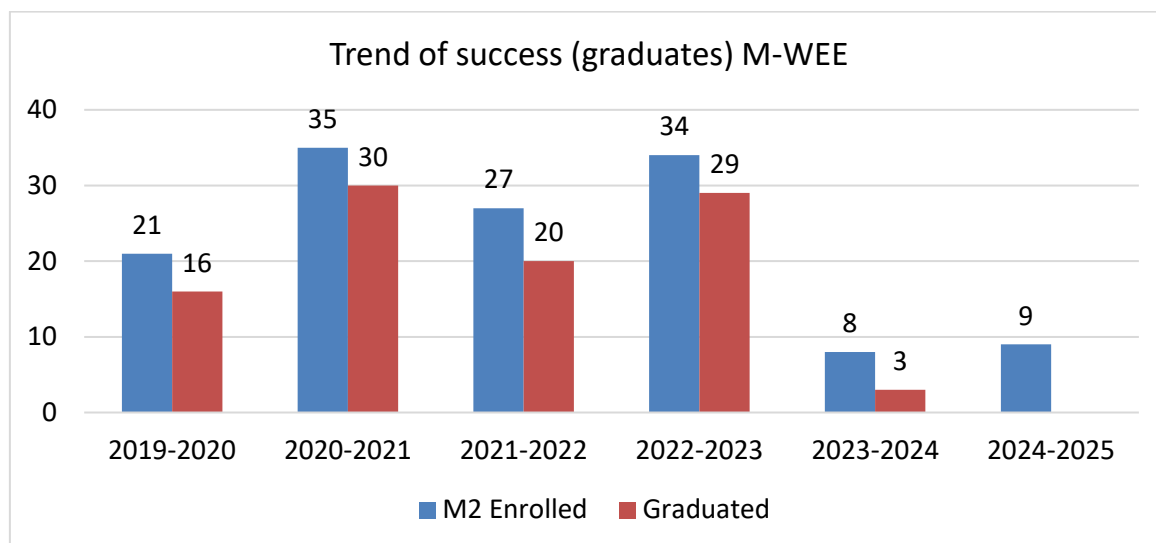
The curriculum of M-WEE is reviewed annually by the program's curriculum committee with consultation with stakeholders and partner universities, especially, with Chulalongkorn University (CU), Thailand--a partner under HEIP project and with Pau University, France. In 2023, this program was evaluated by external expert panels (both technical and educational aspects) to see whether the program meets the modest standard criteria set by the higher education's educational experts from the MoEYS and the World Bank (WB). Overall score results were 3/4 with satisfaction of the evaluation.

#### *Alumni and Students*

Starting in 2012-2013 academic year, in total, 131 students (54 females) graduated from the program. Currently, there are 15 students (6 females) enrolling in the program. The details are reported in the table below. This number significantly declines due to no more scholarship supports from major source such as EU-AFD, as the project has concluded successfully.

| Pathway         | M1       |          | M2       |          | Total     | Female   | Remark |
|-----------------|----------|----------|----------|----------|-----------|----------|--------|
|                 | Total    | F        | Total    | F        |           |          |        |
| Course-research | 0        | 0        | 0        | 0        | 0         | 0        |        |
| Research-based  | 6        | 1        | 9        | 5        | 15        | 6        |        |
| <b>Total</b>    | <b>6</b> | <b>1</b> | <b>9</b> | <b>5</b> | <b>15</b> | <b>6</b> |        |

The time series of M2 enrollments and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is 78.4% across these time periods.



### ***Scholarships***

From 2018 to 2023, 114 students (55 females) received AFD-EU scholarships that cover tuition fees, monthly living allowance, research, and internship funds and 101 students (43 females) graduated. In this 2024-2025 academic year, 7 students (4 females) receive scholarship supports, 1 student (1 female) receive ADB scholarship and 6 students (3 females) receive IRD scholarship.

### ***Lecturers***

This program involves over 20 faculty members whose specializations are in water resources, hydrology, environmental engineering, ... Most of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and superiors for the master students M-WEE. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-WEE can be found Annex 5 or on the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, three master theses were successfully defended. All of them were conducted under the research-based pathway. The list of published theses can be found in Annex 6 or on the website of GS-ITC.

Regarding the dissemination and publication, the list of publications can be found in Annex 7 or on the website of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

## **3.3.3.5. Program M-AIE**

### ***Program's objective***

Master's Degree Program of Agro-industrial Engineering, technically supported by professionals and experts from European and ASEAN partner universities, is designed to provide students with technical skills, competencies, and expertise in the field of agro-industrial engineering. Students

will be equipped with advanced research methods, food processing and development techniques, business and entrepreneurship skills and problem-solving methods. As graduates of M-AIE, they will be able to design innovative techniques and processes, manage projects and propose suitable solutions toward solving real-world problems in food industries. Graduates can also apply their knowledge and skills to do develop their own businesses.

**Program Coordinator:** Dr. TY Boreborey

### ***Curriculum and syllabus***

M-AIE is a full-time program (1 to 3 years), classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

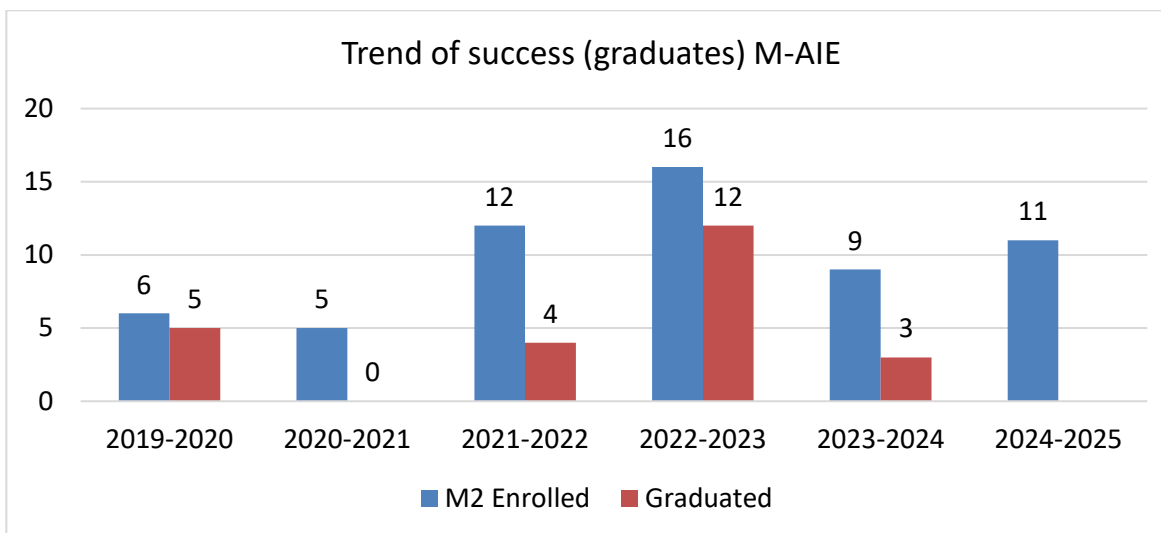
The curriculum of M-AIE is reviewed annually by the program's curriculum committee with consultation with stakeholders and partner universities, especially, with Kasetsart University (KU), Thailand--a partner under HEIP project and AgroSup Dijon, France. In 2023, this program was evaluated by external expert panels (both technical and educational aspects) to see whether the program meets the modest standard criteria set by the higher education's educational experts from the MoEYS and the World Bank (WB). Overall score results were 3/4 with satisfaction of the evaluation.

### ***Alumni and Students***

Starting from the academic year 2017-2018, in total, 45 students (35 females) graduated from the program. Currently, there are 11 students (11 females) enrolling in the program and the details are reported in the table below.

| Pathway         | M1       |          | M2        |           | Total     | Female    | Remark |
|-----------------|----------|----------|-----------|-----------|-----------|-----------|--------|
|                 | Total    | F        | Total     | F         |           |           |        |
| Course-research | 0        | 0        | 0         | 0         | 0         | 0         |        |
| Research-based  | 0        | 0        | 11        | 11        | 11        | 11        |        |
| <b>Total</b>    | <b>0</b> | <b>0</b> | <b>11</b> | <b>11</b> | <b>11</b> | <b>11</b> |        |

The time series of enrollments and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is 50% across these time periods.



### ***Scholarships***

In this academic year 2024-2025, seven students receive scholarships, 2 students obtain scholarships and funding support from HEIP-ITC under the framework of upgrading staff's qualification, 1 female student receive ARES-CAMBOFISH scholarship and 4 females students receive IRD scholarship.

### ***Lecturers***

This program involves over 15 faculty members whose specializations are in food science and technology, food processing, agro-industrial engineering, chemical engineering, ... All of them hold doctoral degrees from Europe, Japan, and ASEAN. They serve as teaching resources and superiors for the master students M-AIE. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-AIE can be found Annex 5 or on the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, three master theses were successfully defended. All of them were conducted under the research-based pathway. The list of published theses can be found in Annex 6 or on the website of GS-ITC.

Regarding the dissemination and publication, twelve articles were published to national journals. The list of publications can be found in Annex 7 or on the website of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

### **3.3.3.6. Program M-ECS**

#### ***Program's objective***

Master's Degree Program of Computer Science aims to provide students with essential skills and advanced research methods, in the field of Computer Science, Artificial Intelligence (AI) applications and Information Security, to address the current trends of fast-growing technology and digitalization.

***Program Coordinator:*** Mr. HENG Rathpisey

### ***Curriculum and syllabus***

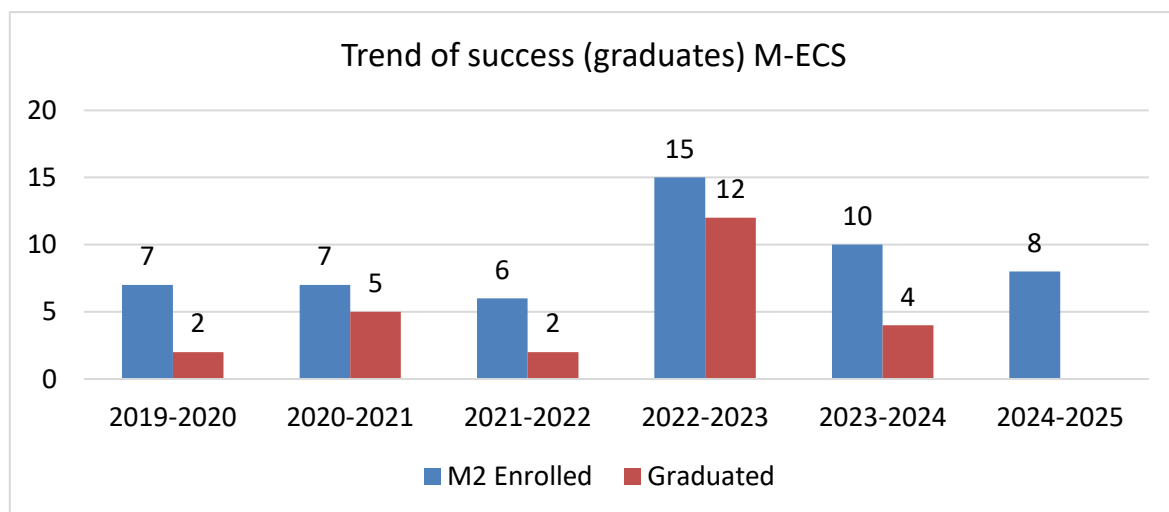
M-ECS is a full-time program, classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

### ***Alumni and Students***

Starting in academic 2013-2014, in total, 44 students (6 females) graduated from the program. Currently, there are 9 students (4 females) enrolling in the program and the details are reported in the table below.

| Pathway         | M1       |          | M2       |          | Total    | Female   | Remark |
|-----------------|----------|----------|----------|----------|----------|----------|--------|
|                 | Total    | F        | Total    | F        |          |          |        |
| Course-research | 0        | 0        | 1        | 1        | 1        | 1        |        |
| Research-based  | 1        | 0        | 7        | 3        | 8        | 3        |        |
| <b>Total</b>    | <b>1</b> | <b>0</b> | <b>8</b> | <b>4</b> | <b>9</b> | <b>4</b> |        |

The time series of M2 enrollments and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is 55.6% across these time periods.



### ***Scholarships***

In this academic year 2024-2025, two students (2 females) obtain scholarships and funding support, 1 female student receive ITC scholarships and 1 female student receive HEIP-NUBB scholarships.

### ***Lecturers***

This program involves over 11 faculty members whose specializations are in software engineering, IT, machine learning, deep learning, AI, information security, computer vision, NLP, data science, etc. Among these, 5 of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and superiors for the master students M-ECS. Some students are jointly

supervised by professors from partner universities. The list of faculty members for M-ECS can be found in Annex 5 or on the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, four master theses were successfully defended. All of them were conducted under the research-based pathway. The list of published theses can be found in Annex 6 or on the website of GS-ITC.

Regarding the dissemination and publication, 5 articles were published to national journals. The list of publications can be found in Annex 7, on the website of GS-ITC, or in the webpage of Techno-Science Research Journal: <https://techno-srj.itc.edu.kh/search?topic=3>.

### **3.3.3.7. Program M-MIC**

#### ***Program's objective***

Multidisciplinary master's degree Program of Mechatronics, Information and Communication Engineering, technically supported by professionals and experts from stakeholders and European partner university, is designed to equip students with a broad range of skills and knowledge that seek the applications in engineering disciplines ranging from mechanical design to software engineering as well as those more purely focused on mechatronics, automation, and robotics. Graduates from this program are employed in industries ranging from mining to manufacturing, agriculture, and defense.

***Program Coordinator:*** Dr. PEC Rothna

#### ***Curriculum and syllabus***

M-MIC is a full-time program, classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

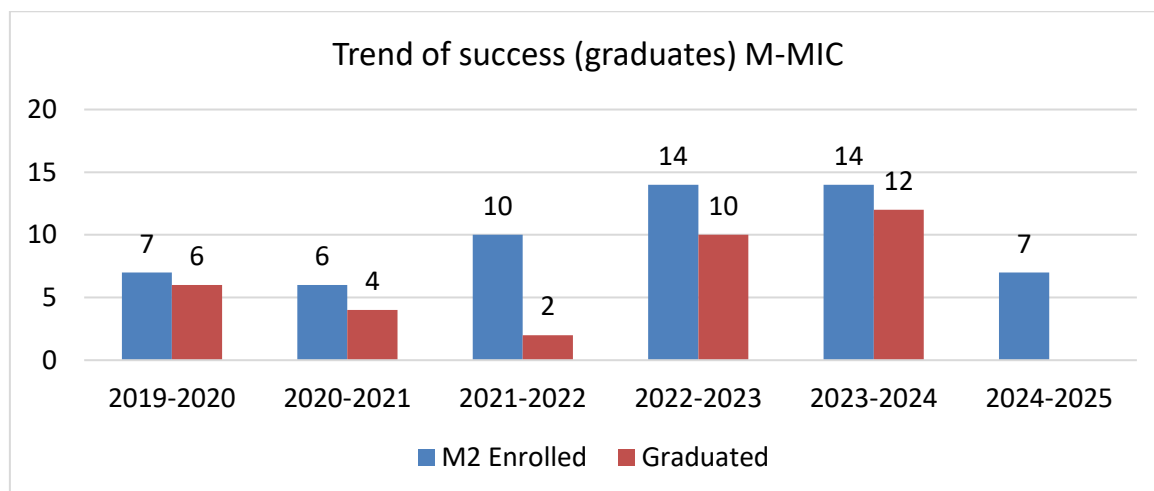
The curriculum of M-MIC is reviewed annually by the program's curriculum committee with consultation with stakeholders and partner university, namely, IMT Mines Alès, France--a partner under HEIP project. In 2023, this program was evaluated by external expert panels (both technical and educational aspects) to see whether the program meets the modest standard criteria set by the higher education's educational experts from the MoEYS and the World Bank (WB). Overall score results were 3/4 with satisfaction of the evaluation.

#### ***Alumni and Students***

Starting in academic 2013-2014, in total, there were 44 students (5 females) graduated from the program. Currently, there are 9 students (1 female) enrolling in the program and the details are reported in the table below.

| Pathway         | M1       |          | M2       |          | Total    | Female   | Remark                            |
|-----------------|----------|----------|----------|----------|----------|----------|-----------------------------------|
|                 | Total    | F        | Total    | F        |          |          |                                   |
| Course-research | 2        | 1        | 7        | 0        | 9        | 1        | Double degree: (3) IMT Mines Alès |
| Research-based  | 0        | 0        | 0        | 0        | 0        | 0        |                                   |
| <b>Total</b>    | <b>2</b> | <b>1</b> | <b>7</b> | <b>0</b> | <b>9</b> | <b>1</b> |                                   |

The time series of enrollments and numbers of graduates from 2019 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is 66.7% across these time periods.



### ***Scholarships***

In this academic year 2024-2025, eight students (1 female) obtain scholarships and funding support, 1 student receive Eiffel scholarships, 3 students receive HEIP scholarships, 1 female student receive ITC-IMT scholarships and 3 students receive DCLab scholarships.

### ***Lecturers***

This program involves over 15 faculty members whose specializations are in electronics, mechanical engineering, control system, mechatronics, robotics, automation, machine learning, and data science, IT, telecommunication engineering, etc. Most of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and superiors for the master students M-MIC. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-MIC can be found in Annex 5 or the website of GS-ITC.

### ***Theses and publications***

In the academic year 2023-2024, twelve (3 females) master theses were successfully defended. 3 students (2 females) were conducted under the research-based pathway and 9 students (1 female) were conducted under the course-research pathway. The list of published theses can be found in Annex 6 or in or the website of GS-ITC.

Regarding the dissemination and publication, ten articles were published to national journals. The list of publications can be found in Annex 7 or in the website of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

### 3.3.3.8. Program M-TIE

#### *Program's objective*

Master's Degree Program of Transport Engineering is designed to provide students expertise in research, innovation, and complex problem solving of diverse engineering topics related to transport engineering and public infrastructure. It addresses the solution toward land, air and water transportation issues including traffic congestion and accidents, public transport systems, transport policy, logistic networks, energy consumption, aviation issues, environmental matters, etc.

**Program Coordinator:** Dr. SAUM Narith

#### *Curriculum and syllabus*

M-TIE is a full-time program, classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students are required to take 52 credits, 40 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

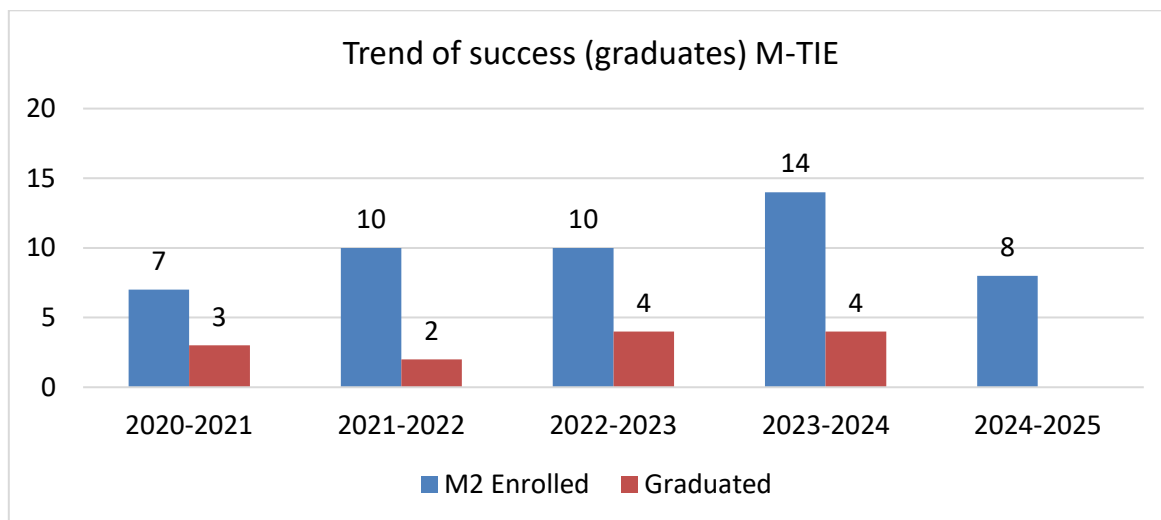
#### *Alumni and Students*

Starting in academic 2020-2021, in total, 13 students (1 female) graduated from the program. Currently, there are 10 students (1 female) enrolling in the program and the details are reported in the table below.

| Pathway         | M1       |          | M2       |          | Total     | Female   | Remark |
|-----------------|----------|----------|----------|----------|-----------|----------|--------|
|                 | Total    | F        | Total    | F        |           |          |        |
| Course-research | 0        | 0        | 0        | 0        | 0         | 0        |        |
| Research-based  | 2        | 1        | 8        | 0        | 10        | 1        |        |
| <b>Total</b>    | <b>2</b> | <b>1</b> | <b>8</b> | <b>0</b> | <b>10</b> | <b>1</b> |        |

The time series of enrollments and numbers of graduates from 2020 to 2025 is displayed in the following figure. We observe that rate of success (ratio graduate/ M2 enrolled) is only 32% across these time periods, marking one of the low graduate rates.





### ***Scholarships***

In this academic year 2024-2025, there are no scholarship students.

### ***Lecturers***

This program involves over 14 faculty members whose specializations are in transport engineering, logistics, civil engineering, public infrastructure, etc. Among these, 11 of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and superiors for the master students M-TIE. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-TIE can be found in Annex 5 or in the website of GS.

### ***Theses and publications***

In the academic year 2023-2024, four master theses were successfully defended. All of them were conducted under the research-based pathway. The list of published theses can be found in Annex 6 or in the website of GS.

The list of publications can be found in Annex 7 or in the website of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

## **3.3.3.9. Program M-DAS**

### ***Program's objective***

Master's Degree Program of Data Science, codeveloped by professionals and experts of IMT and ENSIIE, France, uses real-world problems and situations to prepare graduates for roles as strategic thought leaders who leverage predictive modeling to drive decision making. Students will develop in-depth understanding of key technologies in data science and business analytics: data mining, machine learning, visualization techniques, predictive modeling and Statistics.

***Program Coordinator:*** Dr. PHAUK Sökkhey

### ***Curriculum and syllabus***

M-DAS is a full-time program, classified into two levels, M1 and M2, and is offered in two pathways: research-based and course-research pathways. For course-research pathway, students

are required to take 54 credits, 42 credits for coursework and 12 credits for the last semester report/thesis defense of their final project/thesis. For research-based pathway, students are required to take 54 credits, 12 credits for coursework and 42 credits for research activities, research results, thesis and thesis defense. Detailed curriculum can be found on the website of GS-ITC.

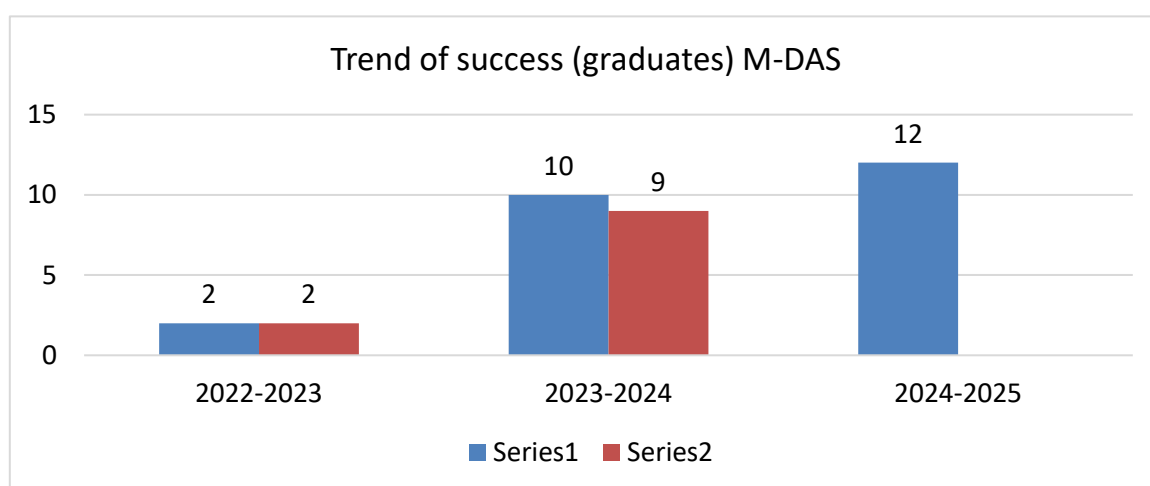
The curriculum of M-DAS is reviewed annually by the program's curriculum committee with consultation with stakeholders and partner universities, especially, with ENSIIE, France--a partner under HEIP project. In 2023, this program was evaluated by external expert panels (both technical and educational aspects) to see whether the program meets the modest standard criteria set by the higher education's educational experts from the MoEYS and the World Bank (WB). The program was evaluated with satisfactory.

### *Alumni and Students*

Starting in academic 2022-2023, in total, 11 students (3 females) graduated from the program. Currently, there are 22 students (5 females) enrolling in the program and the details are reported in the table below.

| Pathway         | M1        |          | M2        |          | Total     | Female   | Remark |
|-----------------|-----------|----------|-----------|----------|-----------|----------|--------|
|                 | Total     | F        | Total     | F        |           |          |        |
| Course-research | 5         | 0        | 4         | 0        | 9         | 0        |        |
| Research-based  | 5         | 2        | 8         | 3        | 13        | 5        |        |
| <b>Total</b>    | <b>10</b> | <b>2</b> | <b>12</b> | <b>3</b> | <b>22</b> | <b>5</b> |        |

The records of enrollments and numbers of graduates from 2022 to 2025 is displayed in the following figure. We observe that rate of success (Graduates/ M2 enrolled) is 92% across these time periods.



### *Scholarships*

In this academic year 2024-2025, 1 student obtains scholarships and funding support from ITC scholarships, 2 students (1 female) receive mobilities support under ARES to do internship in UNamur, Belgium.

## ***Lecturers***

This program involves over 15 faculty members whose specializations are in software engineering, IT, machine learning, deep learning, AI, NLP, data science, data mining, mathematics, and statistics, etc. Among these, 7 of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and superiors for the master students M-DAS. Some students are jointly supervised by professors from partner universities. The list of faculty members for M-DAS can be found in Annex 5 or on the website of GS-ITC.

## ***Theses and publications***

In the academic year 2023-2024, nine (3 females) master theses were successfully defended. 4 students were conducted under the research-based pathway and 5 students (3 females) were conducted under the course-research pathway. The list of published theses can be found in Annex 6 or the website of GS-ITC.

Regarding the dissemination and publication, two articles were published in a national journal. The list of publications can be found in Annex 7, the webpage of GS-ITC or via <https://techno-srj.itc.edu.kh/search?topic=10>.

## **3.3.4. Doctoral Programs**

### **3.3.4.1. Overview**

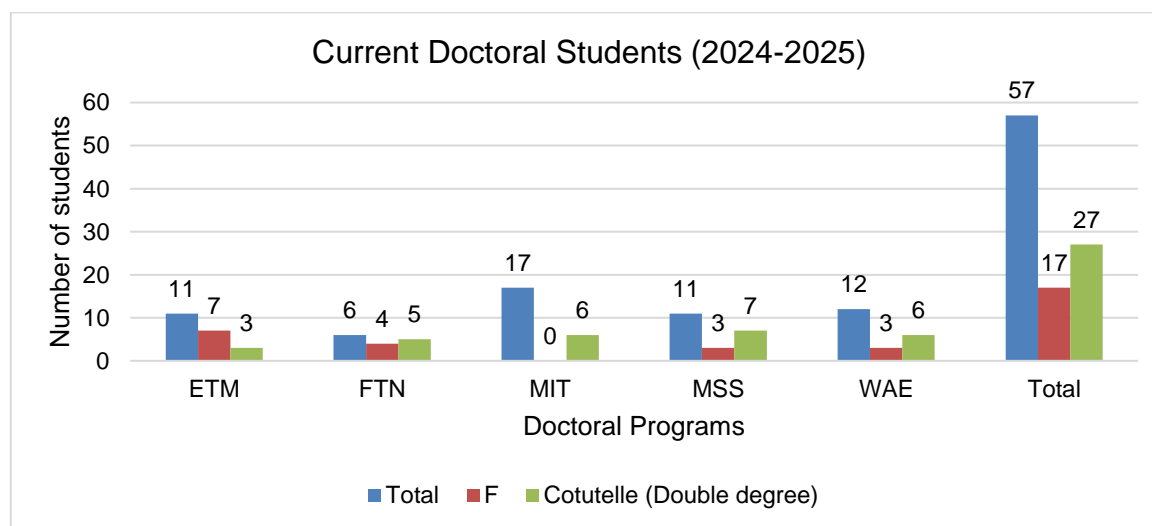
The doctoral programs at ITC were authorized by the Ministry of Education, Youth and Sport by the **Prakas No. 909 AYK. BrK**, dated the 29<sup>th</sup> September 2017, to operate 5 programs as listed in table below.

| No       | Abbrev.     | Name in English                         | First promotion |
|----------|-------------|---|-----------------|
| <b>I</b> | <b>DEng</b> | <b>Doctor of Engineering</b>            | <b>2017</b>     |
| 1        | D-FTN       | Food Technology and Nutrition           | 2017 (Cotuelle) |
| 2        | D-MSS       | Materials Science and Structures        | 2017 (Cotuelle) |
| 3        | D-MIT       | Mechatronics and Information Technology | 2018 (Cotuelle) |
| 4        | D-WAE       | Water and Environment                   | 2018 (Cotuelle) |
| 5        | D-ETM       | Energy Technology and Management        | 2018 (Cotuelle) |

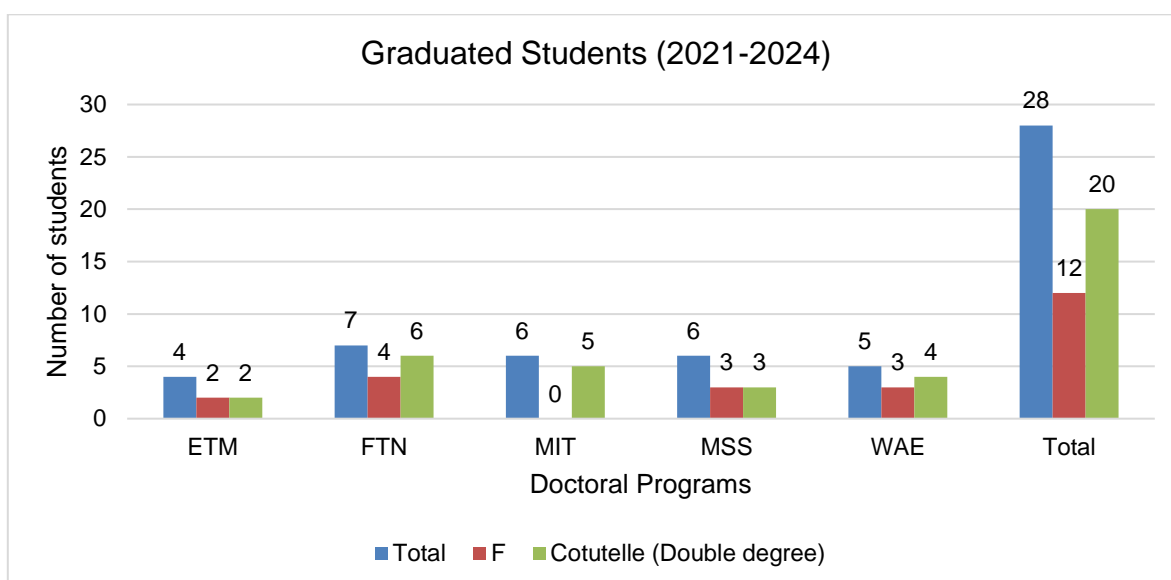
In the academic year 2024-2025, 57 doctoral students (17 females) are enrolled, in which 26 (12 females) of them are in cotutelle/co-supervision with partner universities (16 with universities in France, and 10 with universities in Belgium). All students enrolled receive financial support from several projects and organizations. Table and Figure below show the overall statistics of PhD students.

### Statistics of PhD students

| Program                                     |       |   |       |   |       |   |       |   |       |   | Total | F  |
|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|----|
| Name  | WAE   |   | FTN   |   | MIT   |   | MSS   |   | ETM   |   |       |    |
| Number                                      | Total | F | Total | F | Total | F | Total | F | Total | F |       |    |
| Total number of PhD graduates               | 4     | 2 | 7     | 4 | 6     | 0 | 6     | 3 | 5     | 3 | 28    | 12 |
| PhD Graduated in 2023-2024                  | -     | - | 3     | 2 | 2     | 0 | 1     | 1 | 3     | 1 | 9     | 4  |
| Total number of PhD enrolments by 2024-2025 | 11    | 7 | 6     | 4 | 17    | 0 | 11    | 3 | 12    | 3 | 57    | 17 |
| PhD Enrolled in year 1                      | 2     | 1 | -     | - | 3     | 0 | 3     | 1 | 5     | 3 | 13    | 5  |
| PhD Enrolled in year 2                      | 5     | 3 | -     | - | 1     | 0 | 2     | 0 | 2     | 0 | 10    | 3  |
| PhD Enrolled in year 3                      | 1     | 1 | 2     | 1 | 2     | 0 | 1     | 1 | -     | - | 6     | 3  |
| PhD Enrolled in year 4                      | -     | - | 3     | 3 | 2     | 0 | 2     | 0 | 1     | 0 | 8     | 3  |
| PhD Enrolled in year 5                      | 3     | 2 | 1     | 0 | 9     | 0 | 3     | 1 | 4     | 0 | 20    | 3  |
| Scholarship                                 | 11    | 7 | 6     | 4 | 17    | 0 | 11    | 3 | 12    | 3 | 57    | 17 |



Total number of graduates is 28 (12 females). PhD graduates have jobs and most of them are working in academic institutions. Figure below shows the statistics of PhD graduates at ITC.



### *Sources of funding*

Table below provides the exhaustive list of sources of funding of our students.

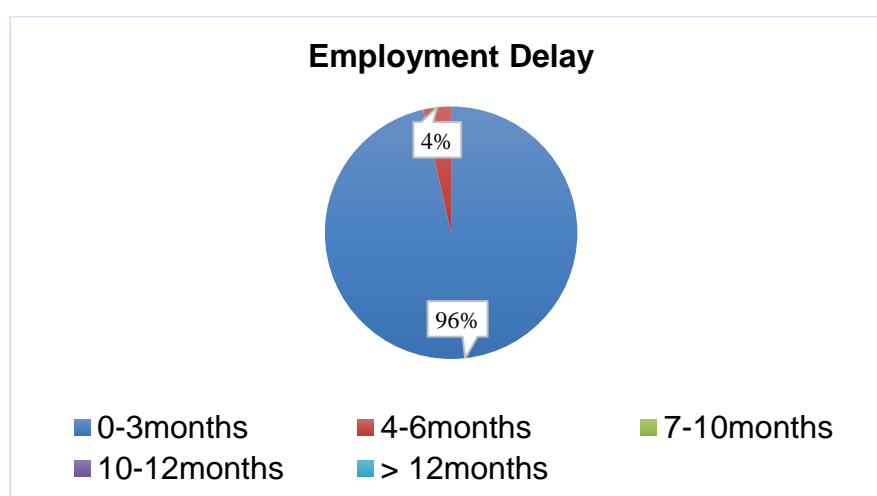
| Sources of Funding* | Number of Beneficiaries | Number of Beneficiaries (Female) |
|---------------------|-------------------------|----------------------------------|
| ARES                | 2                       | 1                                |
| ARES-ITC            | 3                       | 0                                |
| ARES-ITC-HEIP       | 1                       | 0                                |
| ARES-COMBOdIA       | 1                       | 1                                |
| ARES-CAMBOFISH      | 2                       | 1                                |
| BGF                 | 7                       | 3                                |
| BGF-ITC             | 2                       | 1                                |
| BGF-ITC/HEIP        | 1                       | 1                                |
| BGF-HEIP            | 0                       | 0                                |
| HEIP                | 7                       | 3                                |
| HEIP-2              | 2                       | 1                                |
| HEIP2-IRD           | 1                       | 0                                |
| HEIP-ITC            | 1                       | 0                                |
| HEIP-NUBB           | 1                       | 0                                |
| ITC-Erasmus+/HEIP   | 1                       | 1                                |
| ITC                 | 3                       | 1                                |
| KIT-ITC             | 0                       | 0                                |
| USAID-WoM           | 1                       | 1                                |
| NPIC                | 9                       | 0                                |
| NIPTIC              | 1                       | 0                                |
| MoE                 | 1                       | 0                                |
| IRD                 | 0                       | 0                                |
| NUM                 | 1                       | 0                                |
| UHST                | 1                       | 0                                |
| EDC-AFD-EU          | 4                       | 1                                |
| CCCA                | 1                       | 0                                |

|              |           |           |
|--------------|-----------|-----------|
| GAWC         | 1         | 1         |
| Eiffel       | 1         | 0         |
| RAC          | 1         | 0         |
| <b>Total</b> | <b>57</b> | <b>17</b> |

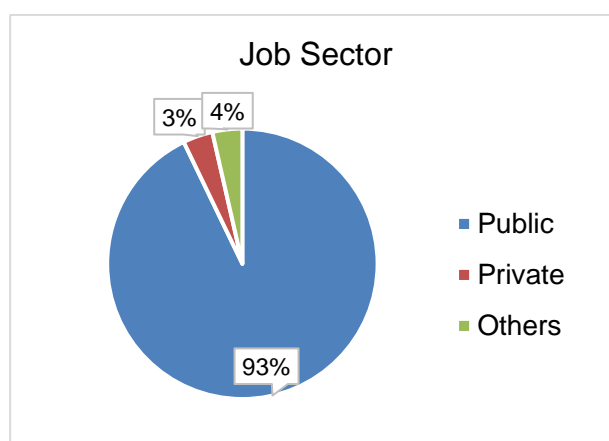
*\*19 (6 females) of the 57 students, who are ITC staffs, receive co-funding from ITC. Three students receive tuition fee scholarship from ITC.*

### ***Tracer Study of doctoral programs***

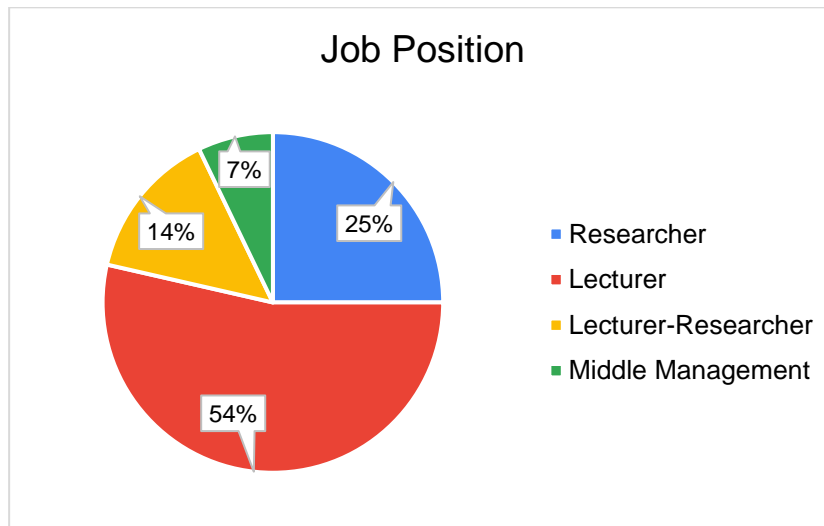
In the exit survey, there were 28 respondents out of 28 graduated students. The employment delay figure shows that 96% of the graduates got employed within 0-4 months, while 4% of them had a job within 4-6 months.



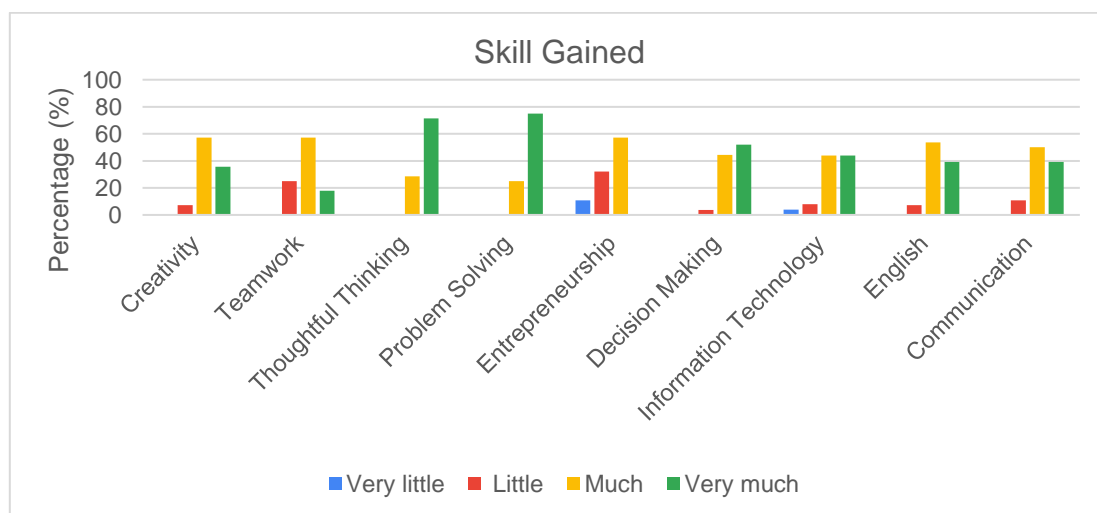
Among them, 93% and 3% are working in public sector and private sector, respectively.



Regarding their job position, most of the doctoral graduates are working as researcher or lecturer or both, and only 7% serve in the middle management level.



All the graduates were asked about what skills they had gained during their doctoral program journey. 70-75% of them responded that they gained very much in thoughtful thinking and problem-solving skills. 57% of them answered that they gained much in teamwork, creativity and entrepreneurship, while 36% and 18% of them gained very much in creativity and teamwork, and none of them thought they gained very much in entrepreneurship skills.



### 3.3.4.2. Program D-WAE

#### *Program's Objective*

D-WAE, in conjunction with the Research Unit of Water and Environment under RIC-ITC, is one of the five doctoral programs of ITC, established in 2017, recognized by the Ministry of Education Youths and Sports. D-WAE was developed by the relevant experts in Water and Environment Engineering such as lecturers and researchers at ITC with the support from partner universities and institutions. Students can register for a single degree at ITC, or a degree under cotutelle (co-supervision) between ITC and a partner university in France. The cotutelle program is selective and upon the agreement between ITC and the partner university.

D-WAE students will develop in-depth understanding of the key technologies in their research area of Water and Environmental Engineering. D-WAE students will work closely with researchers of WAE research unit (generally, one of them is the student's supervisor) and they also can be co-

supervised by the professors from our partner universities or research institutions (France, Belgium, Japan, etc.).

### ***Curriculum and syllabus***

D-WAE is a full-time program (3 to 6 years), consist of 54 credits: 21 credits for coursework (Supplementary/Prerequisite and Doctoral courses, and PhD Orientation courses), and 33 credits for research and thesis (3 credits for detailed research proposal, 6 credits for national/international publications, 3 credits for the presentation in scientific conference, 3 credits for seminars, 18 credits for Thesis writing and defense). This program trains doctoral students to be specialized in their advanced research and development field including hydrology, water supply and wastewater, urban environment management, disaster and climate system and other relevant fields. Detailed curriculum can be found on the website of GS-ITC.

### ***Students and Alumni***

Starting from the academic year 2017-2018 to 2023-2024, four students (2 females) have graduated from the program. In 2024-2025, there are 2 new students (1 female) enrolling in the program and the details are reported in the table below. The list of current and graduated students including their including research topic can be found on the website of GS-ITC.

***List of current D-WAE students in 2024-2025***

| No. | Name                 | Sex | First Reg. | Funding     | Cotutelle |                           | Research topic  |
|-----|----------------------|-----|------------|-------------|-----------|---------------------------|---|
|     |                      |     |            |             | Yes/ No   | University                |   |
| 1   | LUN Sambo            | M   | 2024       | HEIP2-IRD   | No        |                           | Understanding Groundwater Dynamics and Socio-Hydrological Interactions for Sustainable Development in the Upper Mekong Delta, Cambodia  |
| 2   | PHOL Mengheak        | F   | 2024       | GAWC        | No        |                           | Effect of Different Water-saving Irrigation Methods for Rice Cultivation, Case Study in Cambodia  |
| 3   | CHAN Ratboren        | M   | 2023       | BGF         | Yes       | Université de Toulouse    | Effect of geomorphological features and land use change on stormflow genesis and stream water quality in headwater catchments of mountainous tropical environment                             |
| 4   | CHANTO Monychot Tepy | F   | 2023       | BGF         | Yes       | Université de Montpellier | Circulation of Multi-Drug Resistant Bacteria in Humans, Animals and in the Environment in the province of Takeo, Cambodia   |
| 5   | HENG Chhenglang      | F   | 2023       | BGF         | Yes       | Université de Montpellier | Assessing the effects of land use dynamics on water quality and flood risk using satellite imagery, machine learning and hydrological modeling: the Tonle Sap Lake in Cambodia as a test case |
| 6   | PEN Chhorda          | F   | 2023       | ITC and MME | No        |                           | Chemical Characterization of Acid Mine Drainage from  |



|    |                   |   |      |           |     |  |   |
|----|-------------------|---|------|-----------|-----|--|---|
|    |                   |   |      |           |     |  | Gold Mining in Monudulkiri Province, Cambodia   |
| 7  | SOK Serey vathana | M | 2023 | BGF       | Yes | Ecole Nationale Supérieure de Chimie de Rennes | Removal of Organic Micropollutants by Coupling Simultaneous Continuous Adsorption and Sedimentation for Drinking Water Production |
| 8  | CHEA Seila        | F | 2022 | USAID-WoM | No  |  | Assessment of Plastic Debris Distribution in Coastal and Mekong River systems of Cambodia towards separation process development  |
| 9  | LAI Chenda        | F | 2020 | HEIP      | Yes | Université de Liège                            | Optimization of Soil Nutrients for Rice Cultivation Using Experimental and Modeling Approach                                      |
| 10 | PHOEURN Chan Arun | F | 2020 | HEIP      | Yes | Université de Liège                            | Integrated approach of precise irrigation and sustainable laboratory development: the focus on rice farming                       |
| 11 | HIN Chandara      | M | 2020 | NPIC      | No  |  | Development of Eco-Friendly and Low-Cost Wastewater Treatment System as an On-site Product  |

### ***Lecturers and Supervisors***

This program involves over 15 faculty members whose specializations are in water resources, hydrology, environmental engineering, and relevant fields. All of them hold doctoral degrees from Europe, Japan, and ASEAN. They are involving in the program for teaching or/and supervising the D-WAE students. Some students are jointly supervised by professors from partner universities. The list of faculty members in D-WAE program can be found in Annex 8 or on the website of GS-ITC.

### ***Theses and publications***

Four theses have been published since the academic year 2020-2021. The list of published theses can be found in Annex 9 and on the website of GS-ITC.

Regarding the dissemination and publication, 7 articles were published in international journals. The list of publications is presented in Annex 10 and in the webpage of GS-ITC.

### **3.3.4.3. Program D-ETM**

#### ***Program's Objective***

D-ETM, in conjunction with the Research Unit of Energy Technology and Management under RIC-ITC, is one of the five doctoral programs of ITC, established in 2017, recognized by the Ministry of Education Youths and Sports. D-ETM was developed by the relevant experts in Energy Technology and Management including the lecturers and researchers at ITC with the support from partner universities and institutions. Students can register for a single degree at ITC, or a degree under cotutelle (co-supervision) between ITC and a partner university in France. The cotutelle program is selective and upon the agreement between ITC and the partner university.

D-ETM students will develop in-depth understanding of the key technologies and engineering in their research area of Energy Technology and Management. D-ETM students will work closely with researchers of ETM research unit (generally, one of them is the student's supervisor) and they also can be co-supervised by the professors from our partner universities or research institutions (France, Belgium, Japan, etc.).

### ***Curriculum and syllabus***

D-ETM is a full-time program (3 to 6 years), consist of 54 credits: 21 credits for coursework (Supplementary/Prerequisite and Doctoral courses, and PhD Orientation courses), and 33 credits for research and thesis (3 credits for detailed research proposal, 6 credits for national/international publications, 3 credits for the presentation in scientific conference, 3 credits for seminars, 18 credits for Thesis writing and defense). This program trains doctoral students to be specialized in their respective advanced research and development field such as new and renewable energy, energy efficiency and conservation, smart grid, energy management and other relevant fields. Detailed curriculum can be found on the website of GS-ITC.

### ***Students and Alumni***

Starting from the academic year 2017-2018 to 2023-2024, five students (3 females) have graduated from the program. In 2024-2025, there are 5 new students (3 female) enrolling in the program and the details are reported in the table below. The details of current and graduated students with research topic can also be found on the website of GS-ITC.

#### ***List of current D-ETM students in 2024-2025***

| No. | Name           | Sex | First Reg. | Funding    | Cotutelle |                    | Research topic  |
|-----|----------------|-----|------------|------------|-----------|--------------------|---|
|     |                |     |            |            | Yes/No    | University         |   |
| 1   | ENG Samphors   | F   | 2024       | ARES       | Yes       | University of Mons | Sustainable Energy System Planning for LV Microgrid Management: A Case Study in Cambodia  |
| 2   | CHOUN Pheakdey | M   | 2024       | HEIP-2     | No        |                    | Thermal Performance Evaluation and Optimization of Residential Building Stocks: A Study on Topology, Construction Materials, and Passive Cooling Strategies |
| 3   | NEOV Yoklin    | F   | 2024       | HEIP-2     | No        |                    | Investigating the Application of Reinforcement Learning in Adaptive Hybrid Microgrid Protection: A case study in Cambodia                                   |
| 4   | NOP Phornnara  | M   | 2024       | EDC-AFD-EU | No        |                    | Regional Area Distribution Networks Reconfiguration and Planning for Power Quality Optimization and Revenue Loss Reduction                                  |
| 5   | YON Kanika     | F   | 2024       | EDC-AFD-EU | Yes       | Grenoble INP       | Contingency Analysis with Variable Renewable Energy and Energy Storage Systems - Case Study in Cambodia   |
| 6   | LENG Por       | M   | 2023       | EDC-AFD-EU | No        |                    | Power Management and Control of Hybrid LV AC/DC Microgrids with Renewable   |

|    |                   |   |      |            |     |                           |  |
|----|-------------------|---|------|------------|-----|---------------------------|--|
|    |                   |   |      |            |     |                           | Energy Sources and Battery Energy Storage  |
| 7  | SORN Darong       | M | 2023 | EDC-AFD-EU | Yes | Université Grenoble Alpes | Operation and Protection Strategies for Low Voltage Hybrid Grids: Enhancing Efficiency, Reliability, and Resilience                                |
| 8  | CHHLONH Chhith    | M | 2021 | BGF-HEIP   | Yes | Université Grenoble Alpes | Optimal fault location, isolation, and restoration procedure for LV microgrids   |
| 9  | NEAK Kimhak       | M | 2021 | HEIP-ITC   | No  |                           | The impacts Assessment of Gasoline and Diesel Quality in Cambodian Fuel Market on Economic and Environment   |
| 10 | CHHENG Monyvathna | M | 2021 | HEIP       | No  |                           | Design and Techno-economic analysis of plug-in electric vehicle-integrated Hybrid solar PV charging system for Cambodia                            |
| 11 | HEANG Latin       | M | 2020 | CCCA       | No  |                           | Study on impact of heat stress on construction worker's productivity and economic in Cambodia  |
| 12 | CHEA Vabotra      | M | 2020 | MoE        | No  |                           | Study on the Impact of Heat Stress on Garment Worker Productivity and Economy in Cambodia  |
| 13 | MEAS Saran        | M | 2020 | NPIC       | No  |                           | Optimization of an Integrated Hybrid Onboard Charger with High Efficiency of MPPT Solar Charger for 3-Wheel Solar E-Rickshaw and Electric Vehicles |
| 14 | SIO Sreymean      | F | 2019 | HEIP-ITC   | No  |                           | Applied geophysical methods for geological structures and hydrocarbon potential investigation in Kampong Som Basin, Onshore of Cambodia            |
| 15 | ETH Oudaya        | M | 2019 | HEIP-ITC   | No  |                           | Study on Impacts of the Integration of Renewable Energy Resources on Distribution System considering Micro Grid Scenario                           |

### ***Lecturers and Supervisors***

This program involves over 8 faculty members whose specializations are in new and renewable energy, energy efficiency and conservation, smart grid, energy management and relevant fields. All of them hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They are involving in the program for teaching or/and supervising the D-ETM students. Some students are jointly supervised by professors from partner universities. The list of faculty members in D-ETM program can be found in Annex 8 or on the website of GS-ITC.

### ***Thesis and publication***

Five theses have been published since the academic year 2021-2022. The list of published theses can be found in Annex 9 and on the website of GS-ITC.

Regarding the dissemination and publication, 8 articles were published in international journals. The list of publications is presented in Annex 10 in the webpage of GS-ITC.

### 3.3.4.4. Program D-FTN

#### *Program's Objective*

D-FTN, in conjunction with the Research Unit of Food Technology and Nutrition under RIC-ITC, is one of the five doctoral programs of ITC, established in 2017, recognized by the Ministry of Education Youths and Sports. D-FTN was developed by the relevant experts in Food Science, Food Engineering, Food Technology and Nutrition including the lecturers and researchers at ITC with the support from partner universities and institutions. Students can register for a single degree at ITC, or a degree under cotutelle (co-supervision) between ITC and a partner university in France. The cotutelle program is selective and upon the agreement between ITC and the partner university.

D-FTN students will develop in-depth understanding of the key technologies and engineering in their research area of Food Science, Food Engineering, Food Technology and Nutrition. D-FTN students will work closely with researchers of FTN research unit (generally, one of them is the student's supervisor) and they also can be co-supervised by the professors from our partner universities or research institutions (France, Belgium, Japan, etc.).

#### *Curriculum and syllabus*

D-FTN is a full-time program (3 to 6 years), consist of 54 credits: 21 credits for coursework (Supplementary/Prerequisite and Doctoral courses, and PhD Orientation courses), and 33 credits for research and thesis (3 credits for detailed research proposal, 6 credits for national/international publications, 3 credits for the presentation in scientific conference, 3 credits for seminars, 18 credits for Thesis writing and defense). This program trains doctoral students to be specialized in their respective advanced research and development field such as Food technology development, Food processing and engineering, Food product development, Food quality and safety, Sustainability of food systems, Food contaminant surveillance and control and other relevant fields. Detailed curriculum can be found on the website of GS-ITC.

#### *Students and Alumni*

Starting from the academic year 2017-2018 to 2023-2024, seven students (4 females) have graduated from the program. En 2024-2025, there are no new students enrolling in the program and the details are reported in the table below. The list of current and graduated students including their including research topic can be found on the website of GS-ITC.

#### *List of current D-FTN students in 2024-2025*

| No. | Name           | Sex | First Reg. | Funding        | Cotutelle |                                  | Research topic   |
|-----|----------------|-----|------------|----------------|-----------|----------------------------------|--|
|     |                |     |            |                | Yes/ No   | University                       |  |
| 1   | LAY Sovannmony | M   | 2022       | ARES-CAMBOFISH | Yes       | Université Catholique de Louvain | Effects of different smoking and cooking conditions on the fatty acid profile of farmed freshwater fish marketed in Cambodia |
| 2   | MOM Vattana    | F   | 2022       | ARES-CAMBOFISH | Yes       | Université de Liège              | Improvement the safety of processed fish farm products   |

|   |                 |   |      |                   |     |                           |   |
|---|-----------------|---|------|-------------------|-----|---------------------------|---|
| 3 | OEUM Kakada     | F | 2021 | IRD               | Yes | University of Montpellier | Exploration and exploitation of root-associated bacteria for a sustainable rice agriculture in Cambodia   |
| 4 | MAO Socheata    | F | 2021 | ITC-Erasmus+/HEIP | Yes | Agro-Sup Dijon            | Lactic Acid Bacteria Strain Diversity Depending on the Origin of the Product                              |
| 5 | SAY Manit       | M | 2021 | HEIP              | No  |                           | Development of cooking oil processes for commercialization  |
| 6 | PHAL Sivchheng  | F | 2021 | BGF-ITC           | Yes | INSA Toulouse             | New insights into Pharmaceuticals and Personal Care Products (PPCPs) removal from waters                  |
| 7 | CHIN Lyda       | F | 2021 | BGF-ITC/HEIP      | Yes | Montpellier SupAgro       | Impact of initial compositions and processing techniques on aromatic quality of Mango                     |
| 8 | THANH Channmuny | F | 2021 | BGF-ITC/HEIP      | Yes | Montpellier SupAgro       | Nutritional Interest of Different Fish Species and Valorization of By-Products                            |
| 9 | LY Luka         | M | 2020 | HEIP              | No  |                           | Control of Different Soy Sauces Sold in the Markets and the Development of Soy Sauce Fermentation Process |

### ***Lecturers and Supervisors***

This program involves over 6 faculty members whose specializations are in Food technology development, Food processing and engineering, Food product development, Food quality and safety, Sustainability of food systems, Food contaminant surveillance and control and other relevant fields. They hold doctoral degrees from Europe, Japan, US, or ASEAN. They are involving in the program for teaching or/and supervising the D-FTN students. Some students are jointly supervised by professors from partner universities. The list of faculty members in D-FTN program can be found in Annex 8 or on the website of GS-ITC.

### ***Thesis and publication***

Seven theses have published since the academic years 2020-2021. The list of published theses can be found in Annex 9 and the website of GS-ITC.

Regarding the dissemination and publication, 10 articles were published in international journals. The list of theses and publication are presented in the webpage of graduate school: The list of publications is presented in Annex 10 in the webpage of GS-ITC.

### **3.3.4.5. Program D-MIT**

#### ***Program's Objective***

D-MIT, in conjunction with the Research Unit of Mechatronics and Information Technology under RIC-ITC, is one of the five doctoral programs of ITC, established in 2017, recognized by the Ministry of Education Youths and Sports. D-MIT was developed by the relevant experts in Mechanical engineering, robotics, electronics and automation, information and technology including the lecturers and researchers at ITC with the support from partner universities and institutions. Students can register for a single degree at ITC, or a degree under cotutelle (co-

supervision) between ITC and a partner university in France and in Belgium. The cotutelle program is selective and upon the agreement between ITC and the partner university.

D-MIT students will develop in-depth understanding of the key technologies and engineering in their research area of mechanical engineering, robotics, electronics and automation, information and technology, data science, computer vision and other related fields. D-MIT students will work closely with researchers of MIT research unit (generally, one of them is the student's supervisor) and they also can be co-supervised by the professors from our partner universities or research institutions (France, Belgium, Japan, etc.).

### ***Curriculum and syllabus***

D-MIT is a full-time program (3 to 6 years), consist of 54 credits: 21 credits for coursework (Supplementary/Prerequisite and Doctoral courses, and PhD Orientation courses), and 33 credits for research and thesis (3 credits for detailed research proposal, 6 credits for national/international publications, 3 credits for the presentation in scientific conference, 3 credits for seminars, 18 credits for Thesis writing and defense). This program trains doctoral students to be specialized in their respective advanced research and development field such as intelligent mechatronics, artificial intelligence, telecommunication and internet of things, optimization for operation research and supply chain, electronics, and communication and other relevant fields. Detailed curriculum can be found on the website of GS-ITC.

### ***Students and Alumni***

Starting from the academic year 2017-2018 to 2023-2024, six students (0 female) have graduated from the program. Currently, there are 3 new students enrolling in the program and the details are reported in the table below. The list of current and graduated students including their including research topic can be found on the website of GS-ITC.

#### ***List of current D-MIT students in 2024-2025***

| No. | Name             | Sex | First Reg. | Funding      | Cotutelle |                    | Research topic   |
|-----|------------------|-----|------------|--------------|-----------|--------------------|--|
|     |                  |     |            |              | Yes/ No   | University         |  |
| 1   | EM Hengly        | M   | 2024       | ARES-ITC     | Yes       | University of Mons | Enhancing Sleep Apnea Diagnosis with Latent Space Shaping and Explainable AI for Biomarker Extraction                      |
| 2   | LY Tong          | M   | 2024       | RAC          | No        |                    | Developing Framework for Predicting University Students' Academic Performance in STEM Majors Using Machine Learning and AI |
| 3   | PEN Chentra      | M   | 2024       | ITC          | No        |                    | Applying Artificial Intelligence to early empower students performance academic in blended learning                        |
| 4   | NGIN Kimlong     | M   | 2023       | UHST and ITC | No        |                    | S3AT: Attendance Tracking System based on AI Integrated with Electronic Device for Security Alarm                          |
| 5   | CHIN Chan Daraly | M   | 2022       | BGF-ITC      | Yes       | Toulouse INP       | The vehicle as an intelligent thing  |

|    |                          |   |      |               |     |                     |   |
|----|--------------------------|---|------|---------------|-----|---------------------|---|
| 6  | SRENG Vichet             | M | 2022 | NUM           | No  |                     | Automatic License plate number recognition system for Vehicle in Cambodia (ALPR)                                  |
| 7  | PICH Reatrey             | M | 2021 | ARES-ITC-HEIP | Yes | Université de Namur | Anomaly Detection in networks based on DNS's data analysis  |
| 8  | BUN Menghorng            | M | 2021 | HEIP          | Yes | Toulouse INP        | Study of feasibility and control of solar electric tuktuk   |
| 9  | SOK Song                 | M | 2020 | HEIP-NUBB     | No  |                     | Development of Non-Intrusive Appliance Load Monitoring and Diagnostic System for Residential Home                 |
| 10 | KARTHIKEYAN Dinesh Kumar | M | 2020 | KIT-ITC       | No  |                     | Image or Video Visualization of Text (Book) using Generative Adversarial Networks (GAN) / Educational GAN(EduGAN) |
| 11 | CHHOUR Vongchivorn       | M | 2020 | NPIC          | No  |                     | Parameter estimation for actuator using Kalman filter   |
| 12 | PEOU Thura               | M | 2020 | NPIC          | No  |                     | System integration for autonomous navigation for mobile robots using deep learning and ROS                        |
| 13 | SREY Sophyn              | M | 2020 | NPIC          | No  |                     | State and parameter estimation, and flight control for Unmanned Aerial Vehicle (UAV)                              |
| 14 | THUOK David              | M | 2020 | NPIC          | No  |                     | Optimization for multi agent in system integrity protection   |
| 15 | UN Sok Oeun              | M | 2020 | NPIC          | No  |                     | Cambodia disaster back-up communication for natural disaster by emergency amateur radio operator                  |
| 16 | YEAN Sopheak             | M | 2020 | NPIC          | No  |                     | Parameter Identification and Automatic Control for a System with Friction   |
| 17 | KUY Movsun               | M | 2020 | ARES          | Yes | Université de Mons  | Automatic security assessment of IoT devices using machine learning   |
| 18 | HEAN Samboeun            | M | 2018 | NIPTIC        | No  |                     | Research & development mathematical model as a machine learning system for Cambodia's digital economy             |
| 19 | SIV Ratha                | M | 2018 | ARES-ITC      | Yes | Université de Mons  | Crowds Analysis and Augmentation  |
| 20 | SOK Kim Heng             | M | 2018 | ARES-ITC      | Yes | Université de Namur | Building trustable and privacy aware IoT systems using blockchain and smart contracts                             |

### ***Lecturers and Supervisors***

This program involves over 8 faculty members whose specializations are in mechatronics, electronic and automation engineering, data science, robotics, and relevant fields. They hold doctoral degrees from Europe, Japan, or ASEAN. They are involved in the program for teaching or/and supervising the D-MIT students. Some students are jointly supervised by professors from partner universities. The list of faculty members in D-MIT program can be found in Annex 8 or on the website of GS-ITC.

### ***Theses and publications***

Six theses have been published since the academic year 2020-2021. The list of published theses can be found in Annex 9 and the website of GS-ITC.

Regarding the dissemination and publication, 15 articles were published in international journals. The list of theses and publication are presented in the webpage of graduate school: The list of publications is presented in Annex 10 in the webpage of GS-ITC.

## **3.3.4.6. Program D-MSS**

### ***Program's Objective***

D-MSS, in conjunction with the Research Unit of Materials Science and Structure (MSS) under RIC-ITC, is one of the five doctoral programs of ITC, established in 2017, recognized by the Ministry of Education Youths and Sports. D-MSS was developed by the relevant experts in material science, structural engineering, mechanical engineering, and related fields including the lecturers and researchers at ITC with the support from partner universities and institutions. Students can register for a single degree at ITC, or a degree under cotutelle (co-supervision) between ITC and a partner university in France. The cotutelle program is selective and upon the agreement between ITC and the partner university.

D-MSS students will develop in-depth understanding of the key technologies and engineering in their research area of material science and engineering, structural engineering, polymer composites, failure analysis of steel structure and other materials, numerical modeling and experimental analysis of infrastructure and materials. D-MSS students will work closely with researchers of MSS research unit (generally, one of them is the student's supervisor) and they also can be co-supervised by the professors from our partner universities or research institutions (France, Belgium, Japan, etc.).

### ***Curriculum and syllabus***

D-MSS is a full-time program (3 to 6 years), consist of 54 credits: 21 credits for coursework (Supplementary/Prerequisite and Doctoral courses, and PhD Orientation courses), and 33 credits for research and thesis (3 credits for detailed research proposal, 6 credits for national/international publications, 3 credits for the presentation in scientific conference, 3 credits for seminars, 18 credits for Thesis writing and defense). This program trains doctoral students to be specialized in their respective advanced research and development field such as material science and engineering, structural engineering, polymer composites, failure analysis of steel structure and other materials, numerical modeling and experimental analysis of infrastructure and materials and other relevant fields. Detailed curriculum can be found on the website of GS-ITC.



### ***Students and Alumni***

Starting from the academic year 2017-2018 to 2023-2024, six students (3 female) have graduated from the program. In 2024-2025, there are 3 new students (1 female) enrolling in the program and the details are reported in the table below. The list of current and graduated students including their including research topic can be found on the website of GS-ITC.

#### ***List of current D-MSS students in 2024-2025***

| No. | Name            | Sex | First Reg. | Funding       | Cotutelle |                               | Research topic   |
|-----|-----------------|-----|------------|---------------|-----------|-------------------------------|--|
|     |                 |     |            |               | Yes /No   | University                    |  |
| 1   | AUN Srean       | F   | 2024       | BGF           | Yes       | Université de Rennes          | Hybrid coatings for the Photodynamic inactivation of microbial infections  |
| 2   | CHANN Socheata  | M   | 2024       | Eiffel        | Yes       | INSA Rennes                   | Experimental and numerical studies of the behavior and durability of foam concrete base on recycled glass and natural fibers |
| 3   | NUTH Visal      | M   | 2024       | BGF           | Yes       | Université de Lorraine        | Climate-Resilient Soil Stabilization in Cambodia: Adapting to the Challenges of Flooding and Seasonal Variations             |
| 4   | PLACK Sokhit    | M   | 2023       | ITC           | No        |                               | Walkability and importance assessment of pedestrian facilities in Phnom Penh City  |
| 5   | SOM Chansamnang | M   | 2023       | BGF           | Yes       | INSA Rennes                   | Effect of the addition of natural fibers on shrinkage, cracking risk and healing capacity of cementitious materials          |
| 6   | HENG Muoy Yi    | F   | 2022       | HEIP          | Yes       | Université de Liège           | Quality assurance of concrete pile integrity using Non-destructive method  |
| 7   | HENG Kimhong    | M   | 2021       | HEIP          | Yes       | Uni. de Rennes 1              | A study of high strength-to-weight ratio glass beam  |
| 8   | LONG Makara     | M   | 2021       | ARES-ITC      | Yes       | Université de Liège           | Sustainable design conception integrated in architecture project in BIM environment  |
| 9   | KETH Kannary    | F   | 2020       | ARES-COMBOdIA | Yes       | Université Libre de Bruxelles | Managing the interdisciplinary collaboration in Construction 4.0: ITC case   |
| 10  | TAING Kimnenh   | F   | 2020       | ARES-COMBOdIA | Yes       | Université de Liège           | Green BIM – Analysis of BIM approach for design a bioclimatic building   |
| 11  | HOUR Sokaon     | M   | 2020       | NPIC          | No        |                               | FEM to Predict Effects of Plastic Deformation on Mechanical Properties of a Structural Steel                                 |
| 12  | KEAT Rayuth     | M   | 2020       | NPIC          | No        |                               | Study on Furnace Glass Heat Treatment Technology   |

### ***Lecturers and Supervisors***

This program involves over 12 faculty members whose specializations are material science and engineering, structural engineering, polymer composites, failure analysis of steel structure and other materials, numerical modeling and experimental analysis of infrastructure and materials, and relevant fields. They hold doctoral degrees from Europe, Japan, or ASEAN. They are involving in the program for teaching or/and supervising the D-MSS students. Some students are jointly supervised by professors from partner universities. The list of faculty members in D-MSS program can be found in Annex 8 or on the website of GS-ITC.

### ***Theses and publications***

Six theses have been published since the academic year 2021-2022. The list of published theses can be found in Annex 9 or on the website of GS-ITC.

Regarding the dissemination and publication, 6 articles were published in international journals. The list of publications is presented in Annex 10 in the on the website of GS-ITC.

### **3.3.5. Challenges**

(1) Both numbers of Master and PhD graduates in the academic year 2023-2024 were achieved lower than the expected target numbers, mainly due to the delay of publication requirements in both training levels. In current estimate, it takes more than 1.5 years complete Master's degree and more than 3.5 years to complete doctoral degree. To improve this situation, more supports and seminar on scientific paper writing will be provided.

(2) On the other hand, despite increasing, the number of new recruitments for 2024-2025 was still not achievable at the target for Master's degree programs (only 93% of the target was achieved). To improve this point, we will do more communications, especially between ITC and stakeholders, about our programs and consider developing blended learning programs in the form of module-based programs (developing more e-learning courses so that students can relax physical presences at school). In so doing, we can enable more bachelor's holders already employed to take part in the programs.

(3) Our current programs, both at Master and PhD levels, seem incapable to address sufficiently on entrepreneurship and business skills that enable students' readiness to become entrepreneurs after graduating. To address this issue, improving entrepreneurship axis in our programs will be reviewed.

### **3.3.6. Conclusion**

For this academic year, 8 full-time master programs are operated (with 8 research-based programs). The number of enrollments in academic year 2024-2025 increased by 12%, compared with academic year 2023-2024, yet was 9% lower the target. Around 44% of our master students are scholarship recipients (full or partial scholarships). Number of students mobilities increased from 16 to 22, in 5 programs. There are in total 463 Master graduates (119 females) from our 8 masters' programs. In this number, 52 Master graduates (13 females) in the academic year 2023-2024. To promote our master programs and attract more students, we will increase our communications, especially between ITC and relevant stakeholders, about our programs and consider developing blended learning programs in the form of module-based programs. For doctoral programs, for the

academic year 2024-2025, there are 57 students (17 females) enrolled in the 5 fields. Among these, 26 (12 females) doctoral students registered in cotutelle programs with French and Belgian partner universities. In total, 28 students obtained their doctoral degrees (18 double-degree students), 4 students in 2020-2021, 8 students in 2021-2022, 7 students in 2022-2023 and 9 students in 2023-2024. To promote our doctoral programs, “*Thèse CIFRE*” style programs should be implemented and collaboration with private sectors is important. Our existing Master’s and PhD programs do not adequately prepare students with the entrepreneurship and business skills necessary for them to become entrepreneurs after graduation. To tackle this challenge, we will evaluate and enhance the entrepreneurship component of our programs by seeking joint project proposal with our partners.

## **4. Capacity Building and Professor Dispatch**

## **4.1. Capacity Building (2024-2025)**

### **4.1.1. Long-term overseas capacity building for lecturers and students**

Master's and doctoral education play a key role in developing advanced skills and generating new knowledge. It trains experts capable of innovating and addressing scientific, technological, and socioeconomic challenges. Furthermore, these programs foster collaboration between universities, research centers, and businesses, thus contributing to progress and competitiveness at the national and international levels.

The first semester of the 2024-2025 academic year is a testament to this. ITC has 110 faculty members (9 doctoral students, 1 master's degree) and 100 students (95 master's degrees, 5 doctoral students). They are located in various partner institutions around the world. For more information, please see Annex 11 and 12.

### **4.1.2. Short-term overseas capacity building for lecturers and students**

Short-term overseas professional development missions for teachers are essential for acquiring new teaching methods, exploring innovative approaches, and adopting better educational practices used elsewhere. It also allows teachers to update their knowledge so they can stay abreast of advances in their field, whether new scientific discoveries, educational trends, or educational technologies. They can also understand the impacts on students and improve the quality of teaching, which directly benefits students and their academic success.

And for the student, it provides exposure to new cultures and perspectives. This experience abroad enriches intercultural understanding, which can help them better interact with students from diverse backgrounds.

For the first semester of 2024-2025, 62 ITC teachers participated in this professional development program, and 36 students completed the mission. For more information, please see Annex 13 and 14.

## **4.2. Professor dispatch at ITC (2024-2025)**

Generally, the presence of foreign professors at a university promotes open-mindedness, academic innovation, and the quality of teaching. Certainly, foreign professors bring different worldviews, varied pedagogical approaches, and unique experiences that enrich course content and encourage critical thinking among ITC students. This clearly represents the internationalization of teaching, allowing ITC to open up to the world and attract international students. It also prepares our students to thrive in a globalized environment.

Regarding the development of academic networks, these foreign professors often provide contacts and collaborations with institutions and researchers in other countries, which can facilitate academic exchanges and international research projects.

For this first semester of 2024-2025, ITC welcomed 16 professors from different universities who came to carry out their teaching assignments.

For more information, please refer to Annex 15.

## **5. Research and Innovation Center**

## **5.1. Overview**

The Research and Innovation Center (RIC) at the Institute of Technology of Cambodia (ITC), established in 2015, plays a pivotal role in promoting research excellence and innovation within the university. To streamline research activities and foster industry collaborations, RIC oversees five specialized research units:

- Energy Technology and Management (ETM)
- Food Technology and Nutrition (FTN)
- Mechatronics and Information Technology (MIT)
- Material Science and Structure (MSS)
- Water and Environment (WAE)

More detailed information on the research vision and mission, focus areas, outputs, and collaborations of each research unit is provided in Annexes 16 to 20.

RIC coordinates regular meetings—monthly at the unit level, quarterly involving the RIC management team, and semi-annually with all research staff—to review progress, discuss new initiatives, and resolve challenges. These structured engagements ensure continuous assessment and guidance, driving research productivity and innovation across ITC.

This section specifically highlights research activities and innovations conducted during the 2024-2025 academic year and serves as an essential reporting tool to ITC’s International Consortium.

## **5.2. Research Performance & Key Metrics**

### **5.2.1. Research Fund**

In 2024-2025, ITC researchers submitted a total of 43 research proposals (detailed in Annexes 21 to 25) to various funding agencies, including the second phase of LBE (INACON), USAID, MoEYS, SEA-Europe, and the second phase of HEIP.

Out of these submissions, ITC successfully secured funding for 27 projects (Annexes 21 to 25). The budget for academic year 2024-2025 for research units is shown in Figure below. It also shows the total budget of new projects in research research unit. FTN and WAE received almost same amount of grant.

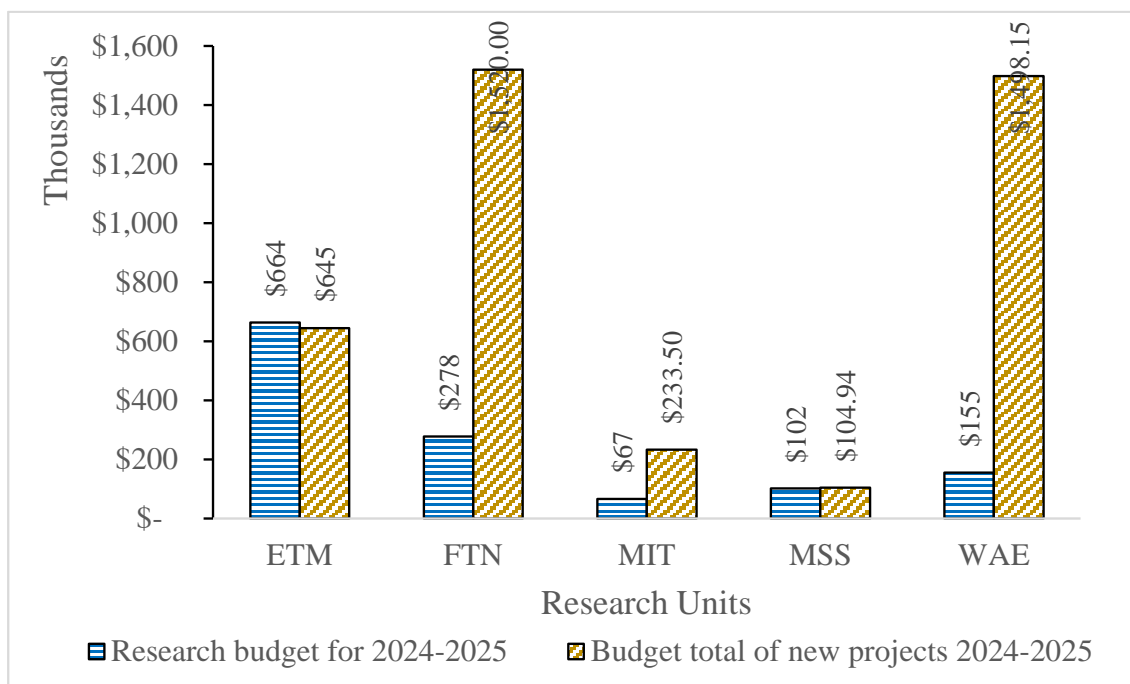


Figure 13. Research budget for 2024-2025 and budget total of new projects 2024-2025.

### 5.2.2. On-going Research Projects

In the 2024-2025 academic year, 112 researchers are actively engaged in 52 ongoing research projects (Annexes 26-30), with 38% of them being female. These projects span across five research units.

- Energy Technology and Management (ETM) – 5 projects (Annex 26) involving 19 researchers: 13 Senior Researchers, 2 Lecturer-Researchers, and 4 Full-Time Researchers.
- Food Technology and Nutrition (FTN) – 9 projects (Annex 27) with 26 researchers: 10 Senior Researchers, 6 Lecturer-Researchers, and 10 Full-Time Researchers.
- Mechatronics and Information Technology (MIT) – 9 projects (Annex 28) supported by 23 researchers: 10 Senior Researchers, 7 Lecturer-Researchers, and 6 Full-Time Researchers.
- Material Sciences and Structure (MSS) – 10 projects (Annex 29) conducted by 17 researchers: 10 Senior Researchers, 0 Lecturer-Researchers, and 7 Full-Time Researchers.
- Water and Environment (WAE) – 19 projects (Annex 30) led by 27 researchers: 11 Senior Researchers, 8 Lecturer-Researchers, and 8 Full-Time Researchers.

Figure 14 illustrates the distribution of research projects and researchers across the five research units. ETM has a relatively low number of projects compared to its researchers, while WAE leads with the highest number of projects.

Out of 43 research proposals (Annexes 36-40), 27 were awarded as new projects (Figure 15), while 40 projects (Annexes 31-35) were completed during this academic year.



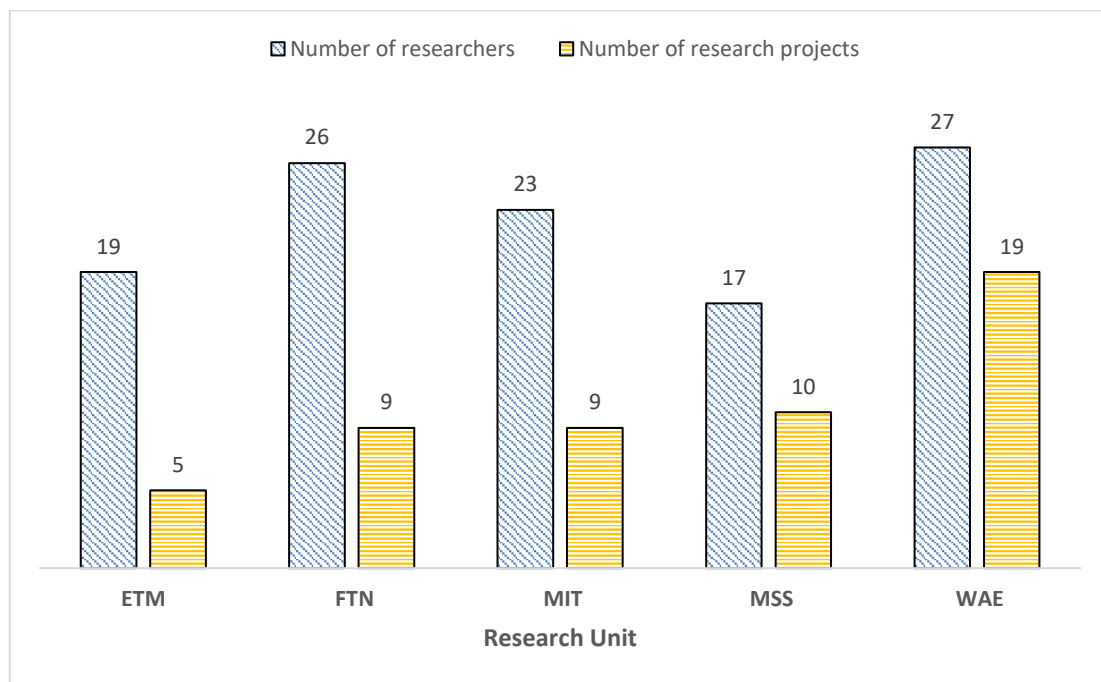


Figure 14. Research projects by each research unit (2024-2025).

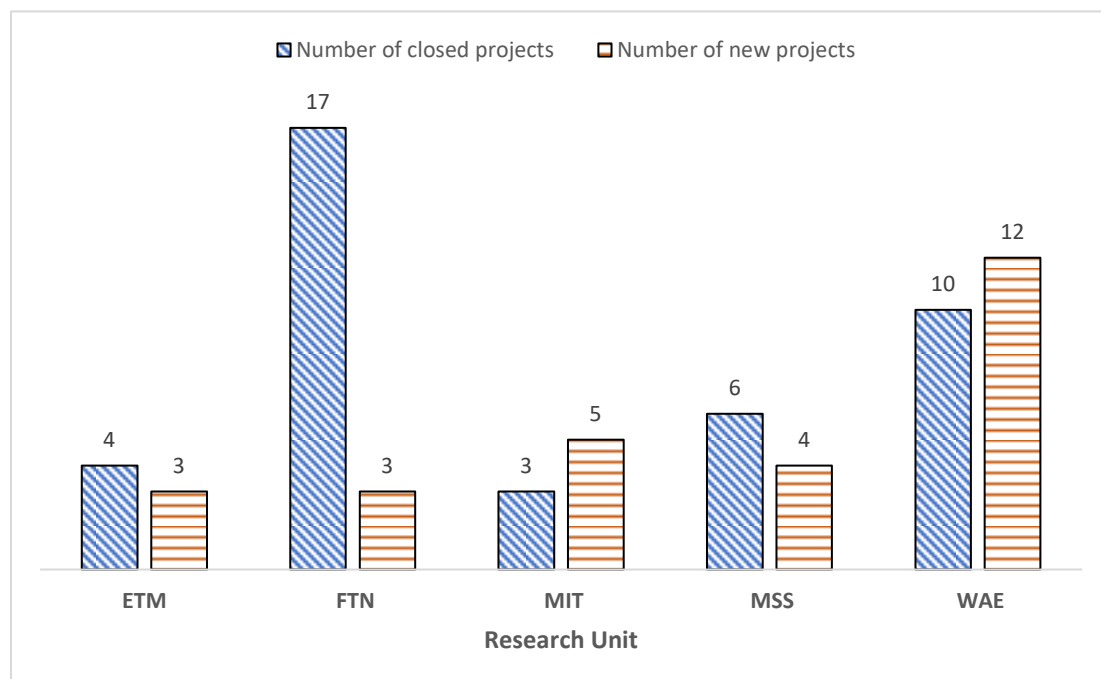


Figure 15. Number of completed and new projects in 2024-2025.

Research activities at ITC are conducted with funding and collaborations from international and national institutions, including:

- Belgium: ARES-CCD
- France: AFD, AgroSup Dijon, AUF, Ambassade de France, INSA de Rennes, Pierre Fable, Research Institute of Development (IRD)

- Japan: JST/JICA, AUN/Seed-Net JICA, JSPS, Kanazawa University, Takashi Foundation, Kurita Foundation
- Cambodia: Cambodia Climate Change Alliance (CCCA), CDRI, HEIP2, GGGI
- Australia: ACIAR
- United States: US Air Force
- United Kingdom: UK Trust Fund

### 5.2.3. Research Publication

In terms of research output, during the period 2024-2025, ITC researchers published a total of 218 research articles in peer-reviewed journals, including both indexed (international journals) and non-indexed publications (local journals and ITC's Techno-Science Research Journal) as shown in Figure 16. A detailed breakdown of these publications is provided in Annexes 41 to 45.

Additionally, ITC researchers actively disseminated their findings through presentations at over 400 national and international conferences and scientific events.

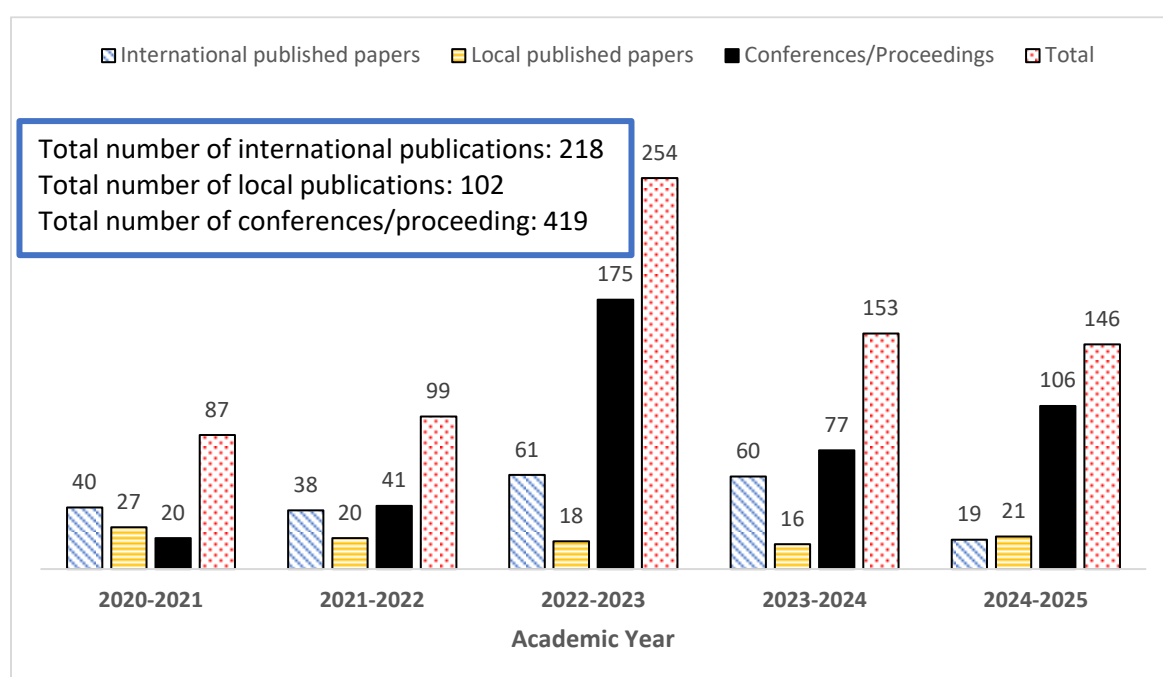


Figure 16. Number of publications in last 5 years

### *ITC's Techno-Science Research Journal*

The Techno-Science Research Journal (Techno-SRJ), published by ITC's Research and Innovation Centre (RIC) since 2013, is a peer-reviewed journal dedicated to disseminating research in applied sciences and engineering. The journal covers diverse fields such as environmental science, food technology, geotechnical engineering, electrical engineering, mechanical engineering, informatics, civil engineering, transportation, and data science.

By December 2024, Techno-SRJ has published 160 research papers across 16 issues (12 volumes). Research findings from these papers have also been presented at national and international conferences, and all publications are available on the journal's online platform.






- ISSN: 3006-4988
- E-ISSN: 3006-4996
- Website: <http://techno-srj.itc.edu.kh/>




RIC applied for inclusion in the ASEAN Citation Index (ACI) in February 2024, with a re-application planned for 2026 after addressing suggested improvements.



In 2024, Volume 12 published 20 papers in 2 regular issues and featured two special issues from conference proceedings (see details in Annex 46).

#### 5.2.4. Research Impact

The Research and Innovation Center (RIC) at ITC demonstrated significant research impact in the academic year 2024-2025 across diverse areas, summarized as follows:

| <i>Description</i>   | <i>Research Unit</i> | <i>Remark</i>   |
|--|----------------------|---|
| <b>Prototype Development</b>   |                      |   |
| Energy Efficient Biomass Briquette (EFBB) is nearing commercialization, with clearly defined properties and optimized production methods, offering high energy density, easy ignition, and stable heat distribution. It received the Silver Award from The Hitachi Global Foundation Asia Innovation Award 2023. | ETM                  |  |
| The eco-friendly pavement blocks utilize recycled glass and coconut husk fiber to reduce carbon footprint and waste. They are customizable in shape and size to suit diverse construction applications.  | MSS                  |  |
| Eco-friendly Glass Mortar Block made entirely from recycled glass waste replaces traditional cement completely. It combines local glass powder, alkali activator, and sand, ideal for eco-friendly souvenir products.  | MSS                  |  |
| Enhanced punching blades were developed using medium carbon steel with an advanced boronizing treatment, significantly improving hardness, durability, and operational lifespan for local SMEs.  | MSS                  |  |
| Eco-Friendly Microplastic Removal Filter (EMRF) effectively removes microplastics from seawater in salt production, using locally sourced biodegradable materials, thereby enhancing sea salt quality and promoting sustainability and community health.   | WAE                  |  |

|  |     |   |
|--|-----|---|
| <b><i>Technology Transfer &amp; Industry Support</i></b>   |     |   |
| Freshwater Fish Powder Production: Supporting Danish Care Foods in developing fish powder for versatile use in Cambodian diets.  | FTN |   |
| Dried Fish Quality Improvement: Assisting Samnang Sothea dried fish enterprise in upgrading drying technology for improved product quality.  | FTN |   |
| Instant Fish Soup Development: Collaborating with Heng Channy Angkor Meas Co., Ltd. to create market-ready instant fish soup recipes.  | FTN |   |
| Nutrient-Dense Waffle Rolls for Children: Enhancing Danish Care Foods' product line by incorporating Cambodian freshwater fish powder.   | FTN |   |
| Fish Jerky Shelf-life Extension: Partnering with UNICA Enterprise to develop ready-to-eat fish jerky with improved shelf life.   | FTN |   |
| Oyster Sauce Commercialization: Assisting Phnom Pich BunKhea Fish Sauce Enterprise in producing oyster sauce from Cambodian oysters and green mussels.   | FTN |   |
| Smoked Fish Safety & Quality Improvement: Conducting a health risk assessment for Home Taste Food to enhance smoked catfish production.  | FTN |   |
| Fermented Pangasius Fish Market Expansion: Helping Ey Pov Enterprise improve the quality, safety, and shelf-life of fermented Pangasius fish for new markets.  | FTN |   |
| Green Mussel Processing Research: Supporting a mussel processing enterprise in optimizing steam conditions to improve the organoleptic quality and safety of steamed mussels.  | FTN |   |
| Feasibility Study of Siem Reap's Prahok Toward Geographical Indication: This study identifies key microbial communities in traditional prahok production, analyzing the unique taste and flavor profiles from Siem Reap and Battambang provinces, supporting its potential recognition as a Geographical Indication (GI) product.  | FTN |   |
| This research, supported by Fyfe Asia Pte, Ltd, Singapore, focuses on the performance of different types of Fiber-Reinforced Polymer (FRP) anchors, including variations in diameter, embedment depth, and strengthening capacity.   | MSS |    |
| <b><i>Policy Influence through Research</i></b>  |     |   |
| Cooling Homes – Innovative & Low-Impact Living ("Chill Project"): This project promotes sustainable cooling solutions for residential buildings in Cambodia, aligning with the National Energy Efficiency Policy (NEEP) and the National Cooling Action Plan. It focuses on retrofitting homes to improve thermal comfort, energy efficiency, and climate resilience, while minimizing environmental impact. | ETM |   |
| Capacity for Cambodia Energy Efficiency (CapCEE Project): A key initiative supporting Cambodia's NEEP, this project strengthens technical expertise in energy efficiency   | ETM |   |

|  |     |   |
|--|-----|---|
| through capacity building and the establishment of a Certified Training Program. It emphasizes long-term sustainability and industry-wide adoption of energy-efficient practices.  |     |   |
| Land Cover and Litho-Mineral Alteration Analysis: This study examines Land Use and Land Cover (LULC) changes in the Chrey Bak Catchment using advanced satellite imagery (Sentinel-2, Landsat-8, and ASTER). Findings indicate a significant decline in forest and vegetation cover due to cropland expansion and urbanization, impacting soil quality and ecosystem balance. The research provides critical data for land management policies and sustainable resource planning.  | WAE |   |
| <b><i>Social Impact and Community Development</i></b>  |     |   |
| Low Carbon Building Training Program: This program enhances the skills of government officials, material manufacturers, architects, developers, contractors, building owners, energy auditors, ESCOs, and financial institutions, strengthening national capacity in sustainable construction and energy-efficient building practices.   | ETM |   |
| FEF-Healthyrice: Promoting Integrated Disease Management and Sustainable Quality of Fragrant Rice - This initiative focuses on developing sustainable agricultural practices to ensure consistent aroma production in fragrant rice. It strengthens analytical capabilities for assessing microbiological, nutritional, aromatic, and pesticide content in rice. Additionally, the program provides education and training for students and researchers through fieldwork, laboratory schools, and graduate research programs.   | FTN |   |
| LMI LEAD: Sustainable Rice-Based Agroecosystems - This collaborative initiative promotes agricultural diversification to enhance the sustainability of rice-based food systems in Cambodia. It focuses on reducing environmental pollution, particularly from pesticides, while improving water resource management and increasing agrobiodiversity for more resilient farming systems. The project also supports the One Health approach by integrating human, animal, and environmental health and contributes to improving food security through sustainable farming practices. | FTN |  |
| Agroecology Transition in Agriculture: Research findings on agroecological practices were shared in the ALISEA Online Thematic Workshop (24 December 2024), focusing on soil resilience and sustainable agriculture. The workshop engaged 30 participants, including cooperative farmers and NGOs working in agricultural development.   | WAE |   |

5.3. Research Capabilities

5.3.1. Researchers

In the 2024-2025 academic year, ITC employed 112 researchers (48% Female), including those holding administrative positions who also engage in research, categorized as senior researchers. The distribution of researchers across senior researchers, lecturer-researchers, and full-time researchers is illustrated in Figure 17.

The number of active research projects has declined by nearly 50%, with only 52 projects remaining in 2024-25 (Annexes 26-30). This decrease is attributed to the classification of projects completed in 2024 as finished projects (Annexes 31-35). Figure 18 provides a comparative overview of researchers and research projects over the past 5 academic years, starting from 2020-21.

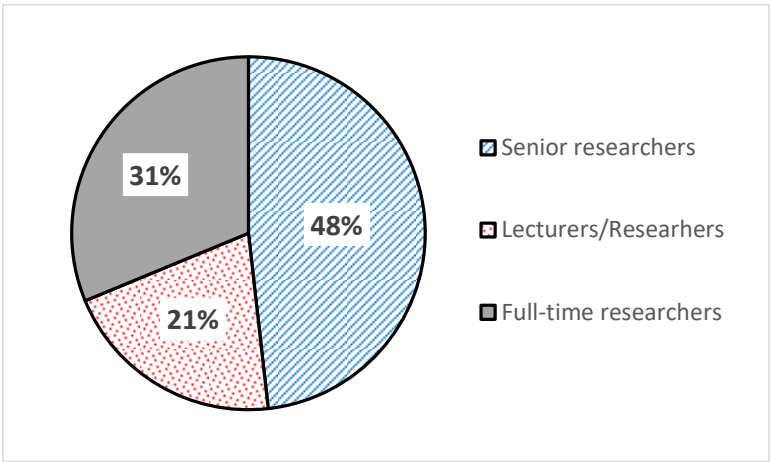


Figure 17. Percentage of category of researchers

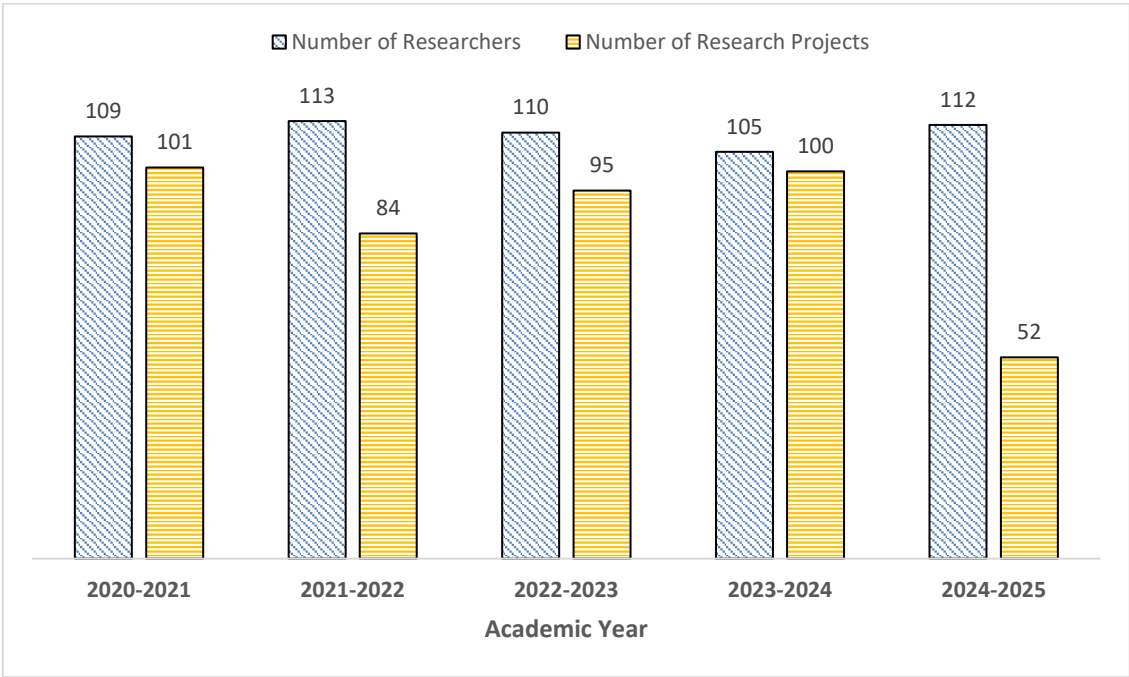


Figure 18. Number of researchers and research projects in last 5 years.

### 5.3.2. Research Facilities

The Research and Innovation Center (RIC) at ITC maintains robust research infrastructure supported through ongoing national and international collaborations. Over recent years, ITC has significantly enhanced its research capability through strategic equipment investments funded by the Government and different partners.

Currently, RIC hosts a comprehensive network of 38 specialized research laboratories, each supporting diverse fields of scientific and technological inquiry. These labs facilitate high-quality research, industry collaboration, and practical teaching activities, reflecting RIC's capability to sustain impactful research despite no major equipment upgrades during the reporting year.

| Research unit | Name of laboratory  |
|---------------|---|
| ETM           | <ol style="list-style-type: none"><li>1. Power System Lab</li><li>2. Energy Efficiency Lab</li><li>3. Biomass Energy Lab</li><li>4. Geophysics Lab</li><li>5. Smart Grid Lab</li><li>6. Fossil Fuel Exploration Lab</li></ol>   |
| FTN           | <ol style="list-style-type: none"><li>1. Drying technology lab</li><li>2. Rice-based product lab</li><li>3. Physicochemical lab</li><li>4. Healthyrice lab</li><li>5. Cereal-based processing lab</li><li>6. Fermentation lab</li><li>7. Extraction lab</li><li>8. Food Technology Hall</li><li>9. Chromatography Lab</li><li>10. Plant Biotechnology Lab</li></ol> |
| MIT           | <ol style="list-style-type: none"><li>1. Dynamic and Control Lab</li><li>2. Control System Lab</li><li>3. Electronics Fablab</li><li>4. EMC Lab</li><li>5. Computer Vision and Natural Language Processing Lab</li></ol>  |
| MSS           | <ol style="list-style-type: none"><li>1. Nano-structure and Chemical Analysis Lab</li><li>2. Glass Structure Lab</li><li>3. Rubber Processing lab</li><li>4. Ceramic Lab</li><li>5. Materials Science and Engineering Lab</li><li>6. Geotechnical Lab</li><li>7. Civil Engineering Lab</li><li>8. XRD and XRF Lab</li></ol>   |



|     |   |
|-----|---|
| WAE | <ol style="list-style-type: none"> <li>1. HydroMet and Disaster Management Lab</li> <li>2. Water Environment Lab</li> <li>3. Soil Lab</li> <li>4. Topography Lab</li> <li>5. GIS and Remote Sensing Lab</li> <li>6. Coastal &amp; Wetland Environmental Lab</li> <li>7. Environmental Chemistry Lab</li> <li>8. Environmental Microbiology Lab</li> <li>9. Air Pollution Lab</li> </ol> |
|-----|---|

## 5.4. High Impact Research and Innovation Projects

### 5.4.1. Establishment of Risk Management Platform for Air Pollution in Cambodia

The Air Quality Research Laboratory, supported by a \$4.5 million budget (2022-2027), has made significant progress in air pollution monitoring, environmental risk assessment, and capacity building. Key achievements include:

- Air Quality Monitoring Network Established (Figure below):
  - 9 low-cost (LC) sensors installed at key locations in Phnom Penh.
  - 6 PM sensors and a reference AQMS station at ITC for real-time air quality monitoring.
  - Laboratory enhancements with modern instruments (IC, HPLC, Carbon Analyzer) to improve air pollution analysis.

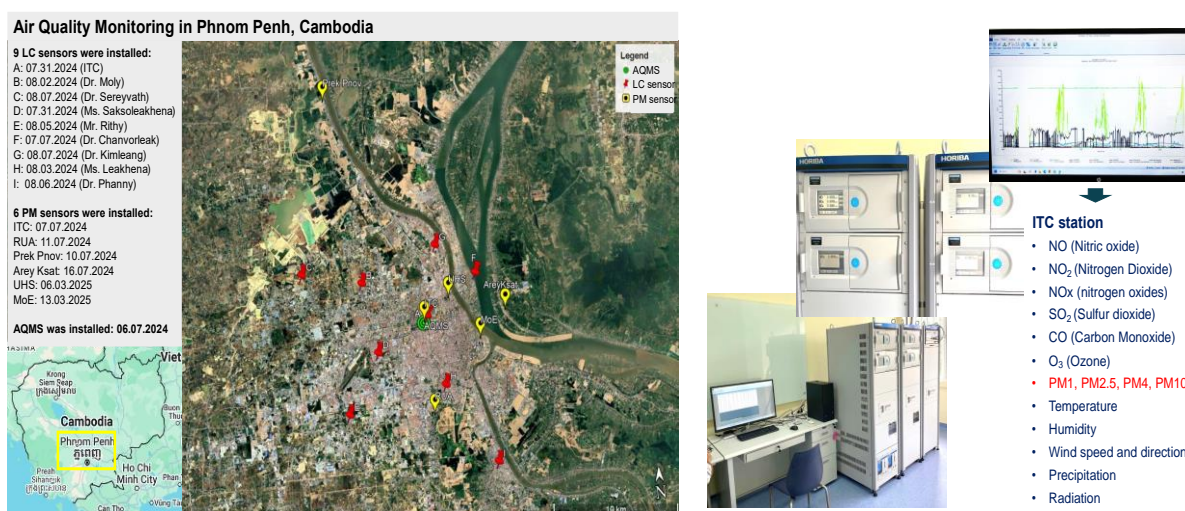


Figure 19. Overview of Air Quality Monitoring in Phnom Penh, Cambodia.





Figure 20. Specific location for PM sensor installation.

- Online Network and Data Management System:
  - Data transmitters installed at 5 locations, with network connection tests ongoing.
  - Online dashboard developed and undergoing testing for real-time monitoring.
- Environmental Risk Assessment and Research Publications:
  - Macroscopic risk analysis published in an international journal.
  - Study on personal exposure to pollutants during commuting published in Atmospheric Pollution Research.
  - Three international journal articles accepted, and research findings presented at global conferences (e.g., International Conference on Environmental Pollutants, Bangkok).
- Capacity Building and Knowledge Sharing:
  - Workshops, international seminars, and conference presentations (including in Bangkok and Japan).
  - Three international journal articles accepted, strengthening ITC's research reputation in air quality monitoring.
  - Dissemination through social media and a dedicated project website.

#### 5.4.2. Cambodian Coastal Research Center (CCRC)

The establishment of the Cambodian Coastal Research Center (CCRC) is in its initial phase, aiming to lay the foundation for a national center of excellence in coastal research. While its physical space were recently set up on the new ITC Campus in Kep, several notable developments have taken place:

- **Strengthened Collaborations:** Partnerships have been reinforced with national institutions, such as the Ministry of Environment (MoE), Ministry of Land Management, Urban Planning and Construction (MLMUPC), and Ministry of Agriculture Forestry and Fisheries (MAFF). International collaborations have also grown, involving organizations like IRD, the Joint International Laboratory LOTUS (LMI Lotus), Chulalongkorn University, and the University of the Philippines Diliman.

- **Consultation meetings:** A series of consultation meetings has been organized to align research priorities with societal needs and provide effective input for government policies and non-governmental organizations. A series of consultation meetings will be conducted with government agencies (ministries) and non-government. The consultation process aims to highlight three fundamental outcomes: (1) ensure that research activities address pressing societal issues, (2) secure long term support from governmental agencies, and (3) foster a robust coastal research network to boost expertise in Cambodia.
- **Visit to the New ITC Campus in Kep:** In early February, researchers from ITC and IRD visited the new campus in Kep to assess its infrastructure and identify suitable spaces for the CCRC's operations.
- **Seawater Level Monitoring Station:** The first seawater level monitoring station is set to be installed in the coastal zone of Kep Province, with financial support from IRD.
- **Pilot Projects:** With funding from IRD, pilot projects have been launched, focusing on groundwater quality analysis and mangrove health assessment in Kep Province. Engineering students have been recruited to contribute to these initiatives.

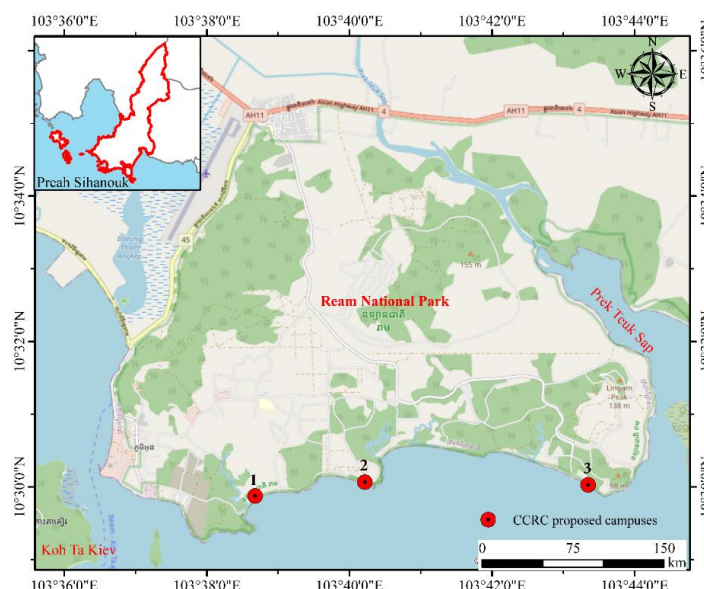


Figure 21. Locations of CCRC proposed campuses.

### 5.4.3. Higher Education Improvement Project (HEIP)

Higher Education Improvement Project (HEIP) has been conducted since end of 2019, funded by the World Bank, focusing on i) improving quality and relevant of academic program, ii) improving research in STEM and Agriculture, and iii) improving institutional governance. By March 2025, 4 curriculums of undergraduate programs (EE, EA, TN and GPE) and 4 Master programs (MAI, WEE, ETM, MIT) were revised and evaluated from international expert panels. 6 curriculums of new programs were developed including i) Pre-degree foundation program, ii) Applied Mathematic for Statistic, iii) Software Engineering, iv) Materials sciences and engineering, v) Master program of Data Science, vi) Master program of material science and engineering.

To date 24 (21MSc, 3PhD) were graduated in which 11 (10MSc, 1PhD) are female staff, other 9 (3MSc, 9PhD) will be graduated by June 2025, and other 11(8MSc, 3PhD) will be graduated by

December 2025. ITC completed 23 sub-research projects linked with industry and developed 23 research prototypes with total budget about USD 7.9 million. ITC has also submitted 96 articles to the international peer-reviewed journals.

From HEIP, the initiative of establishment of ITC new campus at Win-Win Monument boulevard with total land area of 5 hectares. 2 buildings are planned to construct in which one building (student dormitory) was already completed with 74 rooms and one more building (Research and Training Center) is under construction and expected be completed by June 2025.

#### 5.4.4. Provincial Water Supply and Sanitation Project – PWSSP

The Provincial Water Supply and Sanitation Project (PWSSP), co-financed by ADB, AFD, and the European Union (EU-AIF), continues to enhance urban water and sanitation infrastructure in Cambodia. Despite the end of scholarship support in 2023, several milestones were achieved:

- Master’s Program in Urban Water and Sanitation Engineering (MUWE):
  - Since its establishment in 2018, 114 students (48% women) have received EU-AFD scholarships, surpassing the target of 110 students.
  - A total of 101 students have graduated, exceeding the project’s expected outcome.
  - In the 2023-2024 academic year, six students were enrolled through IRD’s project support and self-funding, mostly in research-based pathways.
- Research Contributions:
  - Phase I (2018-2021): Successfully completed nine research projects on urban water and sanitation engineering.
  - Phase II (2022-2023): Three additional projects received funding and are ongoing.
- Collaboration and Knowledge Sharing:
  - Organized an International Symposium on Water Supply and Sanitation (June 6-7, 2024), held jointly with ITC’s 13th Scientific Day, engaging academia, industry, and public sector stakeholders (Figure 22).
  - Strengthened institutional collaboration through MoUs signed in 2024:
    - May 8, 2024: MoU with the General Department of Water Supply, MISTI to enhance water supply development. (Figure 23)
    - October 21, 2024: MoU with MoWRAM to support water resources development in Cambodia.



Figure 22. International Symposium on “Water Supply and Sanitation”.





Figure 23. MoU signing ceremony between ITC and General Department of Water Supply, MISTI.

#### 5.4.5. Platform for research and training on power system in Cambodia

The Research and Training Platform on Smart Grid of Cambodia Project, supported by European Union administered by AFD, has made significant progress in research, education. Key achievements include:

- Academic and Research Activities:
  - Master's Program:
    - 11 M1 students (Batch 1 in 2023): 5 students for M2 at Grenoble INP-UGA, another 2 M2 students for their internship at Grenoble INP-UGA and 4 M2 students at ITC
    - 12 M1 students (Batch 2 in 2024)
  - PhD Programs: 4 PhD candidates (two under a double-degree program and two under a local degree program) progressed in their research.
- International Mobility:
  - Grenoble INP-UGA: 2 interns participated in research in Cambodia.
  - Staff exchanges: 2 staff members from ITC traveled to Grenoble INP-UGA, while 5 staff from Grenoble INP-UGA visited ITC.

#### 5.4.6. Industry-Academic-Community Networks (INACON) Project

The INACON project, funded by JICA, continues to strengthen engineering education and research in Cambodia by fostering industry-academic-community collaborations. In 2024, the project achieved several key milestones:

- LBE Research Grant 2025:
  - 11 applications received, with 5 projects selected for funding (max budget: \$15,000 per project).
  - Research areas include asphalt sustainability, geodiversity assessment, bus route optimization, water treatment, and Khmer handwriting analysis using deep learning.
- Major International Conferences and Symposiums Supported:

- 3rd International Conference on Earth Resources and Geo-Environment Technology (EraGET 2024) (Dec 12-15, Phnom Penh & Siem Reap) with 500+ participants from 10 countries.
- International Symposium for Life Mechatronics (LMS2024) (Dec 27, Phnom Penh) with 60+ participants from Japan and Cambodia.

#### **5.4.7. ARES Project**

The Institutional Support Program (ISP) 2022–2027 at the Institute of Technology of Cambodia (ITC) aims to achieve international standards in teaching and research and to make research results available and valuable to Cambodian society. To meet these objectives, the project restructures and strengthens research transfer services (R1), notably by developing staff skills in technology transfer (R2); it enhances teaching and knowledge transfer capacities, with the aim of developing programs in line with international standards and accreditation (R3); it improves research organization (R4) and laboratory management (R5). Lastly, it develops documentation resources, notably through active participation in open science and open access (R6).

##### **R1: Establishment of a Single Point of Entry for Technology Transfer**

The organization among different units involved in research valorization (faculties, departments, RIC, IUL, Fablab, incubator) is being restructured to improve interactions (external request handling, communication of results, financial transfers). The rules related to financial flows and communication within the service framework have been approved by ITC and are being implemented.

The showcase website for the Single Point of Entry is under development. A business developer (Choen Chakrya) has been hired and has developed a support pathway for ideas to be valorized. An initial review by the RIC identified 11 ideas for potential valorization, across 5 research units. A systematic analysis of these 11 ideas, including a maturity diagnosis, is underway for each.

An external event titled *Venture Spark: Where Ideas Meet Investment*, inviting about 40 entities potentially interested in the technologies being developed, is scheduled for April 24. Potential investors were identified by the UIL and in collaboration with the Cambodia Chamber of Commerce (CCC). Six of the 11 ideas will be presented.

Regarding the planned web platform under R1, it was decided in Year 2 that it would be developed in collaboration with R4 (research management). Coordination is ongoing with R4 to ensure UIL and the single entry point are integrated into the platform being developed.

##### **R2: Skills Development in Technology Transfer**

R2 complements R1 by ensuring training for the valorization team in communication, legal, and commercial skills. These training sessions are ongoing.

- Legal skills: After the departure of the Belgian legal expert who conducted training last year, legal expertise has been subcontracted to BUN & Associates in Cambodia.
- Communication skills: A second training mission by the Belgian expert is scheduled for April 2025.

- **Commercial skills:** The business developer recruited under R1 will later provide transversal training in this area. Two one-month capacity-building mobilities in Belgium are planned in communication and commerce.

### **R3: Support for Academic Program Accreditation**

Activities under R3 aim to create an ecosystem conducive to the effective preparation and improvement of ITC's academic programs for accreditation. The Mentorship Program (MP) helps strengthen teachers' scientific capacities and develop learning resources. General and specialized pedagogical training improves teachers' teaching skills in both the short and long term. ITC's education specialists will also be able to prepare self-assessment reports for accreditation.

Mentorship Program (MP) updates: 3 were initially planned, 5 are completed or planned:

- MP1 at ULB on *Transport Phenomena*
- MP2 at ULiège on *Food Processing*
- MP3 planned at ULiège on *Sustainable Road Infrastructure Design and Maintenance*
- MP4 planned at ULiège on *Durability and Sustainability in Reinforced Concrete Structures*
- MP5 to be conducted in later years on *Food Safety, Control, and Risk Management*

**Pedagogical reinforcement:** Two training missions were conducted at ITC in February 2024 and March 2025. Four ITC teachers also went to Belgium for pedagogical training at ULB and ULiège.

**Accreditation:** A mission by an ULiège expert took place in January 2025. It assessed the readiness of programs for accreditation and helped prepare necessary steps before submitting a formal application. The CTI is the proposed accreditation body, given the similarity between ITC's engineering programs and those in France. The Belgian expert has experience with CTI procedures. Following the mission, a self-assessment report is being prepared under ITC's Quality Manager. The submission is not planned for 2025 but will begin in 2026.

Separately, under the HEIP 2 project at ITC, some programs will be prepared for AUN-QA accreditation. This diversity of accreditations will strengthen ITC's visibility and cooperation at the regional and international levels.

### **R4: Research Management Support**

Activities are progressing well.

Research partnerships between ITC and Belgian universities have been established for the supervision of master's theses. Three 3-month stays took place last year (2 at UMons and 1 at ULiège-GxABT), enabling co-supervision between Cambodian and Belgian supervisors. A 3-month stay is planned from mid-April to mid-July 2025 at ULB. A joint PhD program between ITC and UMons has started in Year 2. The PhD student, Ms. ENG Samphors from ITC's Electrical Engineering Department, began in January 2024. The thesis continues normally (6 months/year at ITC, 6 months/year at UMons).

Training missions:

- A Belgian expert conducted a scientific writing training in December 2024.
- Another expert from ULiège will conduct a training on Large Information System Management in July 2025.

**Research management platform:** It was decided to develop the web platform planned under R1 in collaboration with R4 to create an institutional platform for research valorization and management. The platform is scheduled to be launched this year (see R1).

A workshop to review the platform was held in early March 2025, and three developers will be hired starting April 1, 2025.

## **R5: Laboratory Restructuring and Management**

An analysis of ITC's laboratory operations was completed and a report is available, with proposed actions to improve lab organization, including unified structure, roles, and tasks.

Two labs were selected for case studies:

- The Chemistry Laboratory
- The Materials Science and Structural Mechanics Laboratory, which was the subject of two detailed reports aiming to establish it as a demonstration lab.

Reports for the Chemistry Laboratory are expected soon.

The next focus for ITC is digitization of labs and the implementation of 5S organization.

## **R6: Support for Documentation Resources and Open Science**

R6 aims to support research and education by improving access to documentation resources and supporting Open Science.

- Open Science training by a Belgian expert was conducted in June 2024. Many open access links to books, articles, journals, and databases were shared with students, teachers, researchers, and partner universities.
- A workshop on Open Access publishing for ITC researchers, co-organized by R6 and R2, featured experienced researchers who shared best practices. The Techno Science Research Journal platform was also presented.

The library launched a new website for information sharing. It offers content on open access databases, how to search, use, and publish, and aims to develop a culture of open access among ITC researchers, staff, and students.

A new server was acquired in Year 1 to install Koha, the new integrated documentation management system. The import of data from PMB to Koha will begin in April after a short training session.

A high-capacity storage server for an institutional repository at ITC has also been acquired. Installation and configuration will occur after the ITC PAR mission to Belgium in April 2025. That mission aims to meet Belgian university library teams who have implemented institutional repositories (to compare best practices in open access and repositories).

A South-South mission to Malaysia is planned for June 2025 for two library staff members to attend a conference gathering librarians from various Asian institutions.

## 5.5. Techno Incubation Center

The missions of the Techno Incubation Centre are to provide additional capacity building to catch up industrial know-how, business knowledge and market opportunity, facilitate prototyping activities and business venture, and mobilize people, funding and investment

The fields covered by the Techno Incubation Center are connected to the 5 Research Units of the Research and Innovation Centre, namely: Water and Environment (WAE), Food Technology and Nutrition (FTN), Materials Science and Structure (MSS), Mechatronics and Information Technology (MIT), and Energy Technology and Management (ETM). However, 2 fields of innovations have been prioritized:

- Innovations with Emerging Technologies: It includes the use of Robotics, AI (Artificial Intelligence), Mechatronics, Big Data, Cloud Computing, IoTs, Cybersecurity, Automation. The High Technologies can be applied to agriculture (smart farming), energy (smart energy production and use), and of course Industry 4.0 (prototyping, product design, quality control in manufacturing, energy and environmental management).
- Innovation in Food processing and Food Safety: It includes the techniques for developing affordable, safe, attractive and sustainable food "Made in Cambodia" involve many Scientific fields such as agronomy, food science, waste and by-products valorisation, food process design, biotechnological process, microbiology, biochemistry, analytical chemistry, materials science for food packaging aspects, etc.

### ***“Techno Innovation Challenges” Program***

Techno Incubation Center has annual activity called “Techno Innovation Challenges”, aiming to promote the education to entrepreneurship. In 2024, About 136 students registered to join the business idea competition and involved in entrepreneurship learning program. Among the students, there are 49 students accounted for 10 group of business ideas have been successfully completed and awarded as the best business innovation ideas. As given in Table below, the business concepts are initiated by ITC students and students at other universities as well. The business ideas are in the following categories:

- (1) Agriculture and food technology
- (2) Education
- (3) Health
- (4) E-commerce
- (5) Digital technologies

| No | Group Name                   | Members            | Gender | University Name | Year | Field                       | Business concept   |
|----|------------------------------|--------------------|--------|-----------------|------|-----------------------------|--|
| 1  | Agri Tech                    | CHHORN Rachhat     | M      | ITC             | 3    | Mechanical Engineering      | Solving soil health problem through digital controlling system |
|    |                              | TOEY Ti            | M      | RUPP            | 3    | Physics                     |  |
|    |                              | CHHAY Sreymean     | F      | ITC             | 3    | Mechanical Engineering      |  |
|    |                              | LYN Monkol         | M      | RUA             | 4    | Agricultural Development    |  |
|    |                              | CHHORN Chanratanak | F      | ITC             | 3    | Mechanical Engineering      |  |
| 2  | Cam-Borbor                   | SONG Linda         | F      | ITC             | 4    | Food Science and Technology | Producing set of healthy foods for busy people                 |
|    |                              | SOR Sokna          | F      |                 | 4    |                             |  |
|    |                              | DO Laychhay        | M      |                 | 4    |                             |  |
|    |                              | PHO Mengleang      | M      |                 | 4    |                             |  |
| 3  | CIR (Creative Ideas of Rice) | LOUNH Raksa        | F      | ITC             | 3    | Food Science and Technology | Producing hair care product from rice                          |
|    |                              | MAI Nita           | F      |                 | 3    |                             |  |
|    |                              | MAI Pailin         | F      |                 | 3    |                             |  |
|    |                              | MAO Nary           | F      |                 | 3    |                             |  |



|    |              |                  |   |                       |   |                                   |   |
|----|--------------|------------------|---|-----------------------|---|-----------------------------------|---|
|    |              | MET Lita         | F |                       | 3 |                                   |   |
| 4  | Eco-Craft    | NY Sopanha       | M | ITC                   | 3 | Civil Engineering                 | Recycling construction materials into new product                           |
|    |              | VIN Chenda       | F |                       | 3 |                                   |   |
|    |              | VONG Vanna Pich  | M |                       | 3 |                                   |   |
|    |              | PHEACH Makara    | M |                       | 3 |                                   |   |
|    |              | LUN Sokha Raboth | M |                       | 3 |                                   |   |
| 5  | F3M          | CHHOEUM Sochhim  | F | ITC                   | 3 | Electrical and Energy Engineering | Developing sign language system to improve social communication             |
|    |              | CHUN Samnang     | M |                       | 3 |                                   |   |
|    |              | DUX Molika       | F |                       | 3 |                                   |   |
|    |              | EN Toch Bolin    | F |                       | 3 |                                   |   |
|    |              | KE Sovisoth      | M |                       | 3 | Data Science                      |   |
|    |              | PHOEURN Kimhor   | M |                       | 3 |                                   |   |
| 6  | PLS          | SEANG Taravichet | M | CamEd Business School | 3 | Accounting and Finance            | Designing a platform for counterfeit goods market                           |
|    |              | PHAL Pichpisiddh | M |                       | 4 |                                   |   |
|    |              | LOU You On       | M |                       | 3 |                                   |   |
| 7  | The New GenZ | KHEANG Tekngim   | F | ITC                   | 3 | Electrical and Energy Engeneering | Producing a device that can control daily electrical consumption            |
|    |              | LIV Sovannarith  | M |                       | 3 |                                   |   |
|    |              | LY Jinglean      | M |                       | 3 |                                   |   |
|    |              | LY Sokpanha      | M |                       | 3 |                                   |   |
|    |              | LY Virak         | M |                       | 3 |                                   |   |
| 8  | MindEA SE    | VAN Meysorng     | F | AUPP                  | 2 | Health                            | Solving mental health of individual through consultation                    |
|    |              | HIENG Dara       | M | AUPP                  | 2 |                                   |   |
|    |              | SOT Sochetra     | M | CADT                  | 2 |                                   |   |
| 9  | Khash Chat   | LAY Keangleng    | M | AUB                   | 3 | Computer Science                  | Solving financial challenges for startup through technology and partnership |
|    |              | CHHIT Helen      | F | AUB                   | 3 | Business IT                       |   |
|    |              | SRENG Hengsal    | M | IISPP                 | 3 | International Relation            |   |
|    |              | CHUM Sothealeap  | F | IISPP                 | 3 | International Relation            |   |
|    |              | LEAVCHUM Sopanha | M | AUB                   | 3 | Finance and Banking               |   |
|    |              | TOCH Ensophea    | M | AUB                   | 3 | Finance and Banking               |   |
| 10 | The Brown    | LY Danin         | F | ITC                   | 3 | Electrical and Energy Engineering | Recycling old vehicles into new ones using electric                         |
|    |              | NA Sophornsatya  | M |                       | 3 |                                   |   |
|    |              | NEAN Sreynin     | F |                       | 3 |                                   |   |
|    |              | MA Sophal        | M |                       | 3 |                                   |   |
|    |              | MOV Sinai        | M |                       | 3 |                                   |   |
|    |              | LYNA Sovadaroth  | M |                       | 3 |                                   |   |
|    |              | LY Korngmeng     | M |                       | 3 |                                   |   |

### ***“National Status of Student-Entrepreneur” Initiative***

In the 2024-2025 academic year, the Institute of Technology of Cambodia (ITC) assisted the Ministry of Education, Youth and Sports (MoEYS) in coordinating the development of the Statut National Étudiant Entrepreneur (SNEE) project, funded by the Agence Universitaire de la Francophonie (AUF). This initiative aims to institutionalize a national framework that formally recognizes and supports student entrepreneurs within Cambodian higher education.

Over the past year, ITC led the development of two key documents:

1. A guideline for the establishment of the national student-entrepreneur status.
2. A three-year national action plan for implementation across universities in Cambodia.

The work included a review of international best practices, and the organization of consultative workshops with stakeholders from MoEYS, universities, incubators, and the private sector. These collaborative efforts ensured that the proposed framework reflects both global standards and local contexts.

The finalized documents will be submitted to MoEYS for national adoption, marking a critical step toward positioning entrepreneurship as a recognized and supported academic path in Cambodia.

## **5.6. Conclusion**

The 2024–2025 academic year highlights the growing maturity and strategic direction of the Research and Innovation Center (RIC) at the Institute of Technology of Cambodia (ITC). Since its establishment in 2015, RIC has played a central role in promoting applied research, innovation, and collaboration within and beyond the institution.

This year, 112 researchers contributed to 52 active research projects, supported by 27 newly funded initiatives. With a publication output of 218 peer-reviewed articles and participation in over 400 scientific events, ITC has demonstrated continued leadership in producing high-quality research with national and international relevance.

Many projects focused on applied and developmental research, generating concrete solutions to local and regional challenges—such as biomass energy, energy efficiency, microplastic filtration, sustainable food processing, and smart infrastructure. These initiatives often align with national priorities, reflecting ITC’s role in supporting evidence-based policy and industry innovation.

International collaboration remains a key strength, with successful partnerships involving institutions and funding agencies from France, Belgium, Japan, the United States, Australia, and the UK. Research efforts also received strong support from national entities including MoEYS, HEIP, and CCCA.

A robust network of 38 research laboratories continues to support the implementation of cutting-edge research and enhance the university’s capacity for both experimentation and advanced training. Despite a decrease in the total number of active projects—attributable to the completion of earlier initiatives—RIC has maintained strong momentum in research output and funding acquisition.

Going forward, RIC will focus on strengthening research governance, enhancing cross-sectoral collaboration, and expanding strategic partnerships, ensuring long-term impact and alignment with Cambodia’s development goals.

## **6. National and International Cooperation**

## 6.1. Memorandum of Understanding and Memorandum of Agreement

As part of internationalization, ITC, like leading universities around the world, is seeking more new local, regional, and international partners to develop collaborations and expand its multilateral relationships. As a result, for the 2024-2025 academic year, 14 memoranda of understanding and 5 framework agreements have been signed between ITC and its partners. The following table only illustrates the MoUs and MoAs with academic partners.

| No | Name of Institution  | Country   | Date       | (MoU/MoA) |
|----|--|-----------|------------|-----------|
| 1  | Sirindhorn International Institute of Technology, Thammasat University | Thailand  | 2025-03-06 | MoA       |
| 2  | Centennial College   | Canada    | 2024-12-20 | MoA       |
| 3  | École de l'Air et de l'Espace (Linda)                                  | France    | 2024-12-12 | MoA       |
| 4  | École de l'Air et de l'Espace (Axel)                                   | France    | 2024-12-12 | MoA       |
| 5  | CIRAD, Letter of hosting Agreement                                     | France    | 2024-12-12 | MoA       |
| 6  | Macquarie University   | Australia | 2025-03-14 | MoU       |
| 7  | University of Central Missouri   | USA       | 2025-03-11 | MoU       |
| 8  | Sirindhorn International Institute of Technology, Thammasat University | Thailand  | 2025-03-06 | MoU       |
| 9  | Association Polytechniciens Khmers                                     | Cambodia  | 2025-01-10 | MoU       |
| 10 | Centennial College   | Canada    | 2024-12-20 | MoU       |
| 11 | APESAM   | France    | 2024-12-12 | MoU       |
| 12 | Insa Toulouse  | France    | 2024-11-18 | MoU       |
| 13 | Ecole 42   | France    | 2024-10-24 | MoU       |
| 14 | Ministry of Water Resources and Meteorology                            | Cambodia  | 2024-10-21 | MoU       |
| 15 | Technische Hochschule Lubeck   | Germany   | 2024-09-02 | MoU       |
| 16 | CHEA LEA THOM Primery School   | Cambodia  | 2024-07-18 | MoU       |
| 17 | HARBIN Institutue of Technology, SHENZHEN                              | China     | 2024-07-01 | MoU       |
| 18 | Toronto Metropolitan University  | Canada    | 2024-07-01 | MoU       |
| 19 | IPB University   | Indonesia | 2024-06-30 | MoU       |

## 6.2. Foreign Students and Institutions at ITC

### 6.2.1. Foreign students at ITC

As part of the multilateral inter-university exchange program, the number of international students for the first semester of the 2024-2025 academic year is 41.

Undoubtedly, welcoming international students and researchers fosters a multicultural environment, which enriches the experience of local students and academic staff. For us, a university that attracts international students gains prestige and visibility on the global stage, which can attract even more students and partnerships.

More specifically, inbound mobility strengthens ties with other institutions, facilitating academic exchanges and joint research.

Economically and socially, international students contribute more to the local economy (housing, commerce, culture) and strengthen the international reputation of ITC and Cambodia. Detail information is shown in Annex 47.

### 6.2.2. Foreign Organizations on ITC campus

As the Cambodia Institute of Technology places more emphasis on research and innovation, we have foreign organizations on our campus that are involved in different areas of research with ITC researchers. These international partners are as follow:

1. Agence Universitaire de la Francophonie (AUF-3)
2. Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD-4)
3. Institut de Recherche pour le Développement (IRD-24)
4. JICA INACON Project (2)
5. Establishment of Risk Management Platform for Air Pollution (ERMPAP-SATREPS Project-2)
6. ECAM LaSalle (2)

Pour le fonctionnement de ces organismes, ils emploient 34 personnes de différentes nationalités qui sont en pleine activités.

### 6.3. Collaboration with industries

The University-Industry Linkage Office (UIL) at the Institute of Technology of Cambodia (ITC) is dedicated to fostering productive relationships between academia and the private sector. This report provides a comprehensive overview of the collaborative endeavors undertaken by UIL during the period of June 2024 to March 2025, between this timeframe, ITC engaged in a total of 135 collaborative activities with the private sector (See table below), reflecting its ongoing commitment to industry partnerships, research innovation, and knowledge sharing. The detail of each activity is shown in the following Appendix Tables.

Table 12. Activities of UIL collaboration with industries from June 2022 to March 2025.

| No. | Collaboration with industries   | Number of collaborations |      |      |
|-----|---|--------------------------|------|------|
|     |   | 2023                     | 2024 | 2025 |
| 1   | Organizing seminar and workshop for lecturer and student                              | 36                       | 43   | 33   |
| 2   | Joining seminar and workshop organized by organization/ministries/universities/abroad | 10                       | 23   | 14   |
| 3   | Industry visit ITC  | 36                       | 30   | 50   |
| 4   | ITC lecturer and student visit industry   | 35                       | 19   | 12   |
| 5   | Projects, training and consulting services for private sectors                        | 13                       | 27   | 19   |
| 6   | MoU and MoA with industry   | 15                       | 9    | 7    |

Notes: 2023 (June 2022 - May 2023); 2024 (June 2023 - May 2024); 2025 (June 2024-March 2025)

### ***Key Achievements from June 2024 - March 2025***

The Cambodian National Model of University Intellectual Property Policy, which can be adapted for ITC, has been developed under the CAPFISH Capture: Post-harvest Fisheries Development project and the Food Technology, Research, and Innovation Platform (FTRIP). Legal documents, including the Intellectual Property Assignment Agreement and Consulting or Training Service Contract (available in both Khmer and English), have been created with financial support from the ARES-CCD Project (R2). Additionally, a website and platform for ITC services, expected to be completed by June 2025, are currently under development with support from the ARES-CCD Project (R1). An internal Financial Rule Guideline has also been drafted.

#### **6.3.1. Seminars and Workshops**

Based on the Annex 48, between June 2024 and March 2025, UIL successfully conducted **33** seminars and workshops, enhancing technical and soft skills for ITC students and faculty (See in Annex 48). These events covered topics such as digital transformation, artificial intelligence applications in engineering, climate change adaptation, and career development strategies. Moreover, ITC participated in **14** externally hosted seminars and workshops, reinforcing collaborations with ministries, private companies, and international organizations (Annex 49).

#### **6.3.2. Industry Engagement and Visits**

UIL facilitated **50** industry visits to ITC, strengthening direct engagement between ITC students, faculty, and corporate leaders (See in Annex 50). These interactions helped align academic training with industry expectations. Additionally, **12** outbound visits were organized for ITC students and faculty to gain firsthand industry exposure, covering fields such as renewable energy, construction technologies, and manufacturing automation (See in Annex 51).

#### **6.3.3. Collaborative Projects, Training and Consulting Programs**

UIL partnered with **19** private sector stakeholders to develop targeted training programs and collaborative research projects (See in Annex 52), categorized into two main service types: **Projects**: 15 entries (79%) and **Training**: 4 entries (21%). This indicates that the institution is primarily engaged in **project-based collaborations**, with a smaller proportion dedicated to training.

The projects and training sessions involve a diverse range of industries, including:

- Environmental Sustainability & Water Management (e.g., ASEANO2, FAO Water Scarcity Project, Phnom Penh Water Supply)
- Engineering & Construction (e.g., Mega Asset Management, SNKRP Co., Ltd.)
- Agriculture & Food Security (e.g., CAPFish - UNIDO, ACIAR, CIRAD)
- Technology & Robotics (e.g., Western Sydney University, Australian Centre for Robotics)
- Cultural Heritage & Restoration (e.g., Archaeological Survey of India).

#### 6.3.4. Memoranda of Understanding and Memoranda of Agreement

ITC signed **7** new MoUs and MoAs with industry partners (See in Annex 53), categorized into **two sectors: 75% of the MoUs involve private industry**, indicating strong engagement with **businesses for internships, training, and R&D** and **12.5% involve organizations**, Phnom Penh Autonomous Port (PPAP).

Key Outcomes & Benefits from partnership agreements included:

- a. Internships & Student Development
  - Internships are a major focus, with multiple agreements supporting student placements:
    - HOTEL OFURO Co., Ltd and Tekoma Energy KK: Internship for two students in Japan.
    - Phnom Penh Autonomous Port (PPAP): 44 interns recruited (from 2023 to 2025).
    - Renaissance Minerals (Cambodia) Ltd: Internships & practical training.
- b. Research & Development (R&D) Collaborations
  - SATO KOGYO: Engages in R&D, education, infrastructure development, and community engagement.
  - Confirel Co., Ltd.: Includes joint research, skill development, intellectual property collaboration, and lab partnerships.
  - Renaissance Minerals (Cambodia) Ltd: Aims to develop academic curricula and provide professional training.
- c. Technical Support & Assurance Engagement
  - Rating Agency of Cambodia Plc.: Focuses on technical assurance engagement with ITC.
  - Phnom Penh Autonomous Port (PPAP): Provides scholarships and industry training.

#### 6.3.5. Flagship Events

UIL successfully hosted **2** major events during this period, including:

- **The 7th Industry Consortium** highlighted the growing collaboration between academia and industry. Held on December 4, 2024, the event gathered over 30 companies and academic leaders to discuss key strategies for enhancing Cambodia's technological and industrial sectors. With a focus on aligning academic programs with industry needs, developing professional training opportunities, and fostering research innovation, ITC showcased its commitment to sustainable development. New initiatives, such as an **Industry Advisory Board** and an **Apprenticeship Program**, were introduced to bridge the gap between academia and the job market, fostering long-term partnerships and skills development (For more detail: [Report of Industry Consortium 2024.pdf](#)).
- **International and Regional Conferences:** The 3rd International Conference on Earth Resources and Geo-Environment Technology (EraGET) 2024, jointly held with IGCP-700, took place on December 12, 2024, in Cambodia. Hosted by GGG, the conference attracted around 500 participants, including more than 50 international attendees from 15 universities across Japan, Malaysia, the Philippines, China, Nepal, India, and other countries. Additionally, representatives from 2 local universities, 10 private sector organizations, and

3 public sector entities participated. The event served as a platform for professors, researchers, students, and industry experts to exchange knowledge and discuss advancements in earth resources and geo-environmental technology.

#### **6.3.6. Strategic Directions for 2025 and Beyond**

UIL is committed to expanding industry collaboration through:

- Strengthening professional development programs to address evolving industry skill gaps.
- Increasing student internship placements with leading industry partners.
- Enhancing research commercialization efforts through joint industry-academia projects.
- Improving digital outreach to expand engagement with international corporations.

#### **6.3.7. Conclusion**

From June 2024 to March 2025, UIL has played a crucial role in fostering industry-academia partnerships, promoting skill development, and driving technological innovation at ITC. These collaborations continue to provide ITC students and faculty with valuable industry exposure, bridging the gap between academia and real-world applications. Moreover, the UIL main office has relocated to a new building (J-101), which will serve as a dedicated career and training center. Additionally, this space will be available for private sector rental to host events and showcase their products/services. Furthermore, it will provide a platform for ITC students and researchers to exhibit their product prototypes, fostering collaboration and promoting ITC's capabilities to the private sector.



# **Annex**

## Annex 1. Minutes of the International Consortium Meeting on 27-28 March 2024.



### COMPTE-RENDU DE LA REUNION DU CONSORTIUM

INTERNATIONAL D'APPUI A L'ITC  
Les 27 et 28 mars 2024, à l'ITC, Phnom Penh

### MEMBRES DU CONSORTIUM 2024

#### I. Établissements étrangers

| No | Nom de l'établissement  | Sigle               | Pays      |
|----|---|---------------------|-----------|
| 1  | Ambassade de France   | AF                  | France    |
| 2  | JICA Cambodia Office  | JICA                | Japan     |
| 3  | Ministère de l'Éducation, de la Jeunesse et des Sports                            | MoEYS               | Cambodge  |
| 4  | Ministère des Mines et de l'Énergie   | MME                 | Cambodge  |
| 5  | Agence Universitaire de la Francophonie   | AUF                 | AUF       |
| 6  | Centre international de recherche agricole pour le développement                  | CIRAD               | France    |
| 7  | Chambre de Commerce et d'Industrie France Cambodge                                | CCIFC               | France    |
| 8  | DevKhmer SARL   | DevKhmer            | Cambodge  |
| 9  | École Nationale Supérieure de l'informatique pour l'Industrie et l'Entreprise     | ENSIIE              | France    |
| 10 | École Catholique des Arts et Métiers  | ECAM LaSalle        | France    |
| 11 | École Nationale des Ponts et Chaussées  | ENPC                | France    |
| 12 | École Nationale Supérieure en Génie des Technologies Industrielles (ENSGTI), UPPA | ENSGTI              | France    |
| 13 | IMT Mines Alès, représentant Institut Mines-Télécom                               | IMT Mines Alès      | France    |
| 14 | INSA Lyon   | INSA Lyon           | France    |
| 15 | INSA Toulouse   | INSA Toulouse       | France    |
| 16 | Institut de Recherche pour le Développement                                       | IRD                 | France    |
| 17 | Institut National des Sciences appliquées de Rennes                               | INSA Rennes         | France    |
| 18 | Institut National Polytechnique de Toulouse                                       | INP Toulouse        | France    |
| 19 | Institut Pasteur du Cambodge  | IPC                 | Cambodge  |
| 20 | Institut Universitaire de Technologie d'Orsay                                     | IUTO                | France    |
| 21 | IUT de Saint-Nazaire  | IUT                 | France    |
| 22 | KASETSART University  | KU                  | Thaïlande |
| 23 | KYUSHU University   | KU                  | Japon     |
| 24 | Montpellier SupAgro   | Montpellier SupAgro | France    |
| 25 | Northeastern Illinois University  | NIU                 | USA       |
| 26 | Polytech Lille  | Polytech Lille      | France    |
| 27 | Schoolab / Hexagon  | Schoolab            | France    |
| 28 | Tokyo Tech  | Tokyo Tech          | Japon     |

|    |   |                        |          |
|----|---|------------------------|----------|
| 29 | Université catholique de Louvain            | UCLouvain              | Belgique |
| 30 | Université de la Réunion                    | UR                     | France   |
| 31 | Université de Liège                         | ULiège                 | Belgique |
| 32 | Université de Liège, Gembloux Agro-Bio Tech | Gembloux Agro-Bio Tech | France   |
| 33 | Université de Mons                          | UMONS                  | Belgique |
| 34 | Université de Namur                         | UN                     | Belgique |
| 35 | Université de Rennes                        | UNIV Rennes            | France   |
| 36 | Université Libre de Bruxelles               | ULB                    | Belgique |
| 37 | Université Paris-Sud                        | UPS                    | France   |
| 38 | Université Paul Sabatier                    | UPS                    | France   |
| 39 | Université Sorbonne Paris Nord              | UP 13                  | France   |
| 40 | VOLTRA Co., Ltd.                            | VOLTRA                 | Cambodge |

## II. Partenaires institutionnels

1. M. Pierre VINCENT, Conseiller de coopération et d'action culturelle, ambassade de France
2. S.E. le Dr. OM Romny, Secrétaire d'État au ministère de l'éducation, de la jeunesse et des sports
3. S.E. Mme PEN Chhorda, Secrétaire d'État au ministère des mines et de l'énergie
4. M. SERMET Laurent, Directeur Asie-Pacifique de l'AUF
5. M. THLANG Peaktra, Représentant de la AFD au Cambodge
6. M. KOICHIRO Watanabe, Senior Advisor of JICA
7. Mme GROS-MARTIAL Adèle, Représentante au pays chez l'IRD
8. M. ROGER François, Centre international de recherche agricole pour le développement
9. M. JULLIARD Charles, Chambre de Commerce et d'Industrie France Cambodge (CCIFC)

## III. Entreprises

10. M. Franck TOUCH, DevKhmer SARL Co., Ltd.,
11. M. VAUDIN Yann, VOLTRA Co., Ltd.,
12. M. Arthur Mossa, Schoolab / Hexagon

## IV. Membres invités

13. Mme Thi Anh-Dao TRAN, Attachée de Coopération Universitaire et Scientifique
14. Mme Élodie WYNAR, Attachée de Coopération pour le français
15. M. SAN Chandaron, Responsable de l'Antenne AUF de Phnom Penh
16. Mme Toyama Haruko, Senior Program Officer of JICA Cambodia
17. M. JUN-ICHI Takada, Tokyo Tech
18. M. THOEUN Vongdy, Jica Cambodia Office
19. Mme TRIA Assia, IMT Mines Alès
20. Mme ANDRE Françoise, IMT Mines Alès
21. M. DESPLANCHE Didier, ECAM LaSalle de Lyon
22. M. AUBERT Pascal, Université Paris-Saclay
23. M. VINCKE Bastien, Université Paris-Saclay
24. Mme THIBON Isabelle, Institut National des Sciences appliquées de Rennes
25. M. VERLEYSEN Michel, Université catholique de Louvain
26. M. DEBASTE Frédéric, Université Libre de Bruxelles
27. Mme DASNOY Christine, Université de Liège
28. Mme DEGRE Aurore, Université de Liège
29. M. GOSSELIN Bernard, Université de Mons
30. M. LEYS Christophe, Université Libre de Bruxelles
31. M. DAUBY Pierre, Université de Liège
32. M. LECLERCQ Pierre, Université de Liège

33. M. Kylie STRINGFELLOW, Griffith University
34. Mme SHOMI Kim, Global Green Growth Institute
35. M. ANGLES Paul, INSA Toulouse
36. M. SKRZYPEK Thibaut, École nationale des ponts et chaussées
37. M. CYR Martin, Université Paul Sabatier
38. M. OBRECHT Christian, INSA de Lyon
39. M. Kévyn JOHANNES, INSA de Lyon
40. M. KUZNIK Frédéric, INSA de Lyon
41. M. Nora Tufenkjian, INSA de Lyon
42. Mme WYNAR Elodie, Ambassade de France
43. M. DARRACQ Bruno, Institut Universitaire de Technologie d'Orsay
44. M. SANGLEBOEUF Jean-Christophe, professeur des universités, Université de Rennes
45. M. MASSUEL Sylvain, IRD
46. Mme WARAPA Mahakarnchanakul, KASETSART University
47. Mme CHAISERI Siree, KASETSART University
48. Mme LEGEAIS Béatrice, IUT de Saint-Nazaire
49. Mme MIYAKE Chiho, LBE Project
50. Mme Stéphanie LEROY, CNRS/Université Paris Saclay)
51. Mme AVALLONE Sylvie, Montpellier SupAgro
52. Mme LENCZEWSKI Melissa, Northeastern Illinois University
53. M. CHABRIAT Jean-Pierre, Université de la Réunion
54. M. CHARLES Yann, Université Sorbonne Paris Nord
55. M. Guy DIRRAS, Université Sorbonne Paris Nord
56. Mme José MORALES, Université Sorbonne Paris Nord
57. M. DOSSANTOS-UZARRALDE Pierre, École Nationale Supérieure de l'informatique pour l'Industrie et l'Entreprise
58. M. Cathal GURRIN, Dublin City University

## **V. Équipe de direction de l'ITC**

### **V. 1. Direction**

59. S.E. le Dr. PHOEURNNG Sackona, présidente du Conseil d'Administration et ministre de la culture et des beaux-arts
60. S.E. le Prof. PO Kimtho, directeur de l'ITC
61. M. SOY Ty, directeur adjoint
62. M. BUN Kim Ngun, directeur adjoint
63. M. NGUON Kollika, directeur adjoint
64. M. PROTIN Ludovic, directeur honoraire de l'ITC
65. M. CHUNHIENG Thavarith, conseiller pour la coopération
66. M. NUTH Sothân, conseiller pour les affaires académiques
67. M. PENH San, conseiller pour l'administration

### **V.2. Facultés, départements et sections**

68. M. OR Chanmoly, directeur du centre de recherche et d'innovation ((RIC)
69. M. LIN Mongkolserey, vice-directeur du centre de recherche et d'innovation, coordinateur de l'ITC Tbongkhum et doyen de la faculté des sciences appliquées et chef de département des mathématiques appliquées et statistiques
70. M. SIM Tepmony, directeur de la formation de 3<sup>ème</sup> cycle (GS)
71. M. SIEANG Phen, responsable du bureau des relations internationales (RI)
72. M. HAN Virak, doyen de la faculté de génie civil (GCI)
73. M. CHHUON Kong, doyen de la faculté d'hydrologie (GRU)
74. M. IN Sokneang, doyenne de la faculté de génie chimique et alimentaire (GCA)
75. M. ENG Chandoeurn, doyen de la faculté de génie de géo-ressources et de géotechnique (GGG)

76. M. CHRIN Phok, doyen de la faculté de Génie Électrique et Énergétique (GEE)
77. M. BUN Long, vice-doyen de la faculté de Génie Électrique et Énergétique
78. M. CHAN Sarin, doyen de la faculté de génie industriel et mécanique (GIM)
79. M. LAY Héng, vice-doyen de la faculté de génie électrique (GIC) et chef du département de Génie Informatique et Communication (GIC)
80. M. PHUN Veng Kheang, chef de département de génie des transports et des infrastructures (GTI)
81. Mme SREY Malis, chef du département du Tronc Commun (TC)
82. Mme KHEMTRAN Krasel, responsable de la section de français (SF)
83. M. SO Phea, responsable de la section d'anglais (SA)
84. M. SOK Kimheng, responsable de la Bibliothèque
85. Mlle SANG Davin, chef adjoint des relations avec les entreprises (UIL)
86. M. KHIEV Samnang, responsable du service informatique (IT)
87. Dr. SRENG Sochenda, chef de département télécommunications et réseaux (GTR)
88. Dr. SRANG Sarot, responsable du génie mécanique et des systèmes de contrôle au Département de génie industriel et mécanique et coordinateur du programme international ECAM LaSalle-ITC
89. Mme HANG Leakhena, responsable d'assurance de qualité interne (QA)

Cette année, la réunion du Consortium international d'appui à l'ITC a repris son rythme habituel, soit une journée et demie, la quasi-totalité des membres en présentiel. Toutefois, étant donné que certains de nos membres étaient dans l'impossibilité de déplacement pour diverses raisons, nous avons décidé d'organiser une réunion hybride pour les séances plénières et les discussions dans les départements respectifs. Pour comprendre plus précisément, nous vous invitons à lire l'ordre du jour présenté ci-dessous:

#### **Mercredi 27 mars 2024 :**

- 7h30 - 8h00 : Accueil des participants
- 8h00 - Session plénière dans la salle A-110
- 8h00 - 10h30 :
  - Discours de bienvenue de S.E. PHOEURNNG Sackona, Présidente du CA de l'ITC
  - Méthodologie de travail et objectifs de la réunion du consortium 2024
  - Bilan d'activités 2023 - 2024
- 10h30 - 10h50 : Pause-café
- 10h50 - 12h00 : Perspective et Stratégie 2024-2025
- 12h00 - 13h30 : Déjeuner
- 13h30 Sessions par groupe
- 13h30 - 17h30 : Travail en groupe dans les Départements/3 ème Cycle/Recherche
- 18h30 - Diner convivial organisé par la direction de l'ITC

#### **Jedi 28 mars 2024 :**

- 8h30 : Session plénière dans la salle A-110
- 8h30 - 12h00 : Présentation des synthèses des groupes de travail

En introduction, **S. E. Mme PHOEURNNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC, salue tous les membres et surtout les nouveaux membres du Consortium international d'appui à l'ITC, de France, du Japon, de Belgique, de Thaïlande et d'autres pays, en présentiel et en ligne. Ce regroupement multilatéral permet toujours de renforcer le développement de l'ITC. Cette rencontre représente un plus grand nombre que celui de la réunion du Conseil d'Administration. Cette année, nous plus d'une centaine de personnes qui se retrouve pour ce rendez-vous technique, académique et scientifique.

Pour commencer, elle invite tous les partenaires à faire le tour de table. C'est le représentant de l'Ambassade de France, M. Pierre VINCENT qui glisse ses petits mots comme les suivants :

.....  
**M. Pierre VINCENT**, Conseiller de Coopération et d'Action Culturelle de l'Ambassade de France et directeur de l'Institut Français du Cambodge

*Merci Madame la Ministre,  
Bonjour à toutes et à tous,*

Je partage comme vous, Madame la ministre, la joie de voir chaque année de plus en plus de partenaires se joindre à nous. Je comprends qu'il y a une forte délégation belge cette année donc elle est particulièrement bienvenue aujourd'hui à ce consortium. Ce dynamisme et.... Bien, Madame la ministre, c'est le succès et la bonne tenue de ce consortium chaque année, grâce à vos équipes, grâce au directeur général Monsieur PO Kimtho, grâce aussi à tous les doyens, les vice-doyens et Monsieur SIEANG Phen, le directeur des relations internationales. Permettez-moi, Madame la ministre aussi de rappeler l'attachement fort de la France envers le Cambodge et à cet égard, je citerai les entretiens de haut niveau entre les chefs d'État et de gouvernement qui se sont déroulés récemment à Paris et le lien tout particulier qui attache la France à l'ITC. Vous le savez, vous l'avez mentionné, Madame la ministre, son 30 ans de coopération, l'ITC a accueilli des organismes de recherche à former des étudiants et nous avons parmi ces organismes de recherche des représentants ici que je salue comme l'IRD, le CIRAD et grâce à ce partenariat et bien nous sommes arrivés à un niveau aujourd'hui où l'ITC a une reconnaissance non pas simplement niveau national et régional mais international et j'en cite la preuve, la présence de tous nos partenaires et internationaux étrangers. L'accueil d'organismes de recherche qui se traduit par plusieurs points je peux juste être très rapidement, c'est la recherche aux projets qui se développe avec un travail collaboratif entre les équipes internationales et les équipements cambodgiennes et c'est aussi la soumission des appels aux projets en commun et la levée de fonds auprès des bailleurs. Je citerai aussi les publications conjointes qui sont un élément fondamental de la recherche et qui sont en croissance ici à l'ITC et c'est un phénomène que je salue particulièrement. C'est un travail remarquable qui est effectué par une équipe de recherche ici à l'ITC. L'ITC est au niveau de l'excellence internationale, c'est aussi grâce à la politique de standard international à laquelle l'ITC est soumis. C'est une excellente chose que je salue aussi au nom de toute la coopération française. Enfin, sur ces points permettez-moi la ministre de dire que ce succès n'aurait pas été possible sans la participation de collègues et notamment de collègues français je n'en citerai peut-être qu'un aujourd'hui car il nous est cher et il a dû nous quitter définitivement ces derniers jours pour rejoindre la France je pense au conseiller Monsieur Bruno DAGUES et permettez-moi madame la ministre de le saluer et de le remercier pour toutes ses années passées auprès de l'ITC. Je serai pas plus long et je me féliciterai une nouvelle fois de l'équipe de direction et tous les partenaires pour faire de ce consortium ce qui est chaque année un lieu d'échange de débat de réflexion pour porter au plus haut l'excellence de l'ITC et du Cambodge dans le monde de la recherche internationale. Merci infiniment, Madame la ministre et bon Consortium.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci monsieur le Conseiller. Nous avons aussi le représentant des collègues belges qui sont partenaires de l'ITC depuis 1997. La parole est accordée maintenant à M. Michel VELEYSSEN.

**M. Michel VELEYSSEN**, représentant des partenaires belges

*Merci Madame la Présidente,  
Bonjour à toutes et à tous,*

Avant tout, merci pour le formidable accueil que l'ITC offre en permanence à ses partenaires étrangers. Je pense qu'on se sent bien accueilli quand on vient ici ou quand on collabore à distance et c'est vraiment très très important. C'est l'essentiel même de des collaborations en termes d'enseignement en termes de recherche en termes de valorisation. Je voudrais remercier toutes les personnes avec lesquelles nous travaillons parce que c'est vraiment un plaisir de collaborer comme vous l'avez dit ça fait à peu près 25

ans que l'ITC a la collaboration avec les partenaires belges et ça fait si les renseignements que mes collègues m'ont fourni, il y a quelques minutes, sont vrais que nous avons un programme qu'on appelle l'appui institutionnel et donc c'est un programme de recherche mais qui vivent à développer et à collaborer avec l'institution ITC dans son ensemble ce qu'on a vu depuis c'est 17 ans une évolution vraiment phénoménale de ITC. On a on a commencé par des collaborations au niveau de l'enseignement au niveau du bac, au niveau du bachelier puis du Master, du doctorat, de la recherche de la valorisation de la recherche, de la cellule d'interface et maintenant la collaboration principale est transversale de l'institution, elle concerne la structuration d'un certain nombre de parties de l'institution et des compétences des personnes et on a vu cette évolution phénoménale de l'ITC ces dernières années et donc je voudrais en féliciter de l'équipe de direction bien entendu, mais également tous les membres de l'ITC qui contribuent à cette évolution très très importante. En dehors de cette de ce programme, il faut pas oublier que qu'avec la Belgique il y a également d'autres collaborations sur des programmes plus spécifiques sur un domaine de recherche ou d'enseignements. Il y a pas mal de possibilités, il y a même je dirais des extensions de possibilités par rapport à ce qu'il y avait. Il y a quelques années, je les encouragerai à postuler à ce programme. Je pense que malgré tout le succès qu'il y a et je n'ai minimisé absolument pas mais je pense qu'encore avoir davantage de collaboration je pense qu'à partir du moment où il y a de la volonté de la part de membres de l'ITC il y aura toujours dans nos universités en Belgique dans les 5 universités qui collaborent avec l'ITC des réponses et une preuve qui a été mentionnée par monsieur le Conseiller c'est que la délégation n'était jamais aussi nombreuse. Nous sommes 8 ce matin. Donc, voilà encore merci pour cet accueil et félicitations à l'équipe de l'ITC pour ce formidable développement qui est devenu une véritable collaboration d'égale à égale entre l'ITC et les universités en Belgique. Je pense qu'on est plus dans un mode de coopération d'aide au développement. Je pense que nous avons aussi beaucoup à apprendre de l'ITC à chaque fois que nous venons ici à l'ITC, merci beaucoup.

**S. E. Mme PHOEURN Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci monsieur le professeur. Now, I would like to turn to our colleagues from Japan. Yes, when we talk about ITC, we immediately think of cooperation with France. But I always remember, in 2000, I got an invitation from AUN-SEED/Net. This means networking universities in ASEAN. ITC was invited to join this networking. When I went with His Excellency POK Than, Secretary of State at the Ministry of Education, Youth and Sport at that time, to join the meeting at Chulalongkorn University. So that, our cooperation started from that day until now 23 years already. You can see now, the real results from that. We have human resources trained from Japan, other ASEAN countries, France, Belgium. These are our young professors and researchers who are in action in different fields. So, I am so happy to see that. Now, I would like to give the floor to Professor Watanabe who represents Japanese universities. Professor, please.

**Prof. KOICHIRO Watanabe**, Representative from JICA Headquarter

Good morning et bonjour. I am from JICA Headquarter. I worked for AUN-Seed/Net for a long time and now I work at Jica headquarter as an advisor. I'm also professor Emeritus of Kyushu University. I am happy to know that ITC is promoting the internationalization. Probably later, we will discuss about that. So I hope to have a good discussion later. Thank you.

**S. E. Mme PHOEURN Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Thank you, Professor. On peut maintenant commencer notre travail. J'aimerais préciser que vous avez les documents devant vous et puis dans celui du bilan d'activités, vous avez le programme de notre réunion. D'abord, une matinée bien chargée et l'après-midi touche les discussions dans les départements respectifs. Et demain, on va se réunir encore ici. Je vous invite donc à voir cet ordre de jour. Si vous n'avez pas de commentaires, je considère ce programme est adopté. Ce matin, on écoute les rapports des activités réalisées pour cette année et une séance questions/réponses. Aussi dans ce document, vous avez une liste des membres répartis en fonction du département avec lequel ils travaillent. Si vous ne voyez pas votre nom, pas de problème parce qu'on n'est pas encore sûr de volonté de discussion avec tel ou tel département. Pour ceux et celles qui sont en rouge, ils nous joignent

en ligne. Après les présentations, vous pouvez vous inscrire dans le/les département/s vous voulez intervenir. C'est notre modalité de travail. Ce matin, il s'agit de la présentation globale des activités de l'ITC mais quand vous allez cet après-midi, vous allez discuter de l'état du lieu, des ressources humaines, du curriculum, du nombre d'étudiants, des bourses, des projets de recherche, de l'avancement du troisième cycle et des perspectives du département pour 2024-2025. Dans ce cas-là, vous avez le temps de discuter avec nos collègues cambodgiens des programmes des techniciens, des ingénieurs de master et doctorat, de la codiplomation et du transfert de crédits, de la promotion des programmes internationaux, du renforcement et du développement des relations avec les entreprises, de l'amélioration des programmes pour le troisième cycle et la recherche, des publications, du transfert de nouvelle technologie, du développement des prototypes et des start-ups. Les avis de nos partenaires étrangers sont chers. Demain matin, chaque département a 8 minutes pour faire une présentation résumant tout cela. Je demande donc à chaque département de choisir son rapporteur.

Pour continuer, M. SOY Ty va présenter le suivi des avis du Consortium et les décisions du CA 2023.

**Le suivi des avis du Consortium :**

- 1- Renforcer la compétence transversale en développant des relations avec les partenaires publics et privés, et les Alumni (REALISE).
- 2- Tout diplôme d'ingénieurs (Engineering Degree) nécessite une durée de cinq ans. (REALISE).
- 3- Une augmentation de nouvelles options, de nouveaux travaux pratiques entraîne plus de dépenses mais l'ITC et ses partenaires peuvent les assurer. (REALISE).
- 4- Au niveau des ingénieurs, essayer de rendre transversaux certains cours : entrepreneurship ou marketing par exemple. (REALISE).
- 5- L'orientation pour promouvoir une nouvelle option ou un nouveau département est indispensable. La mise en place du département des Mathématiques appliquées et statistiques (Data Science) nécessite une campagne de sensibilisation pour que les étudiants comprennent bien leurs emplois attendus. (REALISE).

**Le relevé des décisions du Conseil d'administration 2023 :**

- 1- Reclasser les projets par nature, par niveau (ne pas les mettre tous ensemble) (EN COURS DE REALISATION)
- 2- La durée de Bachelor of ITC dure 5 ans (REALISE)
- 3- L'ITC va discuter avec le MEJS et donner le titre « Professeur Émérite aux dirigeants et les professeurs de l'ITC qui sont à la retraite. (EN COURS DE REALISATION)
- 4- Ingénieurs : ITC-Phnom Penh=1300 étudiants (80 bourses); ITC Tbong Khmum=120; Techniciens=1000 étudiants (15% bourses) (REALISE).
- 5- Droits de scolarité : Ingénieurs : (800USD/650USD pour les filles); Techniciens (350USD/250USD pour les filles) (REALISE).
- 6- Nomination de l'équipe de direction de l'ITC (REALISE).

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci et je donne la parole à SE PO Kimtho pour présenter les événements marquants de l'ITC. Pour ne pas alourdir le texte, je n'en cite que les titres.

- 1- Cérémonie de la pose de la première pierre du centre de formation et de recherche au nouveau campus de l'ITC;
- 2- Visite de SE HANG Chuon Naron, vice-premier Ministre et Ministre de l'Éducation, de la Jeunesse et des Sports;
- 3- De nouvelles initiatives en faveur de la Jeunesse francophone d'Asie-Pacifique (CONFRASIE);
- 4- Nouveau projet financé par JICA;
- 5- Visite de SEM Yann CHANTREL, sénateur français;



- 6- Visite de M. Pierre VINCENT, Conseiller de Coopération et d'Action Culturelle et Directeur de l'Institut Français du Cambodge;
- 7- Visite de Mme Garmen GERVET, Directrice de l'unité de recherche ESPACE DEV de l'IRD (France);
- 8- Visite de hauts délégués de l'ARES;
- 8- Visite de SE Madame Dominique Hasler, Ministre des affaires étrangères, de l'éducation et des sports de Liechtenstein;
- 10- Visite de M. Luis Benveniste, global Director for Education of World Bank;
- 11- La 14ème Conférence régionale AUN/SEED-Net (RCGeoE) et la 2ème Conférence internationale (EraGET2023);
- 12- Visite de Sailun Cambodia-Vietnam factories.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Thank you. Now, I return to Mr. SOY again who will present the activities of ITC.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Dr. SIM Tepmony who will present the master et PhD program.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Mr. LAY Heng who will present E-Learning Center.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Mr. SOK Kimheng who will present the library of ITC.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Dr. OR Chanmoly who will present the Research and Innovation Center.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Mr. SIEANG Phen who will present the capacity building and professor dispatch.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

Thank you. Now, I give the floor to Dr. SANG Davin who will present the industrial collaboration.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

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### **Pause-café / Coffee Break**

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**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Bonjour M. SERMET Laurent. Merci d'être parmi nous aujourd'hui. La parole est à vous maintenant.

**M. SERMET Laurent**, Directeur Asie-Pacifique de l'AUF

*Merci Madame la Présidente.*

**Bonjour à toutes et à tous,**

J'ai écouté de bonnes présentations. C'était enrichissant, informatif et instructif. Je vois également que l'AUF a été cité à plusieurs reprises. Je vous remercie. Je souhaite madame la présidente dire un petit mot par rapport à la présentation de notre collègue Phen concernant la mobilité des étudiants. L'AUF va mettre au point un programme international de mobilité et d'employabilité francophone. Ce programme va permettre aux étudiants d'avoir une mobilité courte, soit un à trois mois. Lorsqu'un étudiant va dans un pays étranger pour acquérir de nouvelles connaissances, il revient dans le pays avec un diplôme qui n'est pas reconnu forcément par le pays. Nous avons beaucoup parlé avec la Belgique, la France et le Cambodge sur la reconnaissance de diplômes. Si nous n'avons pas de période diplômante, nous avons la période certifiante. Dès que nous avons ce programme PIMEF (Programme International et d'Employabilité Francophone), il est offert aux établissements membres de l'AUF dont l'ITC fait partie. Il est pour une période de trois mois. L'idée est que ce programme fonctionnera comme une bourse de mobilité. Dans ce cas-là, l'ITC peut accueillir 10 étudiants et à l'inverse, il peut envoyer ses étudiants en stage dans une université ou une entreprise partenaire. Il s'agit d'une mobilité de recherche ou académique. Je crois que chère madame la présidente, chers collègues, ce PIMEF est particulièrement adapté au besoin et à la capacité de l'ITC. Une lettre officielle sera envoyée par monsieur le recteur dès que possible au vice-premier ministre et ministre de l'éducation, de la jeunesse et des sports pour que le Cambodge participe à titre officiel à ce programme de mobilité. Une fois encore, je pense que l'ITC comme d'autres établissements membres, vous avez la chance, en termes de capacité, de réussir ce PIMEF. Je souhaite que vous entendiez ce message et que ce programme sera validé en octobre prochain lors de la rencontre des chefs d'État et de gouvernement au sommet de la Francophonie 2024, à Paris, avec les premières mobilités de l'AUF en 2025. Voilà c'est le point qui concerne la mobilité que je voulais compléter. Merci madame la présidente.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci beaucoup monsieur le Directeur. C'est bien noté. Ces bourses seront disponibles pour nos étudiants en 2025. Pour vu que le Cambodge soit élu comme pays d'accueil de ce sommet en 2026. Je crois que tous nos ministères sont prêts pour organiser ce sommet, avec bien sûr toutes les directives du ministère des affaires étrangères et de la coopération internationale. Je souhaite aussi que ce programme PIMEF soit validé et qu'il soit mis en place à la disposition de nos étudiants pour la mobilité dans les deux sens, soit la mobilité entrante et sortante.

Maintenant, je donne la parole à Dr. BUN Kim Gnou qui va présenter les perspectives pour 2024-2025 and after the floor is open for everyone.

(Pour ne pas alourdir le texte, je vous prie de consulter le document si vous souhaitez avoir plus d'information.)

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Les présentations se terminent et les discussions commencent.

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**Yann Charles**, Chargé de Mission "Asie Pacifique" à la Direction des Relations Internationales de l'USPN:

I like to have more details about the proposition to change the name from materials science and structure to materials and build environment.

**Dr. OR CHanmoly**, Director of Research and Innovation Center

Thank you very much for your question. Last time, we put Materials Science and Structure. But for the moment, we think it's more about construction. However, the architect also covers this area but the name is not certain. This is why we want to change. Knowing that we are the Master in transport. Students will participate and publish. Despite everything, Materials Science and Structure does not really affect construction and transportation. This is why we want to change structure to Build environment. This term "Build Environment" is often used in Japan and Singapore. It covers construction, architecture, logistics, transportation.

Initially, we wanted to create another research unit, but human resources were insufficient.

**Yann Charles**, Chargé de Mission “Asie Pacifique” à la Direction des Relations Internationales de l’USPN:

Thank you but for me, this is joining process try to mix things which are not really related to materials science and transportation of architecture. This is not the same thing. With that name. So, I think the topic and the content of the recession seems to be much more relative to the civil engineering faculty then to the materials science curriculums. So, moving that name to this proposition will, I think, discourage people to do research in materials science and I strongly suggest to not change the name.

**Dr. OR Cnamoly**, Director of Research and Innovation Center

Thank you. Actually, we keep the word “materials”. The scope is enlarged. If we remain very specific, in terms of human resources, they are not adequate to create this.

**Prof. Yann Charles**, Chargé de Mission “Asie Pacifique” à la Direction des Relations Internationales de l’USPN:

Yes, but what I mean is that you can't see it and that name doesn't make any sense, I think, and doesn't fit into the mix of materials science and non-materials science, I think, which is coherent. I agree with you that human resources are not enough but if you want to increase visibility or push any research activity to a specific area, you need to promote that name and those activities. Okay, the materials word is still there, but if I'm someone from the outside and I'm looking for someone who does materials research and does materials science research, I won't go into this whole recession thing because that name doesn't mean materials science to me.

**Dr. OR Chanmoly**, Director of Research and Innovation Center

Yes, actually, the word materials, you can do it in “materials science and materials engineering”. I think that, on our side, there is a lot of emphasis on materials engineering. That's why we don't put materials engineering or materials science, because it depends on both materials science and materials engineering. I think most research projects and human resources focus more on materials engineering than materials science.

**S. E. Mme PHOEURNNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d’Administration de l’ITC

Merci beaucoup. Je crois que ce sujet doit être discuté de nouveau cet après-midi. J’ai aussi une petite remarque. 1) Nous voyons qu’il existe un décalage en termes de temps. C’est-à-dire que nous avons reporté la rentrée scolaire. Elle devait avoir lieu en octobre mais à cause des SEA GAMES, du Covid, etc. elle a eu lieu en janvier. Je voudrais savoir comment vous pouvez rattraper ce temps perdu pour que les programmes se déroulent comme il faut. Si l’on traine, cela rend difficile le départ de nos étudiants qui vont partir à l’étranger. 2) Avant, on tenait compte des mentions des bacheliers pour le concours d’entrée à l’ITC. Est-ce que ce critère reste tel quel pour le concours de nos jours?

**Mr. SOY Ty**, Deputy Director of ITC

Oui, merci Madame la Présidente. En fait, le retard ne concerne que les étudiants de 1<sup>ères</sup> et 2<sup>èmes</sup> années. Pour y remédier, on raccourcit la période des vacances d’été entre juillet et septembre. Pour le reste, les 3<sup>èmes</sup>, 4<sup>èmes</sup>, 5<sup>èmes</sup> années, leur rentrée scolaire est au rythme habituel, soit au début du mois d’octobre. Et en ce qui concerne la mobilité sortante touche seulement les étudiants de 4<sup>ème</sup> et 5<sup>ème</sup> année. Cela ne pose donc pas de problème. Pour la deuxième question, le pourcentage des bacheliers ayant la mention A était de 14%, B 42%, C 28%, D 12%, E 3%.

**M. Ludovic PROTIN**, Directeur honoraire de l’ITC

J’ai une remarque concernant la présence des filles à l’ITC. Elle est toujours en croissance, soit 34% pour cette année. Est-ce que l’ITC met en place une politique pour sensibiliser les élèves au lycée? Est-ce qu’on peut avoir le pourcentage des étudiants venant de province? Ces données nous permettront voir l’évolution de l’éducation dans les provinces reculées.

**Dr. BUN Kim Gnuon**, Directeur adjoint de l’ITC

Thank you very much for the question.

We think that Engineering University usually have less female enrollment. So, this year, ITC 34% of female students. It is one of the good indicators for Engineering University around the world. Recently, in the past two years, we have working directly with Upper Secondary School under the World Bank Budget, we called STEM Local Partnership Program. We supported 100 Hi-Schools. We provided basic technical training like Food Processing, Electricity installation, Smart Irrigation System Installation, Video Camera Installation, Solar Energy Installation. We provided the silks to high school teachers and high school students. In two years of project, we provided 1200 high school students, from 11 to 12 level. We keep continue working with upper secondary school and ADB Project. It aims to promote the female students who want to enroll in STEM university. And also, in ADB Project that I would like to highlight, we will establish a Science Museum in the next 3 years. Yes, we have been done some remarkable activities directly with upper secondary school. Thank you.

**S. E. Mme PHOEURN Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Oui, merci beaucoup. Oui, j'interviens en ce qui concerne les filles à l'université. Depuis l'ouverture de l'ITC, il y avait une seule fille dans le département de génie mécanique. Et petit à petit, les filles se rassemblaient dans le département de génie chimique et alimentaire. En 1997, il y en avait seulement 2%. C'est la raison pour laquelle on a mis en place cette politique de réduction des frais de scolarité pour les étudiantes. Vous voyez, le pourcentage s'est élevé de 2% à 34%. La politique du gouvernement du Cambodge valorise aussi le féminisme. Dans cette optique, le gouvernement a fait construire l'internat pour les filles, même dans le nouveau campus, il y en a aussi. Sachant que les étudiants pauvres venant de province et surtout des zones éloignées peuvent habiter dans les pagodes mais les étudiantes ne peuvent pas y rester avec les bonzes. C'est pour cela que l'internat pour les filles est prioritaire.

**SE Dr. PO Kimtho**, directeur de l'ITC

Oui, je voulais juste vous dire que 50% des étudiants de l'ITC viennent de province et la plupart viennent de Kampong Cham, Kampot et Prey Veng.

**Prof. Jun-ichi Takada**, Chief Advisor of LBE Project and Representative of Tokyo Tech

I like to ask a question related to the female students and another question to the master program. The first question, I really appreciate you offering a discount in terms of tuition fees for female students. Aren't male students jealous? In Japan, we implemented this policy, but male students complained about it at major universities. If you have any experiences to share, I'm very happy to do so.

**S. E. Mme PHOEURN Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Professor, I can share my own experience and my own culture. According to Cambodian culture, at least one must have one girl/woman in the family. Otherwise, this family is unlucky. She is the one who takes care of the house. In this regard, the government of Cambodia also values feminism. In each province, there must be at least one vice-governor. This is the policy of the country. For us, male students don't complain about it. It's the same for exams. If we have two equally qualified candidates for a position. Priority belongs to the female candidate. All this is officially announced. In my ministry, for the entrance exam, female students have 5 or 10 points added by myself. Discrimination does not exist in our country on this subject.

**Prof. Jun-ichi Takada**, Chief Advisor of LBE Project and Representative of Tokyo Tech

Okay, thank you very much. It is a very good information for me. So, the next question is related to a master program presented by Dr. Tepmony. I found that to study the master's degree, you need to have scholarships. And I see that the scholarships come from abroad. I would like to know if in the future, the government or some universities/institutions of Cambodia can give these scholarships to them in the near future.

**Dr. SIM Tepmony**, Director of Doctoral School

Thank you very much for the question, Professor. I try to answer as I can. Usually, the current state that the ministry offers to undergraduate level. The government does not have scholarships for them and sends

them abroad for training at this level. But I think the government will take care of it in the future, but I cannot reassure you. Of course, the scholarship motives the students a lot. If the stay in ITC, they could go abroad via double degree program with universities partners of ITC. In general, funding is provided by the partners of course.

**Prof. Jun-ichi Takada**, Chief Advisor of LBE Project and Representative of Tokyo Tech

Yes, to expand research activities you need more graduate students. I see that the number of master's and doctoral students is increasing, that's why I'm asking this question. Thank you so much.

**Mme Assia TRIA**, Directrice de l'IMT Mines Alès

J'ai pas trop vu dans le document. Est-ce que vous avez des partenariats avec les universités de médecine, de pharmacie dans lesquelles les filles sont très présentes pour faire le double diplôme Ingénieur-Pharmacien, Ingénieur-médecin. Nous, on a ça, au sein de Mines Telecom. On prend les élèves en 5<sup>ème</sup> année de médecine qui veulent compléter par un diplôme d'ingénieur, pour faire de l'imagerie ou de la recherche après. Par ce biais-là, on arrive à avoir pas mal de filles qui rejoignent les écoles d'ingénieurs.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Pour l'instant, on a pas encore cette modalité. Mais il y a 3 ans, l'ITC a mis en place une formation conjointe avec l'Université de la Santé, dans le domaine de génie biomédical, pour le niveau technicien. Ces jeunes diplômés vont prendre en charge des équipements dans des hôpitaux.

**M. Michel VELEYSSEN**, représentant des partenaires belges

Merci Madame la Présidente. Si je peux me permettre, j'ai deux questions. Il y en a une qui concerne les perspectives de l'ITC. Je me réjouis de voir pas mal d'initiatives prises en considération touchant la double diplomation en partenariat, le seul diplôme de l'ITC. Je crois que c'est une bonne chose parce que cela correspond aux besoins des étudiants et de la société. Mais je me demande quelles sont les mesures qui sont prises pour assurer que les ressources nécessaires à la création de ces diplômes restent raisonnables. Je vais prendre un exemple. Vous allez créer un diplôme en intelligence artificielle et sécurité de l'information. Il y a bien entendu des recouvrements de l'informatique, des mathématiques appliquées, des statistiques qui sont des choses différentes mais en même temps, il existe des points communs. Dans ce cas-là, quelles sont les mesures qui sont prises pour s'assurer au niveau des moyens, par exemple, le nombre d'heures de cours, le nombre de professeurs pour l'engagement pour que ce soit le plus raisonnable possible, les transversaux possibles en termes des diplômes. En Europe, c'est pareil. Quelquefois, on a envie de créer plus, mais on a pas des moyens.

**M. LAY Heng**, vice-doyen de la faculté de génie électrique

Thank you, Prof. Michel. In fact, for the program AI Engineering and Cyber Security (AIECS). Firstly, we have the core resources, Maybe, you know Dr. Dona and Mr. PICH Reatry. Currently, we have the core lecturers and for the lab, we enough equipment. Regarding our plan for the next year, we are planning to recruit and call on students who have completed master's and doctoral studies to come and join us. In addition to full-time teachers, we need around 5 or 7 part-time lecturers. We don't recruit many teachers at the beginning, but if the program works well, we recruit more. Thank you.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Professeur, je crois que vous avez posé une question très importante à laquelle je demanderai à tous les membres cambodgiens et étrangers méritent de réfléchir. Pour l'instant, nous avons des cours transversaux et aussi des cours spécifiques. C'est à vous tous de voir si la mise en place d'un nouveau programme est faisable ou non.

**SE Dr. PO Kimtho**, directeur de l'ITC

I would like just to add about this new program, we understand that these are multidisciplinary subjects. So, that why, we work together with different departments: Information and Communication Engineering,

Mechanical Engineering, Electrical Engineering. We know that under AI and Cyber Security, we have a competency of robotic, machine learning and Software development. So, we try to use our resources very efficiently, and as mentioned Mr. LAY Heng, we try to do a long-term planning as well, in terms of resources development, of lab facilities with the cooperation from the Consortium members including the intervention from government as well. It is a launching program matching through the government strategies 2023-2050.

**M. Michel VELEYSSEN**, représentant des partenaires belges

Merci pour les réponses. Si vous me permettez, j'avais une deuxième question liée aux programmes de formation pour accroître la capacité des personnes, que ce soit la capacité scientifique à travers les programmes de doctorat pour renforcer les personnels de l'ITC notamment, mais aussi des compétences transversales, compétence de gestion, de laboratoire, d'infrastructure. Accroître la compétence des personnes, ça a du sens si la personne veut rester longtemps à l'ITC. Qu'est-ce qu'on peut faire? Dans un domaine où il y a beaucoup de concurrences sur le marché d'emploi, comment l'ITC peut gérer et garder ces ressources humaines le plus longtemps possible?

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Par rapport à cela, selon mon vécu professionnel, en tant ancienne directrice de l'ITC, normalement, pour les enseignants qui partent à l'étranger, ils font un contrat d'engagement. Ce document marque le consentement de la personne concernée disant qu'il accepte de travailler pour l'ITC pendant 5 ans, à leurs retours au Cambodge, après les études à l'étranger. Ce qui est l'idéal, c'est que 80% des jeunes reviennent au Cambodge après leurs études. Une fois revenu au Cambodge, on considère que c'est une perle rare pour le Cambodge, ce n'est pas non seulement pour l'ITC. Je peux citer un exemple, notre collègue, SENG Sopheap qui est parti au ministère de la poste et des Télécommunications, SE Mme PEN Chhorda, ancienne étudiante de l'ITC, est maintenant sous-secrétaire d'État au ministère de l'énergie et des mines. Pour moi, l'essentiel est que ces gens reviennent, après c'est pour l'ITC. Récemment, environ 20% de nos ressources humaines sont parties pour d'autres ministères. J'en regrette mais ce sont leurs choix également. Les gens qui travaillent à l'ITC quittent rarement cet institut, la jeune équipe de direction, ce sont les anciens étudiants de l'ITC. Pour nous, si 80% de nos jeunes diplômés restent avec nous à l'ITC, c'est déjà une bonne chose. Sachant que ceux et celles qui travaillent avec nous, ont beaucoup d'opportunités de développer leurs connaissances et voyagent beaucoup. Cette ambiance conviviale, amicale comme ça n'existe pas ailleurs. Mais pendant la discussion, on fait des débats bien enrichissants, on ose parler, poser des questions... Notre réunion en témoigne, vous voyez.

May I turn to Prof. Watanabe, please.

**Prof. KOICHIRO Watanabe**, Representative from JICA Headquarter

Dr. Kim Gnuon presented the perspectives of ITC. It's well prepared and very interesting, I think. My question is what strategy do you have to promote internationalization with Japan and other countries?

**Dr. BUN Kim Gnuon**, Directeur adjoint de l'ITC

Thank you very much for dressing the question concerning our next move forward of ITC. To promote good collaborations with our partners, firstly, it is to keep all the good cooperations that currently exist, such as the members of the Consortium, AUN-Seed-Net Project. Second, expand other project development to promote internationalization. For example, in the georesources and geotechnical engineering department, we have made efforts to establish an annual international conference. With this conference, the event takes place at ITC where we discuss research and capacity building. Our partners send experts in this field in question. Thirdly, we are making our infrastructure more suitable to accommodate such activities which have international character. The boarding school is part of internationalization too, our new campus too.

**Prof. KOICHIRO Watanabe**, Representative from JICA Headquarter

Thank you, Dr. Kim Gnuon. I have one additional comment from JICA side. You mentioned that SATREPS Project is supported by Kanazawa University in Japan. In that case, this university proposed to ITC and

other institutions in Cambodia this project. JICA believes that such a process is possible not only for Kanazawa University but also for ITC which is much more developed now if we compare to the past. So, the ITC can set up projects and discuss with partner universities in Japan to obtain budgets from the Japanese government.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Thank you, Professor. It is very important for us. I also would like to add some ideas. The current ITC is the intersection of Khmer, French-speaking and English-speaking universities. The ideal for us is that ITC students can have two foreign languages for their scientific studies. This is a special feature for them, if we compare with other universities in the country. The use of these two foreign languages attracts universities around the world in France, Belgium, Japan, Thailand, the United States, India, Malaysia, Australia... It is an important part of the internationalization of ITC. The ITC, thanks to the capacity of our teachers and researchers, can now organize conferences of an international character to discuss, for example, the irrigation systems in the Preah Vihear temple area, with colleagues from Japan and other countries. I am proud of this. New technology helps the conservation of cultural properties in the areas of Angkor, Preh Vihear, Sambor PreyKob. In this case, ITC's good reputation, in terms of human capacity and infrastructure, is recognized by our international colleagues. Saying that Jica considers this kind of research like Kanazawa University has done under the Satreps project, I am very grateful for this recommendation. I think that in the future, with Jica, ITC can have opportunities to do a lot of things to develop the country.

I would like to give the floor to our colleague from Belgium. Please

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**Mme DEGRE Aurore**, Université de Liège

Je voulais vous poser une question concernant l'évolution des programmes par rapport à ce que vous avez annoncé et par approche par compétences. Je voudrais savoir quels étaient les éléments d'entrées que vous avez utilisés. Est-ce qu'il y a des enquêtes auprès des diplômés, auprès des employeurs? Comment vous avez mis tout cela en œuvre?

Ma deuxième question : vous avez beaucoup de différents programmes pour les ingénieurs. J'imagine que vous avez des éléments en commun entre les différents programmes et par approche par compétences, c'est intéressant de les mettre en avant. Est-ce que vous pouvez expliquer comment vous allez procéder?

**Dr. BUN Long**, Directeur adjoint

Recently, we have a reform and established a few programs at the associate degree of engineering. ITC is involved in in in a bigger project which is a funded by Asian Development Bank. They made a very detailed survey with industries about the future skills. ITC is not the only trending Institute that joins project but which the Ministry of Labor and Education as well. So, I can say that we have done this survey and also along the process of curriculum design, we also have a few consultations with the relevant stakeholders including the industries, because we want to collect their feedbacks on our curriculum design as well.

**Mme DEGRE Aurore**, Université de Liège

Si je peux me permettre, ma question était une suggestion pour aller vers une transversalité pour les différents programmes afin de gagner des moyens en termes des ressources, de la même manière au niveau de la recherche, énormément des activités. Vous avez présenté beaucoup de laboratoires. Là aussi, cela nécessite une gestion des laboratoires parce qu'il est possible d'avoir un recours aux ressources complémentaires qui pourraient se dégager.

I'm sorry and maybe in English my point was to suggest that more transversality between the different programs. This could help us to save resources because I guess that they are common competencies between the different programs that you want to develop within your curriculum and maybe you could share experiences coming from chemical department and from environmental department also and share

pedagogical experiences, share maybe some of the courses to gain some time and well from this common approach between the different teaching staff. The same for the last management for instance I guess the common issue. Even, the labs are different, they share the management issue, data storage organization between the data from different programs. I don't know but the transversality possible between the different groups and I think that's something you could maybe reorganize a bit to strengthen the teams and to say some resources that was my suggestion.

**SE Dr. PO Kimtho**, directeur de l'ITC

Thank you very much for the question. It is a very good question and thanks to the ARES project. So, a lot lots of components that we had to improve. We understand that a lot of challenges in terms of lab management, resources sharing among the faculties and the course as well. So, within the ARES Project, we are trying to work on that how we connect the faculties, how we enhance the vertical program together. So, currently, I would like to readjust for example for the soft skill, for the marketing, for the communication. This is a very common cause. So, we conduct some kind of training of trainer (ToT). The trainer plays the road to provide this course for across all departments as well. But, of course, for some departments like Information and Communication, the Telecommunication and Networking, there are some courses overlapping. So, we try to work together also how we can share the course among the two faculties and for the new program on AI and Cyber Security, also we are trying to collaborate internally among other faculties also and for the lab management we are trying to develop a guideline how we can share the resource together because, as you mentioned, we have some labs under the faculty Chemical Engineering, they can also save for other faculties as well, for example for the faculty of Hydrology and Environmental Engineering. Currently, just do based on our practice and we do not really have a clear guideline but of course we collaborate the internally but for institutionalization the whole thing I think we need to have a clear guideline as well and also, we are trying to improve the visibility of our labs, our programs to the industries as well. So, we need to restructures our Management on the lab management, on the program management. So, as you see now, an increase in programs, labs, human resources. So, we need to work on that. We have to make more efforts on how to increase efficiency, productivity of lab service, of training programs. I would say, we must have a clear action plan on that. Thank you.

**M. LAY Heng**, vice-doyen de la faculté de génie électrique

Thank you for remark. I also want to share some practices from IT Department. As I mention we have quite a few programs operating at the same time. How can we make them work at the same time? Basically, for one program, we choose some core persons. For example, one program needs 3 to 5 human resources. Who looks at the curriculum design, and evaluation of the program, control the program quality. And for the lab, as I have mentioned recently related to the Michel's question. We can say, IT Department supervises the lab, not manage. In fact, for the maintenance, we have two staffs. Note that the lab is not used only by IT Department, but by others. If others need basic lab services, we can offer that. This is what we are doing in our department at the moment. Thank you.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Thank you. Je crois que nous avons beaucoup avancé. Pour la liste de la participation aux débats de cet après-midi, vous pouvez vous inscrire, si votre nom n'y existe pas encore. Par exemple, la proposition de M. Yann Charles, concernant le changement du nom. À titre de rappel, notre programme commence demain à 8h00. Chaque groupe désigne un rapporteur pour la synthèse des discussions dans les départements respectifs.

**Le 28 mars 2024 / March 28, 2024**

Présentation des synthèses par département / Presentation of summaries by department

Plan de pr'sentation des synthèses

- 1) Département du Tronc Commun (DTC)
- 2) Département de GCA
- 3) Faculté de Génie Civil (Civil, Architecture, Transport)



- 4) Département de GEE
- 5) Département de GGG
- 6) Département de GIC
- 7) Département de GIM-ECAM
- 8) Département de GRU
- 9) Département de GTR
- 10) Département de AMS
- 11) Formation du 3<sup>ème</sup> cycle
- 12) Recherche et innovation

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**S. E. Mme PHOEURNNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

On a écouté 7 présentations. Je crois que vous avez discuté des programmes académiques dans vos départements respectifs avec vos partenaires internationaux.

En résumé, nous avons trois choses: Reviewer the programs for Engineers: 8; Establish Engineering program: 1, Reviewer the international Program 1, ECAM LaSalle. J'attends les commentaires de nos partenaires parce que vos commentaires nous aident à réajuster nos programmes pour ne pas gaspiller les ressources humaines parce qu'il est possible d'avoir des cours transversaux. En termes des ressources humaines, elles ne sont pas réparties de manière équilibrée. À ce propos, on peut accorder des bourses de master et doctorat aux départements pour lesquels il manque encore de ressources humaines.

La présentation de la formation de l'ECAM LaSalle est un peu douteuse pour moi. Sachant que pour le cursus d'ingénieurs à l'ITC, c'est toujours la durée de 5 ans. La première approche que vous avez montrée, elle était correcte, soit la formation dure toujours 5 ans. Et maintenant, il y a un changement, pour cette nouvelle proposition, les deuxièmes années de l'ITC peuvent partir à l'ECAM LaSalle. Ils vont passer deux ans en France. Cela pose de l'impact sur la valeur de notre diplôme d'ingénieur qui dure en général 5 ans? C'est important que notre identité reste telle quelle. Ce n'est pas parce que ce programme de 5 ans attire moins d'étudiants, on le change pour en avoir plus. Ce n'est pas comme ça. Je ne sais pas si vous en avez parlé avec vos partenaires hier durant votre séance de discussion. J'aimerais avoir aussi l'avis du département de GIM.

**M. DEBASTE Frédéric**, Université Libre de Bruxelles

Oui, on avait parlé de ce programme. Pour moi, on a de la difficulté de changer le programme aussi tôt dans le curriculum. Pour moi, c'est faisable mais cela demande beaucoup d'efforts particuliers de rectification des programmes plus détaillés. Ça, c'était la recommandation qu'on faite hier pendant la discussion.

**S. E. Mme PHOEURNNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci beaucoup. Est-ce qu'il y a d'autres commentaires? Dans cas-là, a-t-on besoin un plus de temps pour le traiter comme il faudra? Si nous gardons ce nouveau parcours, on en a deux à l'ITC. L'un est de 4 ans et l'autre est de 5 ans. Et à la fin des études, on obtient le même diplôme d'ingénieur. Je crois que ce sujet a été abordé précédemment. Si l'on l'adopte, qui va faire le parcours de 5 ans? C'est problématique.

**Dr. SRANG Sarot**, responsable du programme ECAM-Cambodge

It is possible that my presentation is not clear. The duration of this new program is 5 years, not 4 years.

**S. E. Mme PHOEURNNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

You have a previous 5-year program, because you recruit students from the 3rd year. I believe we discussed this during the previous Consortium. But now you are coming up with a new program and at the end of this program, students spend only 4 years. This is why I say that it is not enough in terms of duration. The problem for me is that you are creating a new 4-year pathway in an institution where the duration for engineering students is 5 years. In this case, this causes problems with our current system.

Prof. Frédéric DEBASTE had the same remark. I would also like a comment from another member of the Consortium.

**Dr. SIM Tepmony**, Directeur de l'école doctorale

Previously, ECAM LaSalle recruited students after the third years. They have finished their third year at ITC, they will be in their third year at ECAM LaSalle. This means that they spend an extra year compared to our students who study at ITC. This new pathway recruits students who have finished their second year at ITC. They can go to Ecam LaSalle for their third year. That said, the duration of their studies is 5 years like those who study at ITC. So, it is good I think.

**Mr. SOY Ty**, Directeur adjoint

Merci madame la présidente. En fait, la durée du cursus reste toujours 5 ans, comme on a discuté l'an dernier. Pour être plus clair, ce nouveau cursus concerne le programme international avec ECAM LaSalle. C'est-à-dire que quand les étudiants finissent leurs études de bases de deux ans à l'ITC, ils peuvent aller suivre le programme de troisième année à ECAM LaSalle. À l'issue de cette formation, ils obtiennent trois diplômes : de l'ITC, de l'ECAM LaSalle et de Kasesart University.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Je me demande si c'est une bonne chose d'avoir trois diplômes en même temps. Quand j'étais au ministère de l'éducation, le fait d'avoir deux ou trois diplômes en même temps, c'était pas une bonne chose. J'étais responsable de l'octroi des bourses données aux étudiants qui partaient à l'étranger. À ce moment-là, quand on tombait sur un étudiant qui avait deux diplômes en même année, on se demandait comment il faisait ses études.

Malgré tout, je propose donc de revoir ce cas de manière plus approfondie.

**SE Dr. OM Romny**, Secrétaire d'État au ministère de l'éducation, de la jeunesse et des sports

Merci madame la présidente. En ce qui concerne le nombre de diplômes, je crois que l'ITC reste dans une telle modalité depuis longtemps, surtout avec le programme ERASMU+. À l'issue de sa formation, l'étudiant peut obtenir deux ou trois diplômes.

Pour ce qui est de la durée de formation de 5 ans, c'était lié à la qualité de l'éducation de base au niveau secondaire. Mais maintenant, avec la réforme du ministère de l'éducation, de la jeunesse et des sports, je crois que le STEM est renforcé du primaire au secondaire. Je pense que les élèves ont assez de prérequis pour étudier à l'université.

À travers le concours d'entrée à l'ITC, on s'aperçoit que le niveau des connaissances de base de maths, physique et chimie n'est pas le même. Pourtant, avec cette réforme de l'éducation, je crois que le niveau s'améliore.

Selon la politique du gouvernement, d'ici deux ans, 1000 écoles doivent être standardisées. Sur ce, le ministère de l'éducation est en train de faire beaucoup d'efforts pour atteindre cet objectif.

Pour le tronc commun, on a deux ans à l'ITC. On peut se demander si l'on peut réduire cette durée à un an? C'est-à-vous de voir si c'est possible. En résumé, le passé et le présent, la situation a changé.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Oui, c'est pour ça je dis que c'est un peu trop tôt pour décider. Je sais que la réforme touche le primaire et le secondaire. Il faut voir aussi les détails. Par exemple, regarder le résultat de l'évaluation à l'échelle internationale dans différents pays. Pour faire une bonne décision, il nous faut suffisamment de données. Pour moi, je suis pas contre 4 ans ou 5 ans. Vous vous souvenez de la décision de garder les langues étrangères dans les programmes de l'ITC. On a passé beaucoup de temps (4 ou 5 réunions du Consortium) pour parvenir à un accord.

**M. Michel VELEYSSEN**, représentant des partenaires belges

Merci madame la présidente. En fait, les discussions ici m'inspirent deux réflexions. La première c'est donc j'entends qu'il y avait des gros efforts qui sont faits pour améliorer le niveau primaire en STEM et le secondaire. Je pense que c'est magnifique un tel effort. Je partage l'avis pour voir un peu les résultats

d'abord avant de prendre de grandes décisions mais j'irai même si on constate maintenant ou dans quelques années que les efforts sont couronnés de succès et que le niveau monte. Je reste et je resterai, je pense, un grand défenseur du fait que les diplômes d'ingénieur doivent avoir une partie commune transversale extrêmement importante. Aujourd'hui, le métier d'ingénieur est un métier pluridisciplinaire. On a beau et je vais revenir là-dessus après. On fait des efforts pour avoir des diplômes spécialisés parce que le marché nécessite cela mais vous ne pouvez pas spécialiser dans un domaine et être certain que l'étudiant ou l'étudiante que vous formez va travailler dans ce domaine-là pendant toute sa carrière. Ça n'existe pas. Moi, je travaille en intelligence artificielle. Je sais ce que j'enseigne à mes étudiants sera complètement obsolète dans 10 ans. Donc, ce qui est important c'est de le renseigner à être bon à s'adapter à ce qu'il y a dans 5 ans ou dans 10 ans. Je prends un autre exemple et il n'est pas du tout, je dirais négatif mais j'entends une spécialisation vers les véhicules électriques qui peut dire ce que sera un véhicule électrique dans 10 ans, personne même l'industrie automobile ne le sait pas aujourd'hui. Donc, voilà je pense que ce socle de base, cette capacité des ingénieurs à réagir aux situations et dire à l'évolution du monde technologique est extrêmement importante et donc même si le niveau en STEM s'améliore à l'entrée, je resterai un défenseur du fait qu'il faut au moins deux années très fortes de socle commun sans spécialisation pour former de bons ingénieurs et puis avoir une spécialisation après et donc moi je ne crois pas, mais c'est mon avis personnel, à qu'il soit pertinent de réduire ses diplômes de 5 ans à 4 ans, du fait qu'on a déjà du mal à enseigner tout ce qu'il faut enseigner à nos étudiants en 5 ans, on va pas augmenter à 6 ans, il faut pas exagérer mais réduire à 4 ans je n'y crois pas. Donc, ça c'était un commentaire. L'autre commentaire que j'avais à faire par rapport aux explosifs qui ont été faits, bon, j'avoue qu'en quelques minutes comme ça c'est compliqué pour moi et j'imagine pour beaucoup de mes collègues de s'y retrouver dans toutes les propositions de chacun des programmes avec tous les détails. J'avoue que je n'ai pas tout suivi dans tous les détails mais de façon globale en même temps, je suis extrêmement heureux de voir le dynamisme il y a dans chaque département pour créer ou pour adapter des diplômes des formations à des choses extrêmement précises à des besoins du marché à des réalités du monde d'aujourd'hui, ça c'est l'aspect positif et l'autre aspect je dois vous avouer que pour moi je suis un peu effrayé. Je suis un peu effrayé d'abord parce que je n'ai pas réussi à compter pendant les exposés mais je voudrais savoir si toutes les propositions sont acceptées combien de formations de l'ITC aura dans quelques années. Pour moi, ça me paraît beaucoup. Très honnêtement, je pense qu'on est en marche vers un nombre de diplômes ou un nombre de formations tels qu'un jour il n'y aura plus les moyens que ça soit des moyens financiers ou humains pour absorber toutes ses demandes. Je reviens sur ce que vous avez mentionné vous-même, Madame Sackona, déjà il été mentionné hier, c'est que si on va dans cette direction d'avoir des spécialisations des nouveaux diplômes, des séparations en deux de diplôme existant pourquoi pas mais alors je crois qu'il est indispensable qu'il y ait des synergies beaucoup plus fortes que ce qu'on entend entre les départements entre les diplômes, ça ne fonctionnera pas. En tout cas, ce que je pense que c'est notre expérience en Europe et on en discutait hier soir avec quelques collègues, ça ne fonctionne pas d'avoir autant de formations et d'avoir un objectif qui est que chaque département par exemple tu parles des départements, mais ça peut être des formations aussi. Voilà le périmètre un peu d'importance mais chaque département maîtrise toutes les compétences qu'il faut à chacune des formations, ça n'a pas de sens. Vous avez la chance d'avoir un institut qui couvre la plupart des domaines de l'ingénierie donc vous avez une pluridisciplinarité dans vos murs, il faut l'exploiter et je suis désolé d'être un peu négatif mais ce que j'entends des présentations ce matin ne l'exploit pas assez pour moi j'entends que chaque département veuille se spécialiser dans tel domaine et tel domaine donc un besoin de staffs ça il n'a pas suffisamment donc doit avoir des staffs spécialisés dans tous les cours qu'il va donner un jour on y arrivera pas. Donc, voilà, c'est mon message ici c'est et je suis désolé, je ne veux pas le présenter de façon négative parce qu'encore une fois c'est c'est beau ce qu'on entend de le dynamisme et la volonté de créer des formations qui sont extrêmement pertinentes je n'ai rien à dire contre la pertinence des formations mais je crois que soit il faut ne pas accepter ça parce qu'on se dit on en a pas les moyens et ça je le trouverai très dommage soit il faut l'accepter mais alors il faut aussi mettre un système en place qui fait qu'il y a beaucoup plus de transversalité qu'aujourd'hui. Je vous prends un exemple, je prends toujours le même parce que c'est le seul que je connais, ah désolé, voilà pour ma spécialité mais on ne peut pas raisonnablement attendre que dans chaque département il y ait des personnes compétentes en intelligence artificielle, ça n'ira pas, on peut se dire l'intelligence artificielle, on la met en informatique ou on la met en mathématiques appliquées, ça n'a pas d'importance pour moi. Ça c'est des choix politiques mais à partir du moment où on a les compétences dans l'ITC et bien c'est ses

compétences-là qui doivent être exploitées pour donner les cours et pour aider que ça soit en mécanique ou en génie industriel ou dans d'autres domaines. Ce que je dis là à travers un exemple. Encore une fois et pardonnez-moi si je fais un comment négatif mais c'est un comment pour aller de l'avant, pour construire des choses.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Oui, merci beaucoup. Tous les commentaires positifs ou négatifs sont les bienvenus. L'essentiel est que nous puissions mettre le train sur les bons rails. C'est ça, notre culture de travailler depuis des années et des années. Est-ce qu'il y a d'autres commentaires?

**Prof. Yann Charles**, Chargé de Mission "Asie Pacifique" à la Direction des Relations Internationales de l'USPN:

Oui, merci madame la présidente. Pour rebondir un peu sur ce que vous venez de dire, cette problématique de compétence dans tous les départements. Je voudrais vraiment soutenir cette transversalité et le partage de cours entre les départements afin d'optimiser le temps, des ressources et d'aller une capacité plus grande. Je pense que cela ne nécessitera pas de casser la culture des départements à l'ITC qui est très forte et historique.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Oui, merci beaucoup. J'essaie de faire une petite synthèse.

- 1) Le nouveau programme avec ECAM LaSalle mérite d'être étudié plus approfondi; en tenant compte de la réforme de l'éducation en termes de STEM du primaire au secondaire; L'équipe de l'ITC va revoir cette proposition.
- 2) La valorisation de la transversalité des cours entre les départements.

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**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

On arrive à la fin de la présentation, il est donc temps de faire le point.

**M. Ludovic PROTIN**, directeur honoraire de l'ITC

Merci Madame la Présidente. Je voudrais à nouveau, féliciter l'équipe de direction pour la qualité de document qu'il nous a fourni cette année. J'ai eu l'occasion de discuté hier avec mes collègues de l'INSA de Lyon et ce matin, avec mon collègue belge. Je crois peu d'établissement produisent de tels éléments aussi complets tous les ans. Je crois que l'ITC doit être un modèle dans ce cas-là. Les documents aussi complets, c'est assez exceptionnel. Alors, je dois dire que je suis l'évolution de l'ITC depuis plus de 20 ans, un peu grâce à l'invitation de différents directeurs qui m'invitent chaque année à participer aux CAs et aux Consortiums. Si vous aviez comme moi, les documents de l'ITC depuis 20 ans et que je vous mets devant vous le document de 2004 et le document de 2024, vous pourriez voir en un coup d'œil l'évolution de l'ITC. Je dois dire également que les consortium auxquels j'ai participé étaient cruciaux et je crois qu'il faut continuer ce Consortium. Je voudrais parler également souvent pour moi c'est une période d'anniversaire. Les collègues de l'ITC sont toujours très modestes même que les professeurs de l'ITC. Ils ne le diront jamais mais je vais dire. La France a dirigé l'ITC pendant 10 ans de 1993 à 2003. En 2004, Madame Sackona devient directrice de l'ITC. C'était la seule à l'époque à avoir un docteur. Donc, on avait pas le choix mais elle a prouvé qu'elle était largement favorable. Si vous remarquez qu'on est en 2024. 2004 et 2024, pour moi cette année, c'est l'anniversaire, 20 ans de la direction cambodgienne. Nous avons les trois directeurs à côté de moi. Pour moi maintenant, je suis âgé, bien âgé vous le voyez peut-être pas, je vous dirai pas mon âge mais je suis vieux. Je ne sais pas si je peux encore participer à de nombreuses années au Consortium et au CA mais malgré tout je crois que comme on a la chance d'avoir cette année et les trois directeurs qui viennent de développer l'ITC, je voudrais leur demander de se lever tous les trois et je vous je voudrais qu'on les applaudisse chaleureusement.

**S. E. Mme PHOEURNG Sackona**, Ministère de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC

Merci monsieur le Directeur honoraire. C'est bien gentil de votre part. Je voulais dire exactement aussi la même chose. Je suis convaincue que l'ITC peut devenir ce qu'il est actuellement, c'est grâce à vous tous. Il y a de nouveaux membres et des collègues très très anciens qui sont là depuis longtemps. Je suis à l'ITC depuis l'époque de l'Union de la République Socialiste Soviétique (URSS). Vous voyez, l'état des lieux de nos infrastructures d'aujourd'hui est complètement différent par rapport à celui des années 80. Tout ça, c'est grâce à la France, à la Belgique, au Japon et à bien d'autres partenaires. Je me réjouis de voir nos anciens étudiants qui nous succèdent. En termes de compétences, elles dépassent les nôtres même. J'en suis très fière. À ce propos, ça me fait penser à un proverbe cambodgien qui dit : le bateau est parti, le port reste. Je tiens donc à remercier tous les membres qui étaient là et également ceux et celles qui sont là avec nous aujourd'hui pour leurs contributions et efforts au service du développement de l'ITC. Monsieur PROTIN avait raison de dire que c'est difficile de trouver un endroit comme ça au Cambodge. Les dirigeants et les membres font librement des débats pour trouver des intérêts communs. En ce qui me concerne, il me reste encore 4 ans. Je reste donc encore avec vous. Enfin, nous avons travaillé ensemble une journée et demie dans le cadre de notre Consortium international de 2024. Encore une fois, un grand merci à vous toutes et tous et nous espérons que vous êtes toujours avec nous pour les prochains Consortiums.

Nous faisons le compte-rendu et nous vous l'envoyons pour confirmation. J'en profite aussi pour vous dire que le prochain Conseil d'Administration aura lieu le 27 juin 2024 et que notre prochain Consortium aura lieu la troisième semaine du mois de mars 2025.

Pour terminer, je tiens à remercier tous les membres du Consortium qui ont consacré votre précieux temps à une riche discussion du Consortium international ITC-2024 et je suis convaincue que vos contributions et vos expertises seront exploitées davantage pour les intérêts communs entre nos universités et institutions. -----

Le tableau suivant récapitule tous les points abordés et discutés durant la réunion du Consortium international ITC-2024.

| <b>No</b> | <b>Avis du Consortium 2024</b>  | <b>AVIS</b>      |
|-----------|---|------------------|
| <b>1</b>  | Valorisation de la transversalité des cours entre les départements  | <b>Favorable</b> |
| <b>2</b>  | Création de: Master of Architectural Engineering (GS)   | <b>Favorable</b> |
| <b>3</b>  | Création de : Artificial Intelligence Engineering and Cybersecurity (GIC-International Program)   | <b>Favorable</b> |
| <b>4</b>  | Création de: IT Network and Programming (GIC-Associate)   | <b>Favorable</b> |
| <b>5</b>  | Création de : Industrial Engineering (GIM-Associate)  | <b>Favorable</b> |
| <b>6</b>  | Création de : Geotechnical Engineering (GGG-Associate)  | <b>Favorable</b> |
| <b>7</b>  | Changement du nom: Materials Science and Structure” to “Materials and Built Environment” (RIC)  | <b>À revoir</b>  |
| <b>8</b>  | New PathWay of ECAM LaSalle “Second years of International Program can go directly to 3rd year at ECAM LaSalle” (ITC-ECAM-Kasetsart University) | <b>À revoir</b>  |

## **Annex 2. Minutes of meeting of the Board of Trustees Meeting on 27 June 2024.**



### **COMPTE-RENDU DE LA REUNION DU 32<sup>EME</sup> CONSEIL D'ADMINISTRATION DE L'ITC, LE 27 JUIN 2024, A PHNOM PENH**

#### **Membres de droit**

1. S. E. Mme PHOEURNG Sackona, présidente du conseil d'administration et ministre de la culture et des beaux-arts
2. S. E. M. PELLET Jacques, ambassadeur de France au Cambodge
3. S. E. M. UENO Atsushi, ambassadeur du Japon au Cambodge
4. S. E. M. OM Romney, secrétaire d'État au ministère de l'éducation, de la jeunesse et des sports
5. S. E. Mme PEN Chhorda, secrétaire d'État du ministère des mines et de l'énergie
6. S. E. M. CHOU Kimleng, secrétaire d'État du ministère de l'économie et des finances
7. S. E. M. PO Kimtho, directeur de l'ITC
8. M. MAINETTI Nicolas, directeur de l'AUF Asie-Pacifique
9. M. LAY Méng Sun, directeur de la SKD et représentant du secteur privé
10. M. DEBASTE Frédéric, représentant de l'ARES-ex CUD et des universités francophones de Belgique

#### **Membres invités**

11. M. PROTIN Ludovic, Directeur honoraire de l'ITC
12. M. VINCENT Pierre, Conseiller de Coopération et d'action culturelle de l'Ambassade de France et directeur de l'Institut Français du Cambodge
13. Mr. KAZUMASA Sanui, Chief Representative of JICA Cambodia Office, AUN/SEED-Net
14. M. KOICHIRO Watanabe, Senior Advisor of JICA (Online)
15. M. JUN-ICHI Takada, Vice-president of Tokyo Institute of Technology (Online)
16. Mme MARTIAL Adèle, Country Representative of IRD and Representative of Consortium
17. M. MAUSSION Pascal, Vice-président des Relations Internationales INP-Toulouse
18. M. IM Kravong, Responsable Antenne AUF, Phnom Penh
19. Mrs. MIYAKE Chiho, Industry Linkage / Project Coordinator of JICA Project for Strengthening Engineering Education and Research for Industrial Development in Cambodia (LBE Project)

#### **Direction de l'ITC et ses coéquipiers**

20. M. SOY Ty, Directeur adjoint de l'ITC
21. Dr. BUN Kim Ngun, Directeur adjoint
22. Dr. NGUON Kollika, Directeur adjoint
23. Dr. BUN Long, Directeur adjoint
24. Dr. CHUNHIENG Thavarith, Conseiller chargé de la coopération et de la recherche

25. M. NUTH Sothân, Conseiller de l'ITC, hargé de la pédagogie et des études
26. Dr. OR Chanmoly, Directeur du centre de recherche et d'innovation (RIC)
27. Dr. SIM Tepmony, Directeur du 3ème cycle (GS)
28. Dr. LIN Mongkulserey, Directeur adjoint du centre de recherche et d'innovation et Chef du département de Mathématiques Appliquées et Statistiques
29. Dr. HAN Virak, Doyen de la faculté de génie civil (GCI)
30. Dr. CHHUON Kong, Doyen de la faculté d'hydrologie
31. Dr. CHRIN Phok, Doyen de la faculté de génie électrique et énergétique (GEE)
32. Dr. IN Sokneang, Doyenne de la faculté de génie chimique et alimentaire (GCA)
33. Dr. ENG Chandoeun, Doyen de la faculté de génie de géo-ressources et de géotechnique (GGG)
34. M. LAY Heng, Vice-doyen de la faculté de génie électrique et chef de département de génie informatique et communication (GIC)
35. M. SIEANG Phen, Chef de la coopération et des relations internationales (IRO)
36. Dr. SRENG Sochenda, Chef de département de Télécommunications et Réseaux (GTR)
37. Mme SREY Malis, Chef de département du tronc commun (TC)
38. Dr. CHAN Sarin, Chef de département de génie mécanique et industriel (GIM)
39. Dr. PHUN Veng Kheang, Chef de département transports et infrastructures (DTI)
40. Mlle YIN Molika, Chef du bureau de la cellule d'interface (UIL)
41. Mme KHEM TranKrasel, Coordinatrice de la section de français (SF)
42. M. SO Phea, Coordinateur de la section d'anglais (SA)
43. M. SOK Kimheng, Responsable de la bibliothèque STEM
44. Dr. SRANG Sarot, Responsable du génie mécanique et des systèmes de contrôle au Département de génie industriel et mécanique et coordinateur du programme international
45. Dr. YIN Molika, Responsable des relations avec les entreprises (UIL)
46. M. KHIEV Samnang, Responsable du service informatique (IT)
47. M. HASH Chanly, Head Department of Architectural Engineering

#### Accueil des participants et ouverture de la réunion

As an introduction, **H.E. Dr. Sackona PHOEURN**G, Minister of Culture and Fine Arts and Chairperson of ITC Board of Trustees, welcomed all members of the Board of Directors in person and online and thanked them for participating in this 34<sup>nd</sup> Board of Trustees. The Board of Trustees has turned 34 years old. That means it is one of the oldest in Cambodia. OKNHA LAY Mengsun testifies to this because he participated in the first meeting of the ITC Board of Trustees. Many thanks for your loyalty. Comme d'habitude, je tiens à exprimer mes remerciements à tous les membres du CA venant de différents organismes et universités qui restent toujours avec l'ITC, ce qui fait que l'ITC se développe davantage jusqu'à maintenant. De telles réussites auraient été impossibles sans l'appui de France, de Belgique, du Japon et de bien d'autres partenaires de l'ITC. Comme vous voyez parmi nous, l'ensemble des jeunes qui prennent le relai. L'avenir de l'ITC leur appartient. On fait confiance en vous, les jeunes. Malgré tout, pour assurer un développement durable de l'ITC, vos soutiens et coopérations demeurent cruciales pour ces jeunes.

Once again, I would like to thank all the participants in person and online. I would like to say that it is thanks to all of you that the ITC has become what it is today. Nous ne pouvons pas oublier la France, la Belgique, le Japon, l'AUF et bien d'autres partenaires et bailleurs de fonds comme la Banque Mondiale (WB) et la Banque Asiatique de Développement (ADB) etc. You can see today; our former students have become leaders of ITC. We are very proud of it. But it is thanks to all of you. I hope you continue to help us because we still need you. So, I thank you for being here today so that we can take stock of last year and draw up a new action plan for the year to come.

Pour commencer, on peut maintenant accorder notre temps de parole à M. Pierre VINCENT, conseiller de Coopération et d'Action Culturelle de l'Ambassade de France.

**M. Pierre VINCENT, Conseiller de Coopération et d'Action Culturelle de l'Ambassade de France**

Merci beaucoup Madame la ministre. Madame la Ministre de la Culture et des Beaux-Arts, Présidente du Conseil d'Administration de l'Institut de Technologie du Cambodge, Madame PHOEURNG Sackona, Monsieur le Secrétaire d'Etat au Ministère de l'Éducation, de la Jeunesse et des Sports, cher Romny, le Directeur de l'ITC, cher Kimtho. Bonjour à toutes et à tous.

C'est toujours un grand honneur pour moi de participer à tous les événements de l'ITC et particulièrement au Conseil d'administration. Vous l'avez évoqué, Madame la ministre, l'ITC est une université de référence au niveau national, régional mais aussi international. Cette année, l'ITC fête ses 60 ans qui l'âge de pleine maturité. C'est l'âge aussi de récolter les fruits de son travail. Je cite, par exemple, les journées scientifiques au mois de juin tout d'abord les journées scientifiques qui sont toujours un événement incontournable et de l'ITC et puis le deuxième, c'était le lancement du laboratoire d'excellence en agrosystème durable. Ce laboratoire marque les jalons d'une coopération scientifique entre l'IRD et l'ITC dans le domaine de la co-ingénierie. Vous le savez, madame la Ministre, mais permettez-moi de vous le rappeler encore aujourd'hui, la France a toujours été aux côtés de l'ITC pour l'avenir. Nous sommes peut-être le seul partenaire à être à la fois investi dans le champ de la formation mais également dans le champ de la recherche. Je ne citerai pas tous les instituts et les partenaires français qui sont installés dans les locaux de l'ITC. Je remercie encore, madame la ministre, ainsi que le monsieur le recteur pour votre bienveillance et toujours votre sympathie à l'égard de tous les partenaires et notamment des partenaires français. La France apporte son aide à travers différents programmes, je pense que le premier programme, c'est celui de la mobilité. Cette année, l'ambassade de France a octroyé des bourses niveau master et doctorat à des élèves de l'ITC. Vous savez que ce sont souvent d'excellents élèves qui vont étudier en France dans les domaines de l'ingénierie des sciences. Je leur souhaite donc le meilleur et je formule le vœu que l'ITC soit toujours un institut qui puisse fournir les élites dont ce pays a aussi besoin. C'est un des meilleurs exemples je voudrais aussi naturellement vous dire. L'ambassade est en soutien des activités de recherche à travers des financements des financements de l'ambassade que nous appelons des FEF. Cette année, ces financements se montent à 1,3 millions d'euros pour des projets qui se déroulent au sein de l'ITC. Nous continuerons donc à mobiliser des fonds pour favoriser la recherche et continuer aussi la formation qu'elle soit initiale ou continue de tous les étudiants cambodgiens mais aussi des jeunes professeurs ou des postes doctorants. Ça, je pense que c'est un axe important de notre relation de notre partenariat avec l'ITC et nous y sommes particulièrement attachés. Je voudrais aussi vous dire que nous devons aujourd'hui rendre hommage à un de nos anciens collègues qui a œuvré pendant longtemps ici et qui, grâce à son travail, a permis et bien de faire vivre et des partenariats et d'apporter aussi des résultats très prometteurs et très encourageants. Je pense à notre collègue Bruno DAGUES qui est parti récemment. Je souhaite saluer sa mémoire et je sais à quel point il était attaché à ce pays et plus encore à cet institut de référence lorsqu'il nous a dit au revoir je pense que c'est probablement la chose qui allait lui prendre une des choses qui allait le plus lui manquer. Donc, une petite pensée à sa mémoire et à tout le travail qu'il a apporté à l'ITC et à ses étudiants et à son corps enseignant. Je ne serai pas plus long madame la ministre, je vous en remercie. Merci à toutes et à tous de m'inviter de me laisser la parole en début de ce Conseil d'administration et encore une fois j'ai hâte de voir quels sont les travaux qui ont été réalisés cette année qui témoignent encore du grand dynamisme et de la place majeure de l'ITC dans le paysage universitaire cambodgien mais aussi régional et international. Tous mes vœux pour cette séance. Merci encore madame la ministre.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Merci monsieur le Conseiller de Coopération et d'Action Culturelle de l'Ambassade de France. Comme vous le savez, la Belgique est aussi notre partenaire de longue date. Elle est représentée par le Prof. Frédéric DESBASTE. La parole est à vous monsieur.

**Prof. Frédéric DESBASTE, représentant de l'ARES de Belgique**

Merci madame la Ministre de me donner l'opportunité de participer à distance. La dimension de l'international de l'ITC est vraiment important et nous sommes très fiers d'en faire partie. Dans le cadre de l'ARES-CCD, nous avons le programme institutionnel qui est en cours et nous l'avons vu citer dans les documents de cette réunion. Nous sommes là pour soutenir l'enseignement et la recherche de l'ITC.



Nous avons deux projets de recherche qui sont en cours de validation avec l'ITC et nous espérons qu'ils vont démarrer l'an prochain. Merci madame la Ministre.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Merci monsieur le représentant de l'ARES de Belgique. Il fait encore nuit chez vous, je vous remercie encore une fois de votre participation.

Nous avons un autre partenaire très important aussi, c'est l'AUF. Elle est avec nous plus de 30 ans. Elle est représentée par son directeur régional Asie-Pacifique, monsieur Nicolas MAINETTI. La parole est à vous monsieur.

**Prof. Nicolas MAINETTI, Directeur régional de l'AUF – Asie- Pacifique**

Merci

madame la Ministre et la présidente du Conseil d'administration à Monsieur le directeur de l'Institut de technologie du Cambodge. C'est un réel plaisir pour moi également de d'avoir l'opportunité de participer à ce conseil en visioconférence. Comme vous l'avez dit, je viens d'arriver à la direction Asie-Pacifique de l'Agence universitaire de la Francophonie et donc je prends un peu connaissance des dossiers puisque j'ai été nommé il y a 3 semaines. Je suis encore en Europe et donc je découvre avec un extrême plaisir la qualité de l'enseignement, la qualité des projets, la qualité de la recherche, ils sont dispensés à l'Institut technologie du Cambodge et je veux simplement vous confirmer ou vous dire que l'agence universelle de la Francophonie est très très honorée de vous compter parmi ces membres et vous remercie également puisque vous abritez le bureau national Cambodge de l'Agence universitaire de la Francophonie et donc vous êtes le pilier de nos actions pour le Cambodge. J'espère pouvoir venir vous rencontrer très prochainement. Je vais vous rencontrer bientôt. Ma mobilité est prévue pour le mois de juillet et donc dès que je suis sur place, c'est bien évident que je souhaite vous rencontrer et en tout cas je vous félicite pour le magnifique rapport d'activités et toutes les belles perspectives de collaboration qui en résultent. Je vous remercie de votre de votre attention.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Merci monsieur le directeur. Now, I return to the Japanese colleagues who have been with us since the year 2000 from Jica and AUN/SEED-Net. Thanks to them, we have relations with English-speaking universities in ASEAN and Japan. We have with us special guests Prof. KOICHIRO Watanabe and Prof. Jun-ichi TAKADA. So, please the floor is yours, now.

**Prof. KOICHIRO Watanabe, Representative of Jica in Tokyo**

Thank you, Madam Sackona. I am KOICHIRO Watanabe, Senior Advisor of JICA in Tokyo, professor emeritus, and member of AUN/SEED-Net. I was at ITC early last month for Scientific Day, and I felt like ITC was showing some great things in terms of research in Cambodia. Thank you.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you, professor. Thank you, Professor. Ah, you were in Cambodia recently and I would also like to ask Professor Takada to take the floor.

**Prof. Jun-ichi TAKADA, Chief Advisor of LBE Project**

Thank you very much Madam Sackona. It is my pleasure to join the meeting. I apologize for not participating in person but I am happy to see the progress of the ITC every year. I hope to start a project level soon and see you all again in the near future.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you, professor. Thank you, Professor. You know the Japanese help not only ITC but other areas in Cambodia as well. For example, for the Angkor heritage, we have colleges from Japan working with us. We can now start our meeting. You have the documents in your hands and we will read the agenda first.

J'aimerais donc qu'on lise l'ordre de jour que nous avons proposé dans le document. Le rôle du CA est de prendre les propositions du Consortium qui s'est réuni en mars dernier et de les approuver si tout va bien. Pour commencer, je demande à monsieur SOY Ty, directeur adjoint, de présenter les activités réalisées et les avis du Consortium.

#### **M. SOY Ty, Directeur adjoint de l'ITC**

M. SOY Ty présente le suivi des décisions du CA 2023 et les avis du Consortium 2024.

| <b>No</b> | <b>Relevé de Décision du CA 2023</b>  | <b>2023-2024</b> |
|-----------|---|------------------|
| 1         | Reclasser les projets par nature, par niveau (ne pas les mettre tous ensemble)  | Réalisé          |
| 2         | La durée de « Bachelor of ITC » dure 5 ans  | Réalisé          |
| 3         | L'ITC va discuter avec le MEJS et donner le titre « Professeur Émérite » aux dirigeants et les professeurs de l'ITC qui sont à la retraite  | En réalisation   |
| 4         | Ingénieurs : ITC-Phnom Penh = 1300 étudiants (80 bourses); ITC-Tbong Khmum = 120 Techniciens : 1000 étudiants (15% bourses)   | Réalisé          |
| 5         | Droits de scolarité : Ingénieurs : (800USD/650USD pour les filles); Techniciens (350USD/250USD pour les filles)   | Réalisé          |
| 6         | - Implimentation des projets:<br><u>* Institution</u> <ul style="list-style-type: none"> <li>Establishment of Risk Management Platform for Air Pollution in Cambodia –SATREPS –JICA (2022 – 2027);</li> <li>Institutional Support (IS) – ARES (2022 – 2027) ;</li> <li>Science and Technology Project in Upper Secondary Education (STEP UP) – ADB (2023 – 2029);</li> <li>Research and Training Platform on Power System – EU/AFD (2023 – 2027);</li> <li>Energy Transition Sector Development Program (ETSDP) – ADB (2023);</li> <li>Skills for Future Economy (SFE) – ADB (2023 – 2029);</li> <li>LBE-Phase 2 – JICA (2024 – 2029).</li> </ul> <u>* Research Project (total: 80 projects)</u> <ul style="list-style-type: none"> <li>Continuous projects: 59 ;</li> <li>Newly approved research projects: 21.</li> </ul> | Réalisé          |

#### **Les AVIS du Consortium 2024**

| <b>No</b> | <b>Avis du Consortium 2024</b>  | <b>Favorable</b> |
|-----------|---|------------------|
| 1         | Valorisation de la transversalité des cours entre les départements  | X                |
| 2         | Création de: Master of Architectural Engineering (GS)   | X                |
| 3         | Création de : Artificial Intelligence Engineering and Cybersecurity (GIC-International Program)   | X                |
| 4         | Création de: IT Network and Programming (GIC-Associate)   | X                |
| 5         | Création de : Industrial Engineering (GIM-Associate)  | X                |
| 6         | Création de : Geotechnical Engineering (GGG-Associate)  |                  |
| 7         | Changement du nom: Materials Science and Structure” to “Materials and Built Environment” (RIC)  | À revoir         |
| 8         | New PathWay of ECAM LaSalle “Second years of International Program can go directly to 3rd year at ECAM LaSalle” (ITC-ECAM-Kasetsart University) | À revoir         |

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Merci beaucoup. Je crois que les détails sont dans les rapports que vous avez dans vos mains.

Pour le relevé de décision du CA 2023, je vois que les deux premiers points sont très bien. Quant au point 2, il sera discuté avec le MEJS, vous l'avez dit. Ce titre sera attribué aux dirigeants de l'ITC qui sont à la retraite. Où vous en êtes maintenant? Il nous faudra encore combien de temps? Seuls les dirigeants ou tous les professeurs de l'ITC peuvent en bénéficier? Si c'était le cas, ce ne serait pas facile. Selon moi, il faudrait avoir des critères de sélection en se basant sur les qualifications de chaque professeur qui mérite ce grade. Il vaut mieux le préciser. Il faut créer une commission pour prendre une décision. Les frais de scolarité passent de 650\$ à 800\$, je ne crois pas que ce soit un problème, si nous les comparons avec ceux des universités privées.

En ce qui touche les avis du Consortium 2024, ils concernent plusieurs activités : rendre certains cours transversaux, c'est très important. Je crois que l'ITC va déterminer de manière claire. À propos de la création de nouveaux cours, nos membres du Consortium ont attiré notre attention sur ce sujet-là. C'est important que l'ITC puisse garder la qualité de la formation du fait que quand on met en place un nouveau cours, on a besoin des ressources humaines. Je ne dis pas NON mais il faut faire attention pour maintenir le développement durable de l'ITC. Pour le changement du nom: Materials Science and Structure" to "Materials and Built Environment" (RIC), il y a beaucoup de recommandations des membres du Consortium. Et le dernier : New PathWay of ECAM LaSalle "Second years of International Program can go directly to 3rd year at ECAM LaSalle" (ITC-ECAM-Kasetsart University). À ce propos, vous avez beaucoup travaillé et les membres du Consortium sont d'accord. Ils peuvent passer directement en 3<sup>ème</sup> année dans le cadre de ce programme.

C'est crucial que la décision soit prise pour ne pas tarder la mise en application ce programme qui sera opérationnel à partir de l'année académique prochaine. (...vous avez des commentaires ou remarques?) Ok, il n'y en a pas. On passe maintenant aux événements marquants présentés par S. E. Prof. Dr. PO Kimtho.

**S. E. Prof. Dr. PO Kimtho, Directeur de l'ITC**

Merci beaucoup Madame la Présidente. Tout d'abord, je souhaite la bienvenue à tous les participants et je tiens vous remercier grandement pour votre soutien incontournable. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you very much. You see several events have been carried out by ITC colleagues.

Subsequently, I again ask Mr. SOY Ty, to present the summary of study activities for this academic year 2023-2024.

**M. SOY Ty, Directeur adjoint de l'ITC**

Merci Madame la Présidente. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Merci monsieur SOY. J'ai une petite question concernant les différentes bourses de l'ITC : 3322, cela représente combien de pourcentages?

**M. SOY Ty, Directeur adjoint de l'ITC**

Environ 40%.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Oui, pour mieux comprendre, veuillez indiquer cela en pourcentage.

Nous passons maintenant à la présentation du 3<sup>ème</sup> cycle.

**Dr. SIM Tepmony, Director of Graduate School**

Merci Madame la Présidente. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you. I have one thing to tell you. For the next time, we would really appreciate it if you could make a graphic for all academic programs: technician, engineer, master's, and PhD. It is easy for us to understand.

Ok, now, I will give the floor to the E-Learning Center.

**Mr. LAY Heng, Head of the Information and Communication Department**

Thank you his Excellency. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you. One more presentation before the break, now it's the library's turn.

**Mr. SOK Kimheng, Head of the library**

Thank you his Excellency. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you. The next presentation is the Research and Innovation Center.

**Dr. OR Chanmoly, Director of the Research and Innovation Center**

Merci Madame la Présidente. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you. This is the end of the presentations of the activities carried out over the past year. Now, we move on to the activities for next year in the report and Dr. BUN Kim Ngun presents this part.

**Dr. BUN Kim Ngun, directeur adjoint de l'ITC**

Thank you, Madame la Présidente. [...] pour en savoir plus, veuillez consulter le document.

**S. E. Dr. Sackona PHOEURNG, Ministre de la Culture et des Beaux-Arts et Présidente du Conseil d'Administration de l'ITC**

Thank you. This general and educational document includes tuition fees, the number of DUT and engineer students. I think it's almost the same compared to last year. But don't forget to send the new Pathway of ECAM Lasalle and the name change to our Consortium members. Now, we will talk about the "finance" part, presented by Dr. NGUON Kollika.

**Dr. NGUON Kollika, directeur adjoint de l'ITC**

Thank you, Madame la Présidente. [...] pour en savoir plus, veuillez consulter le document.

Pour mieux mémoriser, le tableau ci-dessous illustre toutes les décisions du Conseil d'Administration (CA) de 2024.

### Relevé de décisions du CA 2024

| No | Relevé de Décision du CA 2023   | Avis      |
|----|---|-----------|
| 1  | Valorisation de la transversalité des cours entre les départements  | Favorable |
| 2  | Création de: Master of Architectural Engineering (GS)   | Favorable |
| 3  | Création de : Artificial Intelligence Engineering and Cybersecurity (GIC-International Program)   | Favorable |
| 4  | Création de: IT Network and Programming (GIC-Associate)   | Favorable |
| 5  | Création de : Industrial Engineering (GIM-Associate)  | Favorable |
| 6  | Création de : Geotechnical Engineering (GGG-Associate)  | Favorable |
| 7  | Changement du nom: Materials Science and Structure” to “Materials and Built Environment” (RIC)  | Favorable |
| 8  | New PathWay of ECAM LaSalle “Second years of International Program can go directly to 3rd year at ECAM LaSalle” (ITC-ECAM-Kasetsart University) | Favorable |

### Liste de la nomination de l'équipe de direction de l'ITC pour 2024-2025

| No |       | Nom et prénom       | Fonction   |
|----|-------|---------------------|--|
| 1  | Prof. | Dr. PO Kimtho       | Directeur de l'ITC   |
| 2  | Dr.   | Dr. OM Romny        | Directeur honoraire de l'ITC   |
| 3  | M.    | Ludovic PROTIN      | Directeur honaire de l'ITC   |
| 4  | M.    | SOY Ty              | Directeur adjoint, chargé de la pédagogie et des études et d'Assurance de qualité interne  |
| 5  | Dr.   | BUN Kim Gnun        | Directeur adjoint chargé de la plainification et projet-assisté par M. BUN Saret   |
| 6  | Dr.   | NGUON Kollika       | Directeur adjoint cahrgé de l'administration et des finances   |
| 7  | Dr.   | BUN Long            | Directeur adjoint cahrgé de la coopération, de la recherche et de l'innovation, et de la cellule d'interface (UIL); assisté par Mme HOUNG Peany, chef du centre d'incubateur et Dr. SEANG Chansopheak, chef du bureau des services d'ingénierie et technologie   |
| 8  | Dr.   | CHUNHIENG Thavarith | Conseiller de la direction chargé de la coopération  |
| 9  | M.    | NUTH Sothân         | Conseiller de la direction chargé de la pédagogie, des études, des sports et de la jeunesse  |
| 10 | M.    | PENH San            | Conseiller de la direction chargé de l'adminsitracion, des finances et du service interne  |
| 11 | Dr.   | SIM Tepmony         | Directeur du programme du 3 <sup>ème</sup> cycle, assisté par Dr. HIN Raveth et Dr. EK Pichkmony   |
| 12 | Dr.   | OR Chanmoly         | Directeur du Centre de Recherche et d'Innovation Assisté par :<br>- Dr. YOS Phanny et Dr. TAN Reasmey, directeurs adjoints;<br>- M. KRET Kakada, chef de l'unité de recherche « Technologie et Gestion de l'énergie »;<br>- Dr. PHAT CHAnvorleak, chef de l'unité de recherche « Technologie des Aliments et Nutrition »;<br>- Dr. VALY Dona, chef de l'unité de recherche « Technologie de l'Information et responsable du programme ECAM LaSalle Cambodia;<br>- Dr. DOUNG Piseth, chef de l'unité de recherche « Sceince et Structure des Matériaux »; |

|    |     |                  |  |
|----|-----|------------------|--|
|    |     |                  | - Dr. PENG Chanthol, chef de l'unité recherche « Eau et Environnement ».   |
| 13 | Dr. | IN Sokneang      | Doyenne de la faculté de génie chimique et alimentaire<br>Assistée par Dr. HOR Sivmey  |
| 14 | Dr. | HAN Virak        | Doyen de la faculté de génie civil<br>Assisté par Dr. LY Hav et M. HASH Chanly, chargé de l'Architecture   |
| 15 | M.  | LAY Heng         | Chef du département GIC, du Centre E-Learning, assisté par Mlle Seak Leng  |
| 16 | Dr. | CHHUON Kong      | Doyen de la faculté d'hydrologie, assisté par Dr. ANN Vannak   |
| 17 | Dr. | ENG Chandoeurn   | Chef du département GGG, assisté par Mlle PECH Sopheap   |
| 18 | Dr. | CHRIN Phok       | Chef du département GEE, assisté par Dr. AM Sokchea et Dr. CHOU Kosal  |
| 19 | Dr. | CHAN Sarin       | Chef du département GIM, assisté par M. UN Amata et Dr. CHHIT Saosometh  |
| 20 | Dr. | SRENG Sokchenda  | Chef du département Télécommunications et Réseaux, assisté par Dr. THOUN Kosal   |
| 21 | Dr. | PHUN Veng Kheang | Chef du département Transports et Infrastructure, assisté par Mlle YANG Panha  |
| 22 | Mr. | HASH Chanly      | Chef du département GAR  |
| 23 | Dr. | LIN Mongkulserey | Responsable du campus ITC à Tbong Khmum<br>Chef du département des Mathématiques Appliquées et Statistiques, assisté par Dr. PHAUK Sokhey  |
| 24 | Mme | SREY Malis       | Chef du département de Tronc Commun, assisté par<br>- Dr. LIN Mongkulserey, responsable du programme de mathématiques;<br>- M. LONG Sovann, responsable du programme de physique;<br>- Mme KHEM TRan Krasel, coordinatrice de la section de français<br>- M. SO Phea, coordinateur de la section d'anglais |
| 25 | Dr. | SRANG Sarot      | Responsable du laboratoire DCLab et du programme international ECAM Cambodge   |
| 26 | M.  | SIEANG Phen      | Chef du bureau des Relations Internationales   |
| 27 | Dr. | YIN Molika       | Responsable de la cellule d'Interface (UIL)  |
| 28 | M.  | AN BUN Eng       | Chef du Bureau des Études  |
| 29 | Dr. | HANF Leakhena    | Chef du bureau d'Assurance de Qualité  |
| 30 | Mme | HANG Vinchothy   | Chef du bureau des personnels  |
| 31 | M.  | MOEUNG Noi       | Chef du bureau de PB   |
| 32 | Mme | KOY Sophary      | Chef du bureau de Comptabilité et des Finances   |
| 33 | M.  | NHEM Sophal      | Chef du bureau d'achats  |
| 34 | M.  | KHIEV Samnang    | Chef du service informatique, assisté par M. SIENG Chamroeurn  |
| 35 | M.  | SOK Kimheng      | Chef de la Bibliothèque  |
| 36 | M.  | KEO CHHOM Sethy  | Chef du bureau du service technique  |

### Annex 3. Overview of Recommendation of Consortium and CA 2024.

| No | Avis du Consortium 2024   | 2024-25           |
|----|---|-------------------|
| 1  | Valorisation de la transversalité des cours entre les départements  | Réalisé           |
| 2  | Création de: Master of Architectural Engineering (GS)   | Réalisé           |
| 3  | Création de : Artificial Intelligence Engineering and Cybersecurity (GIC-International Program)   | Réalisé           |
| 4  | Création de: IT Network and Programming (GIC-Associate)   | Réalisé           |
| 5  | Création de : Industrial Engineering (GIM-Associate)  | Réalisé           |
| 6  | Création de : Geotechnical Engineering (GGG-Associate)  | Réalisé           |
| 7  | Changement du nom: Materials Science and Structure” to “Materials and Built Environment” (RIC)  | Le même nom “MSS” |
| 8  | New PathWay of ECAM LaSalle “Second years of International Program can go directly to 3rd year at ECAM LaSalle” (ITC-ECAM-Kasetsart University) | Réalisé           |

| No | Relevé de Décision du CA 2024   | 2024-25           |
|----|---|-------------------|
| 1  | Valorisation de la transversalité des cours entre les départements  | Réalisé           |
| 2  | Création de: Master of Architectural Engineering (GS)   | Réalisé           |
| 3  | Création de : Artificial Intelligence Engineering and Cybersecurity (GIC-International Program)   | Réalisé           |
| 4  | Création de: IT Network and Programming (GIC-Associate)   | Réalisé           |
| 5  | Création de : Industrial Engineering (GIM-Associate)  | Réalisé           |
| 6  | Création de : Geotechnical Engineering (GGG-Associate)  | Réalisé           |
| 7  | Changement du nom: Materials Science and Structure” to “Materials and Built Environment” (RIC)  | Le même nom “MSS” |
| 8  | New PathWay of ECAM LaSalle “Second years of International Program can go directly to 3rd year at ECAM LaSalle” (ITC-ECAM-Kasetsart University) | Réalisé           |

### Annex 3a. Report of French Language Teaching (2024-2025).

#### Rapport de l'enseignement de français Mars 2025

La Section de Français de l'Institut de Technologie du Cambodge assure des cours de français langue étrangère à tous les étudiants de la première année à la quatrième année du cursus ingénieur. Pour les groupes de 5<sup>ème</sup> année (32h pour un semestre seulement) : cours de *Module d'Insertion Professionnelle (MIP)* (en français)

| Classe | Niveau | Nombre d'heures/semaine     |                             | Nombre d'heures/an |
|--------|--------|-----------------------------|-----------------------------|--------------------|
|        |        | Semestre 1<br>(16 semaines) | Semestre 2<br>(16 semaines) |                    |
| I1     | A1     | 6h                          | 6h                          | 192h               |
| I2     | A2     | 6h                          | 4h                          | 160h               |
| I3     | A1*    | 4h                          | 2h                          | 96h                |
|        | A2     |                             |                             |                    |
|        | B1     |                             |                             |                    |
| I4     | A2     | 2h                          | 2h                          | 64h                |
|        | B1     |                             |                             |                    |
|        | B2     |                             |                             |                    |
| I5     | MIP    | 2h                          |                             | 32h                |

\*I3-A1 : Étudiants ingénieurs venant du cycle technicien



## 1. Ressources humaines

| No . | Nom et prénom   | Sexe | Département | Date de naissance | Diplôme            | Université et pays   | Année de fin d'étude | Sujet de thèse   | Université et pays            | Année de fin d'étude |
|------|-----------------|------|-------------|-------------------|--------------------|--|----------------------|--|-------------------------------|----------------------|
| 1    | KHEMTRAN Krasel | F    | SF          | 13.10.1971        | Master 2           |  |                      | La motivation des étudiants dans l'apprentissage du français à l'Institut de Technologie du Cambodge | Université de Moncton, Canada | 1999                 |
| 2    | MONG Sokunvatey | F    | SF          | 22.04.1965        | Licence ès Lettres | Université de Phnom Penh (Cambodge)                                | 1994                 |  |                               |                      |
| 3    | EL Sotheany     | F    | SF          | 01.05.1970        | Licence FLE        | Université de Phnom Penh (Cambodge) , Université de Rouen (France) | 1993 / 2001          |  |                               |                      |
| 4    | KHEM Nimith     | F    | SF          | 25 mai 1965       | Master 2           | Institut d'Etat pédagogique des langues étrangères de Kiev (R      | 1990                 |  | Institut de Kiev, Ukrai       | 1990                 |
| 5    | NHEP Kim Hun    | M    | SF          | 18.11.1972        | Licence ès Lettres | Université Royale de Phnom Penh (Cambodge)                         | 1996                 |  |                               |                      |
| 6    | PRUM Rithy      | M    | SF          | 05.11.1971        | Licence            | Université de Phnom Penh (Cambodge) , Université de Roue           | 1994                 |  |                               |                      |
| 7    | PHUONG Sothea   | F    | SF          | 07.07.1987        | Master 2           | Institut National de l'Education, Cambodge                         | 2021                 |  |                               |                      |
| 8    | CHAN Sokunteary | F    | SF          | 02.04.1990        | Licence ès Lettres | Université Royale de Phnom Penh.                                   | 2012                 |  |                               |                      |
| 9    | MAM Champei     | F    | SF          | 27.12.1979        | Master 2           | Université Caen Basse Normandie, France                            | 2013                 |  |                               |                      |

|    |                |   |    |            |                        |  |              |  |  |  |
|----|----------------|---|----|------------|------------------------|--|--------------|--|--|--|
| 10 | KUCH Chanpoly  | M | SF | 01.01.1973 | Master en linguistique | Université Royale de Phnom Penh                              | 2009         |  |  |  |
| 11 | YEANG Ranich   | F | SF | 22.05.1998 | Licence                | Université Royale de Phnom Penh                              | 2018         |  |  |  |
| 12 | SAR Hieng      | F | SF | 26.02.1948 | Licence + DALF C1      | Université Royale de Phnom Penh, Cambodge                    | 1992 et 2006 |  |  |  |
| 13 | PAN Chansonita | F | SF | 07.08.1995 | Licence                | Université Royale de Phnom Penh, Cambodge                    | 2017         |  |  |  |
| 14 | BUN Veary      | F | SF | 19.05.1954 | Licence                | Université Royale de Phnom Penh, Cambodge                    | 1988         |  |  |  |
| 15 | MUONG Romany   | F | SF | 27.05.1959 | DALF C1                | Institut Français du Cambodge, Cambodge                      | 2006         |  |  |  |
| 16 | KEM Malyan     | F | SF | 08.11.1950 | DALF C1 et Diplôme     | Institut de Français du Cambodge et Université de Rouen : Fr | 2000 et 2002 |  |  |  |
| 17 | VORN Savathana | M | SF | 19.05.1984 | Master                 | CUS, Cambodge (Cambodian University for Specialties)         | 2018         |  |  |  |
| 18 | NET Ninit      | M | SF | 10.09.1993 | Licence                | Université Royale de Phnom Penh (Cambodge)                   | 2018         |  |  |  |

|    |               |   |    |            |                     |   |                 |  |  |  |
|----|---------------|---|----|------------|---------------------|---|-----------------|--|--|--|
| 19 | PHAN Phadeth  | M | SF | 01.01.1995 | Master 2            | Institut National de l'Education, Cambodge                | 2022            |  |  |  |
| 20 | PHUONG Chenda | M | SF | 14.01.1984 | Licence+1 / DELF B2 | Université Royale de Phnom Penh, Cambodge et Institut Nat | 2017 et 2023-25 |  |  |  |
| 21 | AN SINA       | M | SF | 16.01.1997 | Licence             | Université Royale de Phnom Penh (Cambodge)                | 2019            |  |  |  |
| 22 | SOK DALIN     | M | SF | 4/16/1987  | Licence+1           | Institut National de l'Éducation, Cambodge                | 2016            |  |  |  |
| 23 | HENG VALONG   | M | SF | 27.08.1995 | Master              | l'Institut National de l'Éducation au Cambodge            | 2024            |  |  |  |
| 24 | SAN VITOU     | M | SF | 30.11.1989 | Licence             | Université Royale de Phnom Penh, Cambodge                 | 2011            |  |  |  |
| 25 | TOL SINATH    | M | SF | 07.07.1996 | Licence             | Université des Moussons (Cambodge)                        | 2019            |  |  |  |
| 26 | VEY SORIYA    | F | SF | 24.09.2001 | Licence             | Université Royale de Phnom Penh                           | 2022            |  |  |  |

|    |                  |   |    |            |          |  |      |  |  |  |
|----|------------------|---|----|------------|----------|--|------|--|--|--|
| 27 | SET Sovankesa    | F | SF | 01.01.2001 | Licence  | Université Royale de Phnom Penh                | 2023 |  |  |  |
| 28 | NOUM<br>VIRADAY  | M | SF | 28-08-1989 | Master 2 | Institut National de l'Éducation,<br>Cambodge  | 2023 |  |  |  |
| 29 | IM<br>PUTHEARITH | M | SF | 12.09.1990 | Master 2 | Institut National de l'Éducation,<br>Cambodge  |      |  |  |  |
| 30 | LIM<br>HORCHUONG | F | SF | 20.06.2000 | Licence  | Université Royale de Phnom<br>Penh, (Cambodge) | 2021 |  |  |  |
| 31 | LY META          | M | SF | 05.11.2003 | DELF B2  | IFC (Institut de Français du<br>Cambodge)      | 2022 |  |  |  |
| 32 | YORN<br>SAMNANG  | M | SF | 26.04.1991 | Master 2 | Institut National de l'Éducation,<br>Cambodge  | 2021 |  |  |  |

## 2. Méthode d'évaluation

- Au premier semestre :
  - Contrôle (mi-semestre) : 4 types d'évaluation : Vocabulaire, grammaire, compréhension écrite (CE), production écrite (PE)
  - Examen final (fin du semestre) : 5 types d'évaluation : Vocabulaire, grammaire, compréhension orale (CO), compréhension écrite (CE) et production écrite (PE),
- Au deuxième semestre :
  - Contrôle (mi-semestre) : 4 types d'évaluation : Vocabulaire, grammaire, compréhension écrite (CE), production écrite (PE)
  - Examen de niveau (fin du semestre) : A1/A2/B1/B2 sous 4 compétences d'évaluation : compréhension orale (CO), compréhension écrite (CE), production écrite (PE) et production orale (PO), bien adaptées au Cadre Européen Commun de Référence pour les Langues (CECRL).

## 3. Résultats de l'examen de niveau (Année 2023-2024) Campus Phnom Penh (2023-2024)

| Cycle                       | Niveau | Résultat |       |        |       |
|-----------------------------|--------|----------|-------|--------|-------|
|                             |        | Succès   | Échec | Absent | Total |
| 1 <sup>ère</sup> année (I1) | A1     | 871      | 176   | 328    | 1375  |
| 2 <sup>ème</sup> année (I2) | A2     | 879      | 306   | 171    | 1356  |
| 3 <sup>ème</sup> année (I3) | A1 *   | 19       | 06    | 02     | 27    |
|                             | A2     | 94       | 58    | 41     | 193   |
|                             | B1     | 469      | 207   | 0      | 676   |
| 4 <sup>ème</sup> année (I4) | A2     | 43       | 25    | 47     | 145   |
|                             | B1     | 15       | 61    | 0      | 76    |
|                             | B2     | 34       | 80    | 0      | 114   |

### Troisième année : I3

Répartition en **3 groupes de niveau** selon les résultats de l'année précédente :

#### \* Groupe de niveau A1 (I3-A1)

Il s'agit des étudiants venant du cycle Technicien. La plupart d'eux n'ont jamais appris le français.

## 4. Certification du niveau de français

L'ITC délivre deux types de certification :

| Année d'études | Niveau de français | Nombre total * | Obtention A1 |     | Obtention A2 |     | Obtention B1 |     | Obtention B2 |     |
|----------------|--------------------|----------------|--------------|-----|--------------|-----|--------------|-----|--------------|-----|
|                |                    |                | Nombre       | %   | Nombre       | %   | Nombre       | %   | Nombre       | %   |
| I1             | A1                 | 1375           | 871          | 63% |              |     |              |     |              |     |
| I2             | A2                 | 1356           |              |     | 879          | 64% |              |     |              |     |
| I3             | A1                 | 27             | 19           | 70% |              |     |              |     |              |     |
|                | A2                 | 193            |              |     | 94           | 48% |              |     |              |     |
|                | B1                 | 676            |              |     |              |     | 469          | 69% |              |     |
| I4             | A2                 | 145            |              |     | 43           | 29% |              |     |              |     |
|                | B1                 | 76             |              |     |              |     | 15           | 19% |              |     |
|                | B2                 | 114            |              |     |              |     |              |     | 34           | 29% |

- 1) **Attestation de connaissance en langue française** : il s'agit d'une simple attestation donnant le nombre d'heures de cours de français effectués pour les étudiants qui ne bénéficient pas de la réforme à partir de 2016. Mais les étudiants des autres années peuvent également la demander en cas de nécessité.
- 2) **Attestation de niveau de langue française** : une session d'examen de niveau de français a lieu en juin, vers la fin du second semestre pour les étudiants en :
  - 1<sup>ère</sup> année : A1
  - 2<sup>ème</sup> année : A2
  - 3<sup>ème</sup> année : A1/A2/B1
  - 4<sup>ème</sup> année : A2/B1/B2

### Plan d'action

- L'enseignement de la langue française sera maintenu uniquement en I1, I2, I3 et I4.
- Selon la décision du CA de 2016, tous les étudiants doivent avoir au minimum le niveau A2 en langues à la fin de leur cursus d'ingénieur.
- L'examen de niveau du français sera organisé en fin du semestre 2 pour chaque cycle.
- Pour une amélioration de l'enseignement de langues, il faut :
  - Adopter des critères des niveaux des enseignants pour l'enseignement des niveaux A1, A2, etc.
  - Exiger des justificatifs de niveau de langues des enseignants.
  - Faire appel à des francophones natifs (pour autant que les critères des recrutements soient respectés).
  - Accompagner pendant l'année académique les I3 et I4 actuels n'ayant pas atteint le niveau A2.
  - Soutenir les étudiants issus de la filière DUT pour leur permettre de rattraper le niveau.

## **Annex 3b. Report of English Language Teaching (2024-2025).**

### **1. Introduction**

ITC is one among the tertiary institutions in Cambodia, which trains students to become high quality engineers in different fields of technology for the need to develop the country. The English Language has been established and taught to students, from year2 to year5, since 1995. The rationales of the English language teaching at the Institute of Technology of Cambodia (ITC) are that having English proficiency would help students (1) in their study's life (2) increase chances to get jobs and (3) to pursue further studies in the country as well as abroad.

### **2. Human Resources of English Section**

2 Professeurs Titulaires: 2 Masters

- Mr. SO Phea (Master, The University Waikato, New Zealand, 1998)
- Mr. CHENG Kimsan (Master, The University of Sydney, Australia, 1999)

20 Professeurs Vacataires : 1 Phd ; 12 Masters ; and 7 Bachelors

- 18 Professeurs Vacataires : 1 Phd ; 11 Masters ; and 6 Bachelors
- Mrs. CHEA Sophea (Bachelor, IFL, 2007)
- Mr. YEAT Vanna (Master, IFL, 2018)
- Ms. HEANG Leakena (Bachelor, IFL, 2017)
- Ms. TIM Nina Eliza (Bachelor, IFL, 2017)
- Mr. SIEN Bross (Master, IFL, 2019)
- Ms. LY Soda (Master, IFL, 2022)
- Ms. MEAS Phallin (Bachelor, IFL, 2017)
- Mr. SENG Mean (Master, Meiji Uni Japan, 2022)
- Ms. KIM Seyla (Master, BELTEI, 2022)
- Mr. HORM Kosal (Master, IFL, 2018)
- Mr. SOU Sovannara (Master, RUPP, 2018)
- Mr. UON Kakada (Master, RUPP, 2019)
- Mr. SON Rasi (Master, BELTEI, 2022)
- Mr. PENCHHOM Chareth (Phd, RUPP, 2022)
- Mr. AY Sok (Master, IFL, 2015)
- Ms. CHHE Sreyvatnak (Master, Australia, 2022)
- Mr. KEO Pichmony (Bachelor, IFL, 2017)
- Ms. NGET Meyny (Bachelor, NUM, 2021)

### **3. English Teacher**

Strong points

- Create teacher recruitment announcement
- Advertise the teachers' recruitment in public
- Develop interview questions
- Develop marking criteria
- Make the shortlist candidates
- Conduct the interview
- Two sessions of teacher-training were conducted pre-semester1

Weak points

- Not many applicants to apply their CVs
- Most applicants have experience in teaching General English, not English for Engineering or Technology

### **4. English Course**

Strong points

- Conduct diagnostic test
- Conduct level exam
- Classify group (class) in the right level
- Students get certificate

Weak points

- Not all students pass the level exam
- Fail students do not attend class
- Learning hours are limited (not enough, only 2 hours a week)

### **5. Course Material**

Strong points

The English program is specially designed for engineering students who have studied some English previously. The English Section is developing its extracurricular program including a course book for year five students and production of its syllabus and course outline for each class. The core curriculum has been established based on the new series of Technology textbooks.

- "Technology1" Course Book by Eric H. Glendinning 2008, for year2 level A2.
- "Technology2" Course Book by Eric H. Glendinning & Alison Pohl 2008, for year3 level B1.
- "English for Environmental Science" by Terry Phillips 2009, for year4 level B2 Semester 1.
- "Essay and Academic Writing" Compiled by Teachers of English Section 2015, for year4 level B2 Semester 2.
- "English for Career and Work" Compiled by Teachers of English Section Third Updated 2020, for year5 Semester 1.

The course books mentioned above focus on English of general engineering contexts, science, technology which motivated students to learn.

Weak points

- The course books are designed for native English speakers
- Past Experience showed that each Course Book was not completed properly each semester

7. Aims and the objectives of the course are to:

- Acquire good reading strategy (for Literature Review)



- Develop communicative competence in the field of Engineering
- Develop the ability to express themselves confidently (presentation skills; interviewing skills)
- Learn how to organize technical terms for further use or studies

By the end of the course both strains year5 and 3 engineering and technician students will be able to:

- Present their report effectively to their lecturers (to defend the graduate projects)
- Communicate effectively with experts in the field of engineering in their work place.
- Use technical terms (terminology) appropriately in order to write reports on their workplace, practicum.
- Learn how to organize technical terms for further study or research.

#### 8. Class Attendance

##### Strong points

- Strong and medium students attend class well
- Year 5 students have to attend English Classes Only in Semester 1

##### Weak points

- Many students fail to register for English Class
- Holidays and students field trips often interrupt their sessions

#### 9. Teacher-Training

##### Strong points

- Training session is conducted occasionally in weekly staff meeting
- ITC sponsored two teachers to attend annual CamTESOL Conference in February 2024, Opportunity for Teacher Training/Capacity Building/Keeping up with new trend of teaching & learning.
- One teacher of SA will be attending ELT Forum in Laos, supported by US Embassy to Cambodia.

##### Weak points

- Training sessions run without foreign experts or advisors
- Short Courses of Teacher-Training both in and outside the country is out question in recent years

#### 10. REPORT ON I2 STUDENTS

##### I2 (A2)

| Number Students | Number Classes |                   |
|-----------------|----------------|-------------------|
| 1026(372 girls) | 23             |                   |
|                 |                | <b>TOTAL 1026</b> |

#### 11. REPORT ON I3 STUDENTS

##### I3 (A2)

| Number Students | Number Classes |                  |
|-----------------|----------------|------------------|
| 207(57 girls)   | 5              |                  |
|                 |                | <b>TOTAL 207</b> |

##### I3 (B1)

| Number Students | Number Classes |                  |
|-----------------|----------------|------------------|
| 959(356 girls)  | 17             |                  |
|                 |                | <b>TOTAL 959</b> |

**I3 (B2)**

| <b>Number Students</b> | <b>Number Classes</b> |                  |
|------------------------|-----------------------|------------------|
| N/A                    | N/A                   |                  |
|                        |                       | <b>TOTAL N/A</b> |

## 12. REPORT ON I4 STUDENTS

**I4 (A2)**

| <b>Number Students</b> | <b>Number Classes</b> |                  |
|------------------------|-----------------------|------------------|
| N/A                    | N/A                   |                  |
|                        |                       | <b>TOTAL N/A</b> |

**I4 (B1)**

| <b>Number Students</b> | <b>Number Classes</b> |                  |
|------------------------|-----------------------|------------------|
| 253(96 girls)          | 5                     |                  |
|                        |                       | <b>TOTAL 253</b> |

**I4 (B2)**

| <b>Number Students</b> | <b>Number Classes</b> |                  |
|------------------------|-----------------------|------------------|
| 755(299 girls)         | 14                    |                  |
|                        |                       | <b>TOTAL 755</b> |

## 13. REPORT ON I5 STUDENTS – “English For Career and Work”

**I5**

| <b>Number Students</b> | <b>Number Classes</b> |                   |
|------------------------|-----------------------|-------------------|
| 1198(404 girls)        | 26                    |                   |
|                        |                       | <b>TOTAL 1198</b> |

## 14. REPORT ON STUDENTS’ OVER ALL, by February 14, 2025

| <b>Level</b> | <b>Number of students in each level</b> |
|--------------|---|
| A2           | 1233                                    |
| B1           | 1212                                    |
| B2           | 755                                     |
| I5           | 1198                                    |
| <b>Total</b> | <b>4398</b>                             |

#### 15. Summary on Results of Students' Level - 2023-24

| Classes | Level | Total | Passed | Failed |
|---------|-------|-------|--------|--------|
| I2      | A2    | 1355  | 1001   | 354    |
|         | B1    | 0     | 0      | 0      |
|         | B2    | 0     | 0      | 0      |
| I3      | A2    | 82    | 22     | 60     |
|         | B1    | 1111  | 848    | 263    |
|         | B2    | 0     | 0      | 0      |
| I4      | A2    | 27    | 0      | 27     |
|         | B1    | 273   | 96     | 177    |
|         | B2    | 475   | 150    | 325    |

#### 16. Conclusion and Remarks

To summarize, Learning English here at ITC is an elective subject (year 2 – 4) and year 5 is compulsory. However, it is a vital learning process that benefits them. It facilitates their studies. It is a general communication tip for those who pursue their career as engineers, not to mention a certain number of graduates who wish to continue further study in the country and overseas.

ITC has traditionally been encouraging female students to register studying courses of engineering. In this particular academic year of 2023-24, among 4398 students (year 2 – year 5), 52 percent are girls who study in different fields of engineering – most is in GCA department (68%), and least is in GTR department (12%) out of total number of students in these two respectively departments.

The report previous years on student employability showed that 76% of engineers graduated were employed in different sectors (private; public; NGOs and owned business). 17% were continuing their studies mostly overseas. 7% were seeking employment or awaiting result of interview or could not be reached.

This is the fourth year of implementing the global vision of ITC's 2020-30 to train high 17000-plus engineers by 2030. To help facilitate this great ambition, English Section will have to commit to doing the work – fostering English language knowledge to our students with the promising results.

#### Annex 4. Minutes of CEVU Meeting.

#### Problèmes soulevés pendant la réunion de CEVU (11 décembre 2024) et solutions

|  | Résolu pendant la réunion | Responsable sur problèmes restants |
|--|---------------------------|------------------------------------|
| <b>I- Enseignement et Recherche</b>  |                           |                                    |
| <b>1- Enseignement Scientifique</b>  |                           |                                    |
| <b>I2-DTC</b> : Requesting the lecturer who teach mathematics to follow the assigned schedule  | √                         |                                    |
| <b>I5-GCA</b> : Students requested to use their precise GPA values, such as 2.9, 3.7, etc., rather than rounded figures like 2.0, 2.5, or 4.0 to ensure the efficiency for when apply for scholarship.   | √                         |                                    |
| <b>Enseignant GCA</b> : Request to conduct online teaching, in case of makeup class but there is no room available.  | √                         |                                    |
| <b>3<sup>ème</sup> cycle :</b> <ul style="list-style-type: none"> <li>– Graduate Students request the Institute to establish a partnership with Research4Life of Science Direct in order to gain a free access to certain journals under privileged conditions.</li> <li>– Request a room for the graduate school to facilitate their research.</li> </ul> | √                         |                                    |
| <b>2- Internet and e-learning</b>  |                           |                                    |
| <b>I2-DTC, I3-I4 GGG, I5-GEE, I5-GIM, I3-GIC, I3-GTR, 3<sup>ème</sup> cycle</b>  |                           |                                    |
| - WiFi speed Issue: lagging, frequent disconnections, and the ITC-Camp WiFi does not working.  |                           | Service informatique               |
| - WiFi speed works properly for the students of the year 2021; however, it doesn't work for the students of the year 2023.   |                           |                                    |
| - Request to install WiFi for AMS students, especially in LAB F201 & F202.   |                           |                                    |
| - Request to install WiFi in building like Building-K, area around building-F, and 6th floor of Building J.  |                           |                                    |
| <b>II- Matériel et hygiène</b>   |                           |                                    |
| <b>Etudiants, Enseignants</b>  |                           |                                    |

|  |   |   |
|--|---|---|
| - Air conditioning problems: malfunction, not working properly, and need to be repaired in the following rooms: SF2, SF1, F-S2, F-306, F-403, F-404, J-601, J-607, J-701, J-702, J-703, J-704.                               |   | Service<br>Technique et<br>Service<br>Technique |
| - Projector (LCD) Problem: malfunction, not working properly, and need to be repaired in the following room: F-403, F-404, E204, F-310, F-306, building E.   |   |   |
| - Request a Projector that has high resolution, and Request to change HDMI in hall S1, S2  |   |   |
| - Request to install a fixed Projector in all classroom, epecially at K-405  |   |   |
| - Request to repair slide, microphone in room F-201, F-202, F-209, F-403, F-404, F-S2, and room at building-E  |   |   |
| - Request Microphone and Speakers room J-701, J-702, J-703, J-704, F-403   |   | Service<br>Technique                            |
| - Request to install more fans in room E-204, F-401 and F-404  |   |   |
| <b>III- Parking</b>  |   |   |
| <b>Etudiants :</b>   |   |   |
| - Request parking attendants to assist during rush hours or when it is difficult to find parking spots, especially for female students.  | √ |   |
| - Request an update on the motorcycle parking ticket to state "Not responsible after 8:30 PM," as it did previously, instead of 5 PM.  | √ |   |
| <b>IV- Others</b>  |   |   |
| - Request to apply for the Social Security System (B.S.S) for all full-time staff.   | √ |   |
| - Paying school fees through the bank delays receipt issuance. Many students, despite paying over a week ago, still struggle to get their receipts. Request for simplify the process for faster, and more convenient access. | √ |   |
| - Requesting security to help manage traffic and ensure safety while crossing the road for students at the entrance of the National Children's Hospital.   | √ |   |

## Annex 5. List of Lecturer and Supervisors of GS for Master Programs.

### 1. List of Lecturers and Supervisors of M-MSE

| No | Name of Lecturer | Sex | Qualification |         |      | Specialization                              |
|----|------------------|-----|---------------|---------|------|---|
|    |                  |     | Latest degree | From    | Year |   |
| 1  | BOEUT Sophea     | F   | Doctorate     | Japan   | 2020 | Sustainable Resources Engineering           |
| 2  | CHEA Monyneath   | F   | Master        | Japan   | 2022 | Material Science and Engineering            |
| 3  | CHHANG Sophy     | M   | Doctorate     | France  | 2018 | Civil Engineering                           |
| 4  | DOUNG Piseth     | M   | Doctorate     | Japan   | 2020 | Civil Engineering                           |
| 5  | HAN Virak        | M   | Doctorate     | Japan   | 2006 | Construction Materials                      |
| 6  | HENG Sounean     | F   | Doctorate     | France  | 2022 | Civil Engineering                           |
| 7  | HIN Raveth       | M   | Doctorate     | France  | 2017 | Mechanics of materials                      |
| 8  | KAN Kuchvichea   | M   | Doctorate     | Belgium | 2020 | Geomechanics                                |
| 9  | KY Sambath       | M   | Doctorate     | France  | 2017 | Civil Engineering                           |
| 10 | LENG Khundadino  | M   | Doctorate     | France  | 2023 | Civil Engineering                           |
| 11 | LIM Sovanvichet  | M   | Doctorate     | France  | 2013 | Civil Engineering                           |
| 12 | LY Hav           | M   | Master        | Belgium | 2007 | Sciences Appliquées, Service de Génie Civil |
| 13 | POUV Keang Se    | M   | Doctorate     | France  | 2011 | Fluids mechanics                            |
| 14 | PROK Narith      | M   | Doctorate     | Japan   | 2016 | Civil Engineering                           |
| 15 | SRY Vannei       | M   | Doctorate     | Japan   | 2018 | Mechanical Properties of Materials          |

### 2. List of Lecturers and Supervisors of M-ETM

| No | Name of Lecturer | Sex | Qualification      |           |      | Specialization  |
|----|------------------|-----|--------------------|-----------|------|---|
|    |                  |     | Latest degree      | From      | Year |   |
| 1  | AM Sokchea       | M   | Doctorate          | France    | 2016 | Electrical Engineering  |
| 2  | BUN Menghorng    | M   | Master/PhD student | Thailand  | 2021 | Information and Communication Technology for Embedded Systems |
| 3  | CHAN Sarin       | M   | Doctorate          | Indonesia | 2011 | Refrigeration and Air Conditioning                            |
| 4  | CHHLONH Chhith   | M   | Doctorate          | France    | 2024 | Genie Electrique  |
| 5  | CHRIN Phok       | M   | Doctorate          | France    | 2016 | Electrical Energy   |
| 6  | ENG Chandoeun    | M   | Doctorate          | Japan     | 2018 | Geology   |
| 7  | ENG Samphors     | F   | Master/PhD student | Indonesia | 2018 | Electrical Engineering  |
| 8  | KHON Kimsorn     | M   | Doctorate          | France    | 2022 | Electrical Engineering  |
| 9  | KHOUN Rithymean  | M   | Master             | Belgium   | 2004 | Mechanics   |
| 10 | PECH Sopheap     | F   | Doctorate          | Cambodia  | 2023 | Energy Technology and Management                              |

|    |                     |   |                    |           |      |   |
|----|---------------------|---|--------------------|-----------|------|---|
| 11 | SORN Darong         | M | Master/PhD student | China     | 2018 | Electronic Science and Technology                           |
| 12 | SUK Sievlong        | M | Master             | Indonesia | 2023 | Electrical Engineering                                      |
| 13 | TEA Sokly           | F | Master             | Thailand  | 2024 | Early Childhood Education                                   |
| 14 | VAI Vannak          | M | Doctorate          | France    | 2017 | Electrical Engineering                                      |
| 15 | VONGCHANH Kinnaleth | F | Doctorate          | Indonesia | 2010 | Engineering in Mechanical Engineering                       |
| 16 | YOU Lyhour          | M | Master             | Thailand  | 2024 | High-Voltage Insulation and Transmission Technology Program |

### 3. List of Lecturers and Supervisors of M-WEE

| No | Name of Lecturer | Sex | Qualification      |             |      | Specialization                                  |
|----|------------------|-----|--------------------|-------------|------|---|
|    |                  |     | Latest degree      | From        | Year |   |
| 1  | ANN Vannak       | M   | Doctorate          | Spain       | 2015 | Water Science and Technology                    |
| 2  | BUN Saret        | M   | Doctorate          | Japan       | 2019 | Environmental Engineering                       |
| 3  | CHHUON Kong      | M   | Doctorate          | Philippines | 2016 | Environmental Engineering                       |
| 4  | DOUNG Ratha      | M   | Doctorate          | Philippines | 2015 | Environmental Engineering                       |
| 5  | EANG Khy Eam     | M   | Doctorate          | Japan       | 2018 | Sustainable Resources Engineering               |
| 6  | HAM Phaly        | M   | Doctorate          | Japan       | 2022 | Environmental Engineering                       |
| 7  | HEU Rina         | F   | Doctorate          | Japan       | 2020 | Civil and Environmental Engineering             |
| 8  | KET Pinnara      | F   | Doctorate          | Belgium     | 2019 | Agricultural Science and Biological Engineering |
| 9  | LUN Sambo        | M   | Master/PhD student | Japan       | 2010 | Environmental Engineering                       |
| 10 | PEN Sytharith    | M   | Doctorate          | Japan       | 2018 | Environmental Engineering                       |
| 11 | SANG Davin       | F   | Doctorate          | France      | 2022 | Environmental Engineering                       |
| 12 | SOK Ty           | M   | Doctorate          | France      | 2021 | Functional Ecology and Environment              |
| 13 | SONG Layheang    | M   | Doctorate          | France      | 2021 | Water Resources                                 |
| 14 | THENG Vouchlay   | F   | Doctorate          | Japan       | 2022 | Civil and Environmental Engineering             |

### 4. List of Lecturers and Supervisors of M-AIE

| No | Name of Lecturer | Sex | Qualification |        |      | Specialization   |
|----|------------------|-----|---------------|--------|------|--|
|    |                  |     | Latest degree | From   | Year |  |
| 1  | EK Pichmony      | F   | Doctorate     | USA    | 2021 | Food Science   |
| 2  | DOEURN Seyha     | F   | Master        | Japan  | 2022 | Environmental Management   |
| 3  | HOR Sivmey       | F   | Doctorate     | France | 2020 | Food Science   |
| 4  | HOUN Peany       | F   | Doctorate     | Japan  | 2019 | Chemical Engineering   |
| 5  | IN Sokneang      | F   | Doctorate     | France | 2012 | Science and processes of Food and bio-products, Agriculture Biology Environment Health |

|    |                  |   |           |             |      |  |
|----|------------------|---|-----------|-------------|------|--|
| 6  | KET Pinnara      | F | Doctorate | Belgium     | 2019 | Agricultural Science and Biological Engineering                    |
| 7  | KHOEURN Kimleang | F | Doctorate | Japan       | 2019 | Sustainable Resources Engineering                                  |
| 8  | MITH Hasika      | M | Doctorate | Belgium     | 2014 | Food Science   |
| 9  | MORM Elen        | F | Doctorate | Belgium     | 2021 | Food Technology  |
| 10 | PENG Chanthol    | F | Doctorate | Japan       | 2019 | Life Science and Technology  |
| 11 | PHAT Chanvorleak | F | Doctorate | South Korea | 2016 | Food Chemistry   |
| 12 | SOUNG Malyna     | F | Doctorate | France      | 2017 | Mécanismes des Interactions Parasitères Pathogènes et Symbiotiques |
| 13 | SROY Sengly      | F | Doctorate | France      | 2021 | Food Science   |
| 14 | TAN Reasmey      | F | Doctorate | Japan       | 2011 | Bioengineering   |
| 15 | TY Boreborey     | F | Doctorate | Philippines | 2016 | Groundwater treatment process, Environmental Engineering           |
| 16 | YEOUN Sereyvath  | M | Doctorate | South Korea | 2014 | Biotechnology  |

#### 5. List of Lecturers and Supervisors of M-ECS

| No | Name of Lecturer | Sex | Qualification      |             |      | Specialization                                    |
|----|------------------|-----|--------------------|-------------|------|---|
|    |                  |     | Latest degree      | From        | Year |   |
| 1  | CHAN Sophal      | M   | Master             | Thailand    | 2020 | Information Technology                            |
| 2  | HENG Rathpisey   | M   | Master             | Indonesia   | 2020 | Electrical Engineering and Information Technology |
| 3  | KONG Phutphalla  | M   | Doctorate          | Belgium     | 2021 | Computer Vision and Engineering                   |
| 4  | MUTH Boravy      | M   | Doctorate          | South Korea | 2021 | Nuclear Engineering                               |
| 5  | PEN Chentra      | M   | Master/PhD student | Cambodia    | 2011 | Applied Mathematics                               |
| 6  | PHOK Ponna       | M   | Master             | Cambodia    | 2010 | Sciences in mathematics                           |
| 7  | PICH Reatrey     | M   | Master/PhD student | Thailand    | 2018 | Computing in Engineering Systems                  |
| 8  | SOK Kimheng      | M   | Master             | France      | 2008 | Network System and Architecture                   |
| 9  | TAL Tong Sreng   | M   | Master             | Cambodia    | 2018 | Information and Communication Technology          |
| 10 | TANN Chantara    | F   | Master             | Cambodia    | 2010 | Mathematics                                       |
| 11 | TITH Dara        | M   | Doctorate          | Japan       | 2020 | Information Technology                            |
| 12 | UN Lykong        | F   | Master             | France      | 2023 | Data and Intelligence for Smart System            |
| 13 | VALY Dona        | M   | Doctorate          | Belgium     | 2020 | Science de l'ingénieur et technologie             |
| 14 | YOU Vanndy       | M   | Master             | India       | 2016 | Computer Science                                  |



### 6. List of Lecturers and Supervisors of M-MIC

| No | Name of Lecturer  | Sex | Qualification |             |      | Specialization  |
|----|-------------------|-----|---------------|-------------|------|---|
|    |                   |     | Latest degree | From        | Year |   |
| 1  | AM Sokchea        | M   | Doctorate     | France      | 2016 | Electronics   |
| 2  | CHHITH Saosometh  | M   | Master        | South Korea | 2010 | Mechanical Engineering  |
| 3  | CHHORN Sopheaktra | M   | Master        | Thailand    | 2018 | Electronics - Bio-medical   |
| 4  | CHRIN Phok        | M   | Doctorate     | France      | 2016 | Electrical Energy   |
| 5  | KIM Bunthern      | M   | Doctorate     | France      | 2019 | Electrical Engineering  |
| 6  | PEC Rothna        | M   | Doctorate     | South Korea | 2017 | Electrical and Electronics Engineering, Communication and Signal Processing |
| 7  | PHAUK Sökkhey     | M   | Doctorate     | Japan       | 2021 | Interdisciplinary Intelligent Systems                                       |
| 8  | SIM Tepmony       | M   | Doctorate     | France      | 2016 | Applied Mathematics, Signal and Image Processing                            |
| 9  | SOKHAL Aylik      | M   | Master        | France      | 2023 | Industrial Performance and Mechatronic System                               |
| 10 | SRANG Sarot       | M   | Doctorate     | Japan       | 2014 | Dynamical System Modeling, Estimation and Adaptive Control                  |
| 11 | SRENG Sokchenda   | M   | Doctorate     | France      | 2012 | Telecommunications and Network  |
| 12 | SRY Vannei        | M   | Master        | Indonesia   | 2011 | Mechanical Engineering  |
| 13 | THOURN Kosorl     | M   | Doctorate     | Japan       | 2009 | Electrical Engineering and Electrical Systems                               |
| 14 | TOUCH Sopheak     | M   | Master        | Cambodia    | 2024 | Data Science  |
| 15 | VALY Dona         | M   | Doctorate     | Belgium     | 2020 | Science de l'ingénieur et technologie                                       |

### 7. List of Lecturers and Supervisors of M-TIE

| No | Name of Lecturer | Sex | Qualification |          |      | Specialization   |
|----|------------------|-----|---------------|----------|------|--|
|    |                  |     | Latest degree | From     | Year |  |
| 1  | CHEA Savuth      | M   | Doctorate     | France   | 2007 | Highway Engineering and Design                           |
| 2  | CHHENG Ratha     | M   | Master        | Cambodia | 2021 | Transport Engineering                                    |
| 3  | HASH Chanly      | M   | Master        | Japan    | 2008 | Architecture, Urban and Regional Planning                |
| 4  | HENG Sokbil      | M   | Doctorate     | Japan    | 2011 | Geotechnical Engineering                                 |
| 5  | KAING Saoserey   | M   | Doctorate     | France   | 2008 | Bridge Engineering                                       |
| 6  | PHUN Veng Kheang | M   | Doctorate     | Japan    | 2013 | Transport Engineering, Planning, Environment, and Policy |
| 7  | PLACK Sokhit     | M   | PhD student   | Cambodia | 2023 | Transport Engineering                                    |
| 8  | SAUM Narith      | M   | Doctorate     | Thailand | 2022 | Transportation Engineering                               |
| 9  | SIM Tepmony      | M   | Doctorate     | France   | 2016 | Applied Mathematics, Signal and Image Processing         |
| 10 | YANG Panha       | F   | Master        | Cambodia | 2021 | Transport Engineering                                    |

|    |         |   |           |       |      |                                   |
|----|---------|---|-----------|-------|------|-----------------------------------|
| 11 | YEN Yat | M | Doctorate | China | 2018 | Urban Mobility and Sustainability |
|----|---------|---|-----------|-------|------|-----------------------------------|

#### 8. List of Lecturers and Supervisors of M-DAS

| No | Name of Lecturer | Sex | Qualification |             |      | Specialization                                   |
|----|------------------|-----|---------------|-------------|------|--|
|    |                  |     | Latest degree | From        | Year |  |
| 1  | CHAN Sophal      | M   | Master        | Thailand    | 2020 | Information Technology                           |
| 2  | HAS Sothea       | M   | Doctorate     | France      | 2022 | Applied Math                                     |
| 3  | LIN Mongkolser   | M   | Doctorate     | Thailand    | 2014 | Applied Mathematics                              |
| 4  | LONG Pakrigna    | M   | Master        | Thailand    | 2018 | Computing in Engineering Systems                 |
| 5  | MUTH Boravy      | M   | Doctorate     | South Korea | 2021 | Nuclear Engineering                              |
| 6  | NHIM Malai       | M   | Master        | Belgium     | 2022 | Statistics and Data Science                      |
| 7  | OL Say           | M   | Master        | Philippines | 2015 | Cryptography                                     |
| 8  | PEN Chentra      | M   | Master        | Cambodia    | 2011 | Applied Mathematics                              |
| 9  | PHAUK Sökkhey    | M   | Doctorate     | Japan       | 2021 | Interdisciplinary Intelligent Systems            |
| 10 | SIM Tepmony      | M   | Doctorate     | France      | 2016 | Applied Mathematics, Signal and Image Processing |
| 11 | SOEUNG Senghong  | M   | Master        | Cambodia    | 2023 | Data Science                                     |
| 12 | TANN Chantara    | F   | Master        | Cambodia    | 2010 | Mathematics                                      |
| 13 | TE Sonita        | F   | Master        | France      | 2022 | Science in informatics at Grenoble               |
| 14 | TOUCH Sopheak    | M   | Master        | Cambodia    | 2024 | Data Science                                     |
| 15 | VALY Dona        | M   | Doctorate     | Belgium     | 2020 | Science de l'ingénieur et technologie            |
| 16 | YOU Vanndy       | M   | Master        | India       | 2016 | Computer Science                                 |

## **Annex 6. List of Master Thesis.**

(List arranged by degree, field/specialization, and chronological order)

### **1. M-MSE**

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2011 to 2023.*

- RITH Borey (2024). *Behavior of alkali-activated material at early age and long term*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- CHEA Henghout (2024). *Study on Pullout Resistance of Tyfo® FibrAnchors Inserted into Relatively High Strength Concrete Specimen*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- VISETH Setha (2024). *Development of Low Environmental Impact Concrete Based on Dredged Sediment*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- KHOM Vivutd (2024). *Etudes statistique et numérique des mécanismes de dégradation lors d'une réaction alcali-granulats*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- CHHENG Brossour (2024). *Development of new low-carbon binders using different activation systems*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- POR Somethea (2024). *Elastic analytical model for bolted end-plate steel-concrete connections*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- YAM Vanny (2024). *Validation on Proposed Equation for Pullout Resistance of Tyfo® FibrAnchors Inserted into Concrete Cylinder*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- MENG Senghor (2024). *Study of transport of chemical products in a fractured porous medium subjected to a dissolution reaction*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- BUN Chanlina (2024). *Comparative Analysis of Road Pavement Design Standards: A Study of Road Note, AASHTO, AUSTRROADS, and Belgian Guidelines*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- BUT Chan Seyha (2024). *Various Pavement Management Systems (PMS), Already applied or to be applied, for road management in Cambodia*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]
- KONG Aruntitya (2024). *Discrete yield analysis approach applied to the evaluation of shear capacity of slender RC beams without shear reinforcement*, [Master Thesis, Materials and Structural Engineering, Institute of Technology of Cambodia]

### **2. M-ETM**

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2015 to 2023.*

- HEANG Sokleap (2024). *Service Restoration in the Distribution System with Voltage Regulation Devices and PV-Based Distributed Generation using Improved Sequential Opening Branches (ISOB)*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]
- BUNTOUN Sophanarith (2024). *Optimal Placement of Electric Vehicle Charging Stations Using Mixed-Integer Linear Programming: A Case Study in Cambodia*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]
- NEOV Yoklin (2024). *Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]
- MEL Daravann (2024). *Economic Study on Integrating PV-DG with Grid-Tie: Case Study in Cambodia*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]

- MON Chanbumeay (2024). *Reliability Study on the Placement of Electric Vehicle Charging Stations in the Distribution Network*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]
- PET Songchhay (2024). *Load Profile Estimation with Electric Vehicle Integration in Phnom Penh*, [Master Thesis, Energy Technology and Management Engineering, Institute of Technology of Cambodia]

### 3. M-WEE

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2014 to 2023.*

- SOT Chann Tola (2024). *Effect of different irrigation methods and agronomy practices on water rice productivity in soil column-based experiments*, [Master Thesis, Water and Environmental Engineering, Institute of Technology of Cambodia]
- PHOL Mengheak (2024). *Effect of Different methods for water saving for rice cultivation at CARDI, Cambodia*, [Master Thesis, Water and Environmental Engineering, Institute of Technology of Cambodia]
- KHOEUN Romduol (2024). *Investigation of hydrological alteration in Sekong and Sesan River Basin of the Lower Mekong Basin*, [Master Thesis, Water and Environmental Engineering, Institute of Technology of Cambodia]

### 4. M-AIE

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2015 to 2023.*

- SOVANN Rathana (2024). *Effects of rice grain with intermediate amylose content and extrusion conditions on properties of rice cereal*, [Master Thesis, Agro-Industrial Engineering, Institute of Technology of Cambodia]
- LY Hassany (2024). *Effects of High Amylose Rice and Extrusion Conditions on Properties of Rice Vermicelli*, [Master Thesis, Agro-Industrial Engineering, Institute of Technology of Cambodia]
- PHEAP Davin (2024). *Development of Spicy Sour Seasoning for Daily Use*, [Master Thesis, Agro-Industrial Engineering, Institute of Technology of Cambodia]

### 5. M-ECS

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2015 to 2023.*

- HAM Heng (2024). *Online Khmer Handwritten Text Recognition for Teaching and Learning Assistance*, [Master Thesis, Computer Science, Institute of Technology of Cambodia]
- EM Hengly (2024). *Word Spotting on Khmer Printed Documents*, [Master Thesis, Computer Science, Institute of Technology of Cambodia]
- LY Kimleang (2024). *Khmer Question-Answering by Fine-tuning Pre-trained Model*, [Master Thesis, Computer Science, Institute of Technology of Cambodia]
- CHAN Both (2024). *CNN-based Reinforcement Learning with Policy Gradient for Khmer Chess*, [Master Thesis, Computer Science, Institute of Technology of Cambodia]

### 6. M-MIC

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2017 to 2023.*

- SOUN Dalin (2024). *Gradient-Based Optimization of Core-Shell Nanoparticles with Discrete Materials for Metasurface Applications*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- TANG Sou Bun (2024). *Smart Controller for PMDC Motor*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- CHEK Nita (2024). *Tuning Hyperparameters on Gym Environment Inverted Pendulum*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]

- CHHAY Monyvann (2024). *Enhanced Robot Navigation Through Reinforcement Learning with Khmer Direction Recognition*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- PHON Lundy (2024). *State-of-Health Estimation for Lithium-ion Battery using Machine Learning*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- SEK Pechmunivann (2024). *Fine-tune FaceNet pretrained weight with Siamese network on Cambodian FaceDataset*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- HOR Hakeng (2024). *Application of total energy control system for fixed-wing unmanned aerial vehicle*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- OUK Leakana (2024). *Investigation on Low-Complexity PPS Detection for 5G Mobile Cellular Network*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- SAI Thavath (2024). *Development of Controller Node for Smart Greenhouse Application*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- HORT Sovanvichea (2024). *6DOF flight control simulation for a rocket with fin stabilization by using LQR controller*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- HOEM Rachhat (2024). *Flight control simulation of a fixed-wing uav using lqr controller*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]
- HIM Vannthorng (2024). *Designing a Self-Stabilized Thrust Vector Control System for Small-Scale Rockets*, [Master Thesis, Mechatronics, Information and Communication Engineering, Institute of Technology of Cambodia]

## 7. M-TIE

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses from 2021 to 2023.*

- SUON Kosal (2024). *Examining Passenger Loyalty in Phnom Penh Public Bus System*, [Master Thesis, Transport Engineering, Institute of Technology of Cambodia]
- SAM Sothearo (2024). *The Study of Water Taxi Operation and Traffic in inland Waterway Transportation in Phnom Penh City*, [Master Thesis, Transport Engineering, Institute of Technology of Cambodia]
- SENG Hongheng (2024). *Traffic management during flyover construction: A case study of flyover 2004, Phnom Penh*, [Master Thesis, Transport Engineering, Institute of Technology of Cambodia]
- SOM Oeurn Keo (2024). *Minimum Standards of Traffic Safety Devices at Primary School Zone: Case Study in Phnom Penh City*, [Master Thesis, Transport Engineering, Institute of Technology of Cambodia]

## 8. M-DAS

*This list shows the theses successfully defended in 2024 only. Please consult our website for the exhaustive list theses in 2023.*

- TOUCH Sopheak (2024). *Energy Demand Forecast For Electricity Operators In Cambodia*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- HOR Hang (2024). *Temporal Graph Learning with Application to Large-Scale Flight Traffic Prediction*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- SAM Lyheng (2024). *Undergraduate Student Dropout Prediction With Class Balancing Techniques*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- HAN Chandeth (2024). *Rubber Prices Forecasting: A Comparative Study Of Univariate And Multivariate Analysis With Multiple Predictive Models*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- SEIREY Chhunheng (2024). *Utilizing data mining and AI to enhance Cambodian high school student performance and stakeholder success*, [Master Thesis, Data Science, Institute of Technology of Cambodia]

- NUON Roatny (2024). *Predictive Analysis of Stock Closing Prices: A Comparative Study of LSTM, SVM, and XGBoost*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- POV Phannet (2024). *Bus Arrival Time Prediction Using Machine Learning Approaches*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- LI Nita (2024). *Unlocking Agricultural Potential with Machine Learning Approach: A Soil-Centric Approach to Crop Selection in Cambodia*, [Master Thesis, Data Science, Institute of Technology of Cambodia]
- HENG Seyha (2024). *Comparative Study of Clustering Analysis: On KIVAEnhancing Microfinance Impact Through Cluster-driven Loan Strategies in Cambodia*, [Master Thesis, Data Science, Institute of Technology of Cambodia]

## **Annex 7. List of Master Publications.**

### **1. Lists of Publications M-MSE**

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

NA

### **2. Lists of Publications M-ETM**

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Sokleap Heang, Vannak Vai & Samphors Eng (2024). Service Restoration in the Distribution System with Voltage Control Devices using Improved Sequential Opening Branches (ISOB). Techno-SRJ\_11\_26
2. Buntheoun Sophanarith, KIM Bunthern & VAI Vannak (2024). Optimal Placement of Electric Vehicle Charging Stations Using Mixed-Integer Linear Programming: A Case Study in Cambodia. Techno-SRJ\_11\_21
3. Yoklin Neov, Oudaya Eth & Kimsrornn Khon (2024). Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid. Techno-SRJ\_11\_22
4. Daravann MEL, Sokchea AM & Phok CHRIN (2024). Economic Study on Integrating PV-DG with Grid-Tie: Case Study in Cambodia. Techno-SRJ\_12\_15
5. Mon Chanbumey, Kim Bunthern & Chheng Monyvathna (2024). Reliability Study on the Placement of Electric Vehicle Charging Stations in the Distribution Network of Cambodia. Techno-SRJ\_12\_26
6. PET Songchhay, KIM Bunthern & CHHENG Monyvathna (2024). Prediction on Load model for future load profile of Electric Vehicle charging demand in Phnom Penh. Techno-SRJ\_12\_24

### **3. Lists of Publications M-WEE**

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Chantola Sot, KET Pinnara, MA Chengxiang & LAI Chenda (2024). Effect of Different Irrigation Methods on Water Use Efficiency in Rice Soil Column Test. Techno-SRJ\_11\_29
2. Mengheak Phol, KET Pinnara, MA Chengxiang & LAI Chenda (2024). Effect of Different Water-saving Irrigation Methods for rice cultivation, Case study in Cambodia. Techno-SRJ\_11\_30
3. Romduol Khoeun, Ratha Sor, Kimsan Chann, Sophea Rom Phy, Chantha Oeurng & Ty Sok (2024). The Impacts of Dams on Streamflow in Tributaries to the Lower Mekong Basin. sustainability-3021569

### **4. Lists of Publications M-AIE**

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. SOVANN Rathana, MITH Hasika & EK Pichmony (2024). Physico-chemical Characteristics of Rice-based Cereal Processed by Twin-screw Extrusion and Microwave Cooking. Techno-SRJ\_11\_31
2. LY Hassany, MITH Hasika & PHUONG Hengsim (2024). Investigation of the Influence of Extrusion Parameters on Cambodia Extruded Rice Vermicelli. Techno-SRJ\_11\_32
3. PHEAP Davin, IN Sokneang & MORM Elen (2024). Evaluate the Potential Changes in Physico-Chemical and Microbiological Quality of Spicy Sour Seasoning During Storage. Techno-SRJ\_11\_33

### **5. Lists of Publications M-ECS**

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Heng Ham, Dona Valy & Phutphalla Kong (2024). Empowering Education with Online Khmer Handwritten TextRecognition for Teaching and Learning Assistance. Techno-SRJ\_12\_05
2. Hengly Em, Dona Valy, Bernard Gosselin & Phutphalla Kong (2024). Word Spotting on Khmer Printed Documents. Techno-SRJ\_12\_19
3. Kimleang Ly, Dona Valy & Phutphalla Kong (2024). Khmer question-answering by fine-tuning from pre-trained model. Techno-SRJ\_12\_09
4. Both Chan, Dona Valy & Phutphalla Kong (2024). CNN-based Reinforcement Learning with Policy Gradient for Khmer Chess. Techno-SRJ\_12\_17

## 6. Lists of Publications M-MIC

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Nita Chek, Rothna Pec & Sokchenda Sreng (2024). Tuning Hyperparameters Learning Rate and Gamma in Gym Environment Inverted Pendulum. Techno-SRJ\_12\_20
2. Leakana Ouk, Rothna Pec & Sopkeakra Chhorn (2024). Low-Complexity Detection of Primary Synchronization Signal for 5G New Radio Terrestrial Cellular System. Techno-SRJ\_12\_13
3. Thavath Sai, PEC Rothna & HEL Chanthan (2024). Development of IoT-based General Purpose Greenhouse Controller for Smart Agriculture and a Case Study onMushroom Growth Control System. Techno-SRJ\_11\_23

## 7. Lists of Publications M-TIE

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Kosal Suon, Veng Kheang Phun & Narith Saum (2024). Examining Passenger Loyalty in Phnom Penh Public Bus System: A Structural Equation Modelling Approach. Techno-SRJ\_12\_12
2. Sothearo SAM, Veng Kheang PHUN & Panha YANG (2024). Should water taxi service in Phnom Penh be abandoned or sustained? Techno-SRJ\_11\_19
3. Hongheng SENG, Veng Kheang PHUN, Panha YANG & Narith SAUM (2024). Reducing traffic congestion during flyover construction: A case study of flyover construction at the intersection 2004, Phnom Penh, Cambodia. Techno-SRJ\_11\_37
4. Keo SOM OEURN, Panha YANG & Veng Kheang PHUN (2024). Minimum Standard of Traffic Safety Devices at Primary School Zone Black Spot in Phnom Penh. Techno-SRJ\_11\_24

## 8. Lists of Publications M-DAS

*This list shows the papers published by the graduates in 2024 only. Please consult our website for more information on students' publications.*

1. Hang Hor, Sokkhey Phauk, Gabor Benedek, Sothea Has & Pheak Neang (2024). Temporal Graph Learning with Application to Large-Scale Traffic Flight Prediction. Techno-SRJ\_12\_04
2. Lyheng Sam, Sokkhey Phauk & Valy Dona (2024). Undergraduate Student Dropout Prediction with Class Balancing Techniques. Techno-SRJ\_12\_02
3. Chhunheng Seirey, Sokkhey Phauk & Say Ol (2024). Utilizing Data Mining And AI To Enhance Cambodian High School Student Performance And Stakeholder Success. Techno-SRJ\_12\_01
4. Phannet Pov, Sokkhey Phauk, Dona Valy & Narith Saum (2024). Bus Arrival Time Prediction Using Machine Learning Approaches. Techno-SRJ\_12\_03



## Annex 8. List of Lecturers and Supervisors PhD

### 1. List of Lecturers and Supervisors of D-WAE

| No | Name            | Sex | Title           | Qualification |             |      | Specialization                                  |
|----|-----------------|-----|-----------------|---------------|-------------|------|---|
|    |                 |     |                 | Degree        | From        | Year |   |
| 1  | ANN Vannak      | M   | Dr.             | Doctorate     | Spain       | 2015 | Water Science and Technology                    |
| 2  | BUN Saret       | M   | Asst. Prof. Dr. | Doctorate     | Japan       | 2019 | Environmental Engineering                       |
| 3  | CHAN Rathborey  | F   | Dr.             | Doctorate     | Japan       | 2021 | Environmental Engineering                       |
| 4  | CHHUON Kong     | M   | Asst. Prof. Dr. | Doctorate     | Philippines | 2016 | Environmental Engineering                       |
| 5  | DOUNG Ratha     | M   | Asst. Prof. Dr. | Doctorate     | Philippines | 2015 | Environmental Engineering                       |
| 6  | ENG Chandoeun   | M   | Asst. Prof. Dr. | Doctorate     | Japan       | 2018 | Geology   |
| 7  | KET Pinnara     | F   | Asst. Prof. Dr. | Doctorate     | Belgium     | 2019 | Agricultural Science and Biological Engineering |
| 8  | OEURNNG Chantha | M   | Prof.           | Doctorate     | France      | 2010 | Hydrology and Water Resources                   |
| 9  | PENG Chanthol   | F   | Asst. Prof. Dr. | Doctorate     | Japan       | 2019 | Life Science and Technology                     |
| 10 | TAN Reasmey     | F   | Asst. Prof. Dr. | Doctorate     | Japan       | 2011 | Bio-engineering                                 |

### 2. List of Lecturers and Supervisors of D-ETM

| No | Name               | Sex | Title           | Qualification |           |      | Specialization                        |
|----|--------------------|-----|-----------------|---------------|-----------|------|---------------------------------------|
|    |                    |     |                 | Degree        | From      | Year |                                       |
| 1  | AM Sokchea         | M   | Asst. Prof. Dr. | Doctorate     | France    | 2016 | Electronics                           |
| 2  | BUN Long           | M   | Dr.             | Doctorate     | France    | 2011 | Electrical Engineering                |
| 3  | CHAN Sarin         | M   | Asst. Prof. Dr. | Doctorate     | Indonesia | 2011 | Refrigeration and Air Conditioning    |
| 4  | CHRIN Phok         | M   | Asst. Prof. Dr. | Doctorate     | France    | 2016 | Electrical Energy                     |
| 5  | KRET Kakada        | M   | Dr.             | Doctorate     | Japan     | 2019 | Exploration Geophysics                |
| 6  | OR Chanmoly        | M   | Assoc. Prof.    | Doctorate     | Japan     | 2014 | Petroleum Production Engineering      |
| 7  | VAI Vannak         | M   | Asst. Prof. Dr. | Doctorate     | France    | 2017 | Electrical Engineering                |
| 8  | VONGCHANH Kinnaeth | F   | Dr.             | Doctorate     | Indonesia | 2010 | Engineering in Mechanical Engineering |

### 3. List of Lecturers and Supervisors of D-FTN

| No | Name        | Sex | Title           | Qualification |        |      | Specialization                |
|----|-------------|-----|-----------------|---------------|--------|------|-------------------------------|
|    |             |     |                 | Degree        | From   | Year |                               |
| 1  | EK Pichmony | F   | Dr.             | Doctorate     | USA    | 2021 | Food Science                  |
| 2  | IN Sokneang | F   | Asst. Prof. Dr. | Doctorate     | France | 2012 | Science and processes of Food |

|   |                     |   |                 |           |                |      |   |
|---|---------------------|---|-----------------|-----------|----------------|------|---|
|   |                     |   |                 |           |                |      | and bio-products,<br>Agriculture Biology<br>Environment Health                  |
| 3 | MITH Hasika         | M | Asst. Prof. Dr. | Doctorate | Belgium        | 2014 | Food Science  |
| 4 | PENG Chanthol       | F | Asst. Prof. Dr. | Doctorate | Japan          | 2019 | Life Science and<br>Technology  |
| 5 | PHAT<br>Chanvorleak | F | Asst. Prof. Dr. | Doctorate | South<br>Korea | 2016 | Food Chemistry  |
| 6 | SOUNG Malyna        | F | Asst. Prof. Dr. | Doctorate | France         | 2017 | Mécanismes des<br>Interactions<br>Parasitaires<br>Pathogènes et<br>Symbiotiques |
| 7 | TAN Reasmey         | F | Asst. Prof. Dr. | Doctorate | Japan          | 2011 | Bio-engineering   |

#### 4. List of Lecturers and Supervisors of D-MIT

| No | Name               | Sex | Title           | Qualification |         |      | Specialization  |
|----|--------------------|-----|-----------------|---------------|---------|------|---|
|    |                    |     |                 | Degree        | From    | Year |   |
| 1  | CHRIN Phok         | M   | Asst. Prof. Dr. | Doctorate     | France  | 2016 | Electrical Energy   |
| 2  | PHAUK<br>Sokkhey   | M   | Asst. Prof. Dr. | Doctorate     | Japan   | 2021 | Interdisciplinary<br>Intelligent Systems                            |
| 3  | PO Kimtho          | M   | Prof.           | Doctorate     | Japan   | 2009 | Communication<br>Engineering  |
| 4  | SIM Tepmony        | M   | Asst. Prof. Dr. | Doctorate     | France  | 2016 | Applied<br>Mathematics, Signal<br>and Image<br>Processing           |
| 5  | SRANG Sarot        | M   | Asst. Prof. Dr. | Doctorate     | Japan   | 2014 | Dynamical System<br>Modeling,<br>Estimation and<br>Adaptive Control |
| 6  | SRENG<br>Sokchenda | M   | Asst. Prof. Dr. | Doctorate     | France  | 2012 | Telecommunications<br>and Network                                   |
| 7  | VALY Dona          | M   | Asst. Prof. Dr. | Doctorate     | Belgium | 2020 | Science de<br>l'ingénieur et<br>technologie                         |

#### 5. List of Lecturers and Supervisors of D-MSS

| No | Name               | Sex | Title           | Qualification |         |      | Specialization                         |
|----|--------------------|-----|-----------------|---------------|---------|------|--|
|    |                    |     |                 | Degree        | From    | Year |  |
| 1  | DOUNG Piseth       | M   | Dr.             | Doctorate     | Japan   | 2020 | Civil Engineering                      |
| 2  | ENG Chandoeun      | M   | Asst. Prof. Dr. | Doctorate     | Japan   | 2018 | Geology                                |
| 3  | HAN Virak          | M   | Asst. Prof. Dr. | Doctorate     | Japan   | 2006 | Construction<br>Materials              |
| 4  | HIN Raveth         | M   | Asst. Prof. Dr. | Doctorate     | France  | 2017 | Mechanics                              |
| 5  | KAN<br>Kuchvichea  | M   | Asst. Prof. Dr. | Doctorate     | Belgium | 2021 | Engineering Sciences<br>and Technology |
| 6  | LIM<br>Sovanvichet | M   | Dr.             | Doctorate     | France  | 2012 | Structural<br>Engineering              |

|    |                   |   |                 |           |        |      |  |
|----|-------------------|---|-----------------|-----------|--------|------|--|
| 7  | NGUON Kollika     | M | Asst. Prof. Dr. | Doctorate | Japan  | 2012 | Water Hammer, Fluid-Structure Interaction                |
| 8  | PHUN Veng Kheang  | M | Asst. Prof. Dr. | Doctorate | Japan  | 2013 | Transport Engineering, Planning, Environment, and Policy |
| 9  | SEANG Chansopheak | M | Asst. Prof. Dr. | Doctorate | France | 2013 | Civil and Mechanical Engineering                         |
| 10 | YOS Phanny        | M | Asst. Prof. Dr. | Doctorate | Japan  | 2014 | Materials Engineering                                    |

## Annex 9. List of PhD Thesis.

(List arranged by degree, field/specialization, and chronological order)

### 1. List of PhD Theses D-WAE

1. SOK Ty (2021). *Dynamic transport of the sediment and nutrient in the Mekong River Basin and the role of the Tonle Sap Lake: Assessment coupling data and modelling approaches*, [Doctoral Thesis, Water and Environment, Institute of Technology of Cambodia]
2. SONG Layheang (2021). *Land use, surface runoff, soil erosion: multi-scale impact assessment of teak tree plantation management in a tropical humid mountainous agro-ecosystem*, [Doctoral Thesis, Water and Environment, Institute of Technology of Cambodia]
3. MUON Ratha (2022). *Termite bioturbation in Cambodia – From characterization to application*, [Doctoral Thesis, Water and Environment, Institute of Technology of Cambodia]
4. SANG Davin (2023). *Influence of the coagulation-flocculation-sedimentation on the adsorption of micropollutants onto activated carbon*, [Doctoral Thesis, Water and Environment, Institute of Technology of Cambodia]

### 2. List of PhD Theses D-ETM

1. KHON Kimsrornn (2022). *Planning of Rural LV AC/DC Microgrids with PV and Storage*, [Doctoral Thesis, Energy Technology and Management, Institute of Technology of Cambodia]
2. PECH Sopheap (2023). *Source Rock Evaluation and Depositional Environment of Sedimentary rocks Characterization in Kampong-Som and Tonle Sap Sedimentary Basin, Onshore Cambodia*, [Doctoral Thesis, Energy Technology and Management, Institute of Technology of Cambodia]
3. SIO Sreymean (2024). *Reservoir Evolution of Kampong Som Basin, Onshore Cambodia*, [Doctoral Thesis, Energy Technology and Management, Institute of Technology of Cambodia]
4. CHHLONH Chhith (2024). *Rural Electrification Planning Strategies Towards LV Microgrids in Developing Countries – Case Study in Cambodia*, [Doctoral Thesis, Energy Technology and Management, Institute of Technology of Cambodia]
5. NEAK Kimhak (2024). *The Potential Cambodian Offshore Sedimentary Basins for Hydrocarbon Development: A Case Study of the Apsara Oil Field in the Khmer Basin*, [Doctoral Thesis, Energy Technology and Management, Institute of Technology of Cambodia]

### 3. List of PhD Theses D-FTN

1. SROY Sengly (2021). *Importance of Freshwater fish from Tonle Sap Lake for food and nutrition in Cambodia*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
2. PHUONG Hengsim (2022). *Extrusion Coupled with Enzymatic Hydrolysis for the Extraction of Hydrosoluble Compounds of the Red Algae Gracilaria Gracilis*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
3. YIN Molika (2022). *Study of Turmeric (Curcuma Longa L.) Processes in Cambodia - Impact on Sensorial and Functional Quality*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
4. NGET Sovannmony (2023). *Safety of meat products in Cambodia: modelling thermal inactivation for steaming and microwave processes*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
5. OEUM Kakada (2024). *Exploration and exploitation of the rice-associated microbiome for sustainable agriculture in Cambodia*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
6. SAY Mani (2024). *Evaluation of Physicochemical Qualities of Cooking Oils Sold in the Markets and Optimization of Cooking Oil Processing*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]
7. THANH Channmuny (2024). *Assessment of fish quality according to the production system (aquaculture versus wild ecosystem) and impact of Prahoc fermentation on its quality*, [Doctoral Thesis, Food Technology and Nutrition, Institute of Technology of Cambodia]

#### 4. List of PhD Theses D-MIT

1. KONG Phutphalla (2022). *Visual Attention: Top-down and Bottom-up Information Relative Importance*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]
2. KEAN Jeudy (2023). *Analyse et validation expérimentale de la plus basse fréquence utilisable dans une chambre réverbérante à parois métamatériaux pour des tests de Compatibilité ElectroMagnétique (CEM)*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]
3. BAN Sam (2023). *Assessing the Potential of the Physical Internet for City Logistics Activities in Developing Countries*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]
4. SRUN Channareth (2023). *Control Structure Design for Double-Stage Single Phase Grid-Connected Photovoltaic System*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]
5. **KARTHIKEYAN Dinesh Kumar (2024). *Enhancing Learning with Visual Storytelling (VST): Designing Educational Workflow with Generative AI*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]**
6. **SREY Sophyn (2024). *States and Parameter Estimation for Adaptive Flight Control of Quadcopter*, [Doctoral Thesis, Mechatronics and Information Technology, Institute of Technology of Cambodia]**

#### 5. List of PhD Theses D-MSS

1. BUN Polyka (2022). *Development and Optimization of Ceramic Roof Tiles Incorporating with Industrial Waste*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]
2. HENG Sounean (2022). *The Study of the Cracking Sensitivity of Geopolymers*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]
3. MOM Sokvisal (2022). *Multi-scale modeling of thermal properties of cement-based materials*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]
4. OENG Thaileng (2023). *Analysis of Composite Beam by Taking into Account Inter-layer Slip and Uplift*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]
5. OUCH Vanthet (2023). *Behavior of a CLT-concrete composite floor with dovetail notched connectors*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]
6. **TAING Kimnenh (2024). *Architectural Design Process for a Bioclimatic Building: Study of methods and design strategies for building comfort in tropical climate*, [Doctoral Thesis, Materials Science and Structures, Institute of Technology of Cambodia]**

## **Annex 10. List of Publications by PhD students.**

(List arranged by degree, field/specialization, and chronological order)

### **1. List of Publications of D-WAE**

1. Sok, T., Oeurng, C., Ich, I., Sauvage, S., & Sánchez, P. J. (2020). Assessment of Hydrology and Sediment Yield in the Mekong River Basin Using SWAT Model. *Water*. 12. 3503. 10.3390/w12123503.
2. Sok, T., Oeurng, C., Kaing, V., Sauvage, S., & Kondolf, M. G. & Sánchez Pérez José (2021). Assessment of Suspended Sediment Load Variability in the Tonle Sap and Lower Mekong Rivers, Cambodia.
3. L. Song et al., "Understory Limits Surface Runoff and Soil Loss in Teak Tree Plantations of Northern Lao PDR," *Water*, vol. 12, no. 9, 2020, doi: 10.3390/w12092327.
4. Muon, R., Lai, C., Bureau-Point, E., Chassagne, F., Wieringa, F., Berger, J., ... & Jouquet, P. (2022, May). Termite mounds in Cambodian paddy fields. Are they always kept for improving soil quality? In EGU General
5. Muon, R., Lai, C., Hervé, V., Zaiss, R., Chassagne, F., Bureau-Point, E., ... & Jouquet, P. Abundance, perceptions and utilizations of termite mounds in Cambodia. *Soil Use and Management*.
6. Sang, D., Cimetiere, N., Giraudet, S., Tan, R., Wolbert, D., & Le Cloirec, P. (2022). Online SPE-UPLC-MS/MS for herbicides and pharmaceuticals compounds' determination in water environment: A case study in France and Cambodia. *Environmental Advances*, 8, 100212.
7. Sang, D., Cimetiere, N., Giraudet, S., Tan, R., Wolbert, D., & Le Cloirec, P. (2022). Adsorption-desorption of organic micropollutants by powdered activated carbon and coagulant in drinking water treatment. *Journal of Water Process Engineering*, 49, 103190.
8. Sang, D., Chiemchaisri, C., & Chiemchaisri, W. (2022). Purification of polluted surface water by sponge moving bed membrane bioreactor with short hydraulic retention time operation. *Water and Environment Journal*, 36(4), 633-643.

### **2. List of Publications of D-ETM**

1. Khon, K., Alvarez-Herault, M.-C., Vai, V., Fichtner S., Bun, L. et al. Optimal design of low voltage AC/DC microgrid. (SGE2020, Nov 2020, Nantes, France. Ffhal-030324217f
2. Khon K, Chhlonh C, Vai V, Alvarez-Herault M-C, Raison B, Bun L. Comprehensive Low Voltage Microgrid Planning Methodology for Rural Electrification. *Sustainability*. 2023; 15(3):2841. <https://doi.org/10.3390/su15032841>.
3. K. Khon, V. Vai, M.-C. Alvarez-Herault, L. Bun and B. Raison, "Planning of Low Voltage AC/DC Microgrid for Un-electrified Areas," *CIRE2021 - The 26th International Conference and Exhibition on Electricity Distribution*, Online Conference, 2021, pp. 2674-2678, doi: 10.1049/icp.2021.1518.
4. Pech, S., Eng, C., Or, C., Rahim, A. B., Heng, R., Buth, C., Sio, S. (2023). Depositional Environment of Sediments in Tonle Sap Sedimentary Basin, Western Part of Cambodia: Insights from Field and Geochemical Studies.
5. **Sreymean Sio & Chanmoly Or & Chandoeun Eng & Sopheap Pech & Tola Sreu (2024). Review of sedimentary basin evolution in Cambodia based on tectonic setting and logical information. *Berita Sedimentologi*, 2023 V. 49(2).**
6. **C. Chhlonh & M. -C. Alvarez-Herault & V. Vai and B. Raison (2024). Designing AC Low-Voltage Topologies for a Non-Electrified Area – A Case Study in Cambodia. 2023 IEEE PES Innovative Smart Grid Technologies Europe (ISGT EUROPE), Grenoble, France, 2023, pp. 1-6, doi: 10.1109/ISGTEUROPE56780.2023.10408246.**
7. **C. Chhlonh & M. -C. Alvarez-Herault & V. Vai and B. Raison (2024). Low-Voltage Microgrid Planning Strategies for an Isolated Village — A Case Study in Cambodia. IECON 2023- 49th Annual Conference of the IEEE Industrial Electronics Society, Singapore, Singapore, 2023, pp. 1-6, doi: 10.1109/IECON51785.2023.10312050.**
8. **C. Chhlonh & M. -C. Alvarez-Herault & V. Vai and B. Raison (2024). Comparative Planning of LVAC for Microgrid Topologies With PV-Storage in Rural Areas – Cases Study in**

- Cambodia. 2022 IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe), Novi Sad, Serbia, 2022, pp. 1-5, doi: 10.1109/ISGT-Europe54678.2022.9960511.
9. C. Chhlonh & B. Kim & P. Chrin & S. Am and T. Seng (2024). Four In-Wheel BLDC Motors Speed Control in EV Based on Hybrid Fuzzy-PI Controller Visual on GUI. 2021 International Symposium on Electrical and Electronics Engineering (ISEE), Ho Chi Minh, Vietnam, 2021, pp. 166-171, doi: 10.1109/ISEE51682.2021.9418790.
  10. Neak Kimhak & kret kakda & Sreu Tola & Sirisokha Seang & Or Chanmoly (2023). The Milestone of Cambodian First Oil Production in the Khmer Basin, Gulf of Thailand. 10.4236/ojogas.2023.82003.
  11. Neak Kimhak & kret kakda & Sreu Tola & Sirisokha Seang & Khoun Sokunthea & Or Chanmoly (2024). Integrated Petrophysical and Petrographical Studies for Reservoir Characterization: A Case Study of the Khmer Basin in Cambodian Water, Gulf of Thailand. International Journal of Oil, Gas and Coal Engineering. 10.11648/j.ogce.20241201.12.

### 3. List of Publications of D-FTN

1. Sroy, S., Arnaud, E., Servent, A., In, S., & Avallone, S. (2021). Nutritional benefits and heavy metal contents of freshwater fish species from Tonle Sap Lake with SAIN and LIM nutritional score. Journal of Food Composition and Analysis, 96, 103731.
2. Sroy, S., Servent, A., Sriwichai, W., In, S., & Avallone, S. (2021). Use of an experimental design to optimise the saponification reaction and the quantification of vitamins A1 and A2 in whole fish. International Journal for Vitamin and Nutrition Research.
3. Phuong, H., Massé, A., Dumay, J., Vandanjon, L., Mith, H., Legrand, J., & Arhaliass, A. (2022). Enhanced Liberation of Soluble Sugar, Protein, and R-Phycocyanin Under Enzyme-Assisted Extraction on Dried and Fresh Gracilaria gracilis Biomass. Frontiers in Chemical Engineering, 4, 21.
4. Yin, M., Bohuon, P., Avallone, S., In, S., & Weil, M. (2022). Postharvest treatments of turmeric (*Curcuma longa* L.) in Cambodia-Impact on quality. Fruits, 77 (6): pp. 1-13
5. Yin, M., Weil, M., Avallone, S., Lebrun, M., Conejero, G., In, S., & Bohuon, P. (2022). Impact of cooking and drying operations on color, curcuminoids, and aroma of *Curcuma longa* L. Journal of Food Processing and Preservation, 46(5), e16643.
6. Yin, M., Weil, M., Avallone, S., Maraval, I., Forestier-Chiron, N., Servent, A., IN, S. & Bohuon, P. (2023). Impact of cooking, drying and grinding operations on chemical content, functional and sensorial qualities of *Curcuma longa* L. Journal of Food Measurement and Characterization, 17(1), 998-1008.
7. Nget, S.; Mith, H.; Boué, G.; Curet, S.; Boillereaux, L. (2023) The Development of a Digital Twin to Improve the Quality and Safety Issues of Cambodian Pâté: The Application of 915 MHz Microwave Cooking. Foods, 12, 1187. <https://doi.org/10.3390/foods12061187>.
8. Oeum Kakada & Suong Malyna & Uon Kimsrong & Jobert Léa & Bellafiore Stéphane & Comte Aurore & Thomas Emilie & KUOK Fidero & Moulin Lionel (2024). Comparison of plant microbiota in diseased and healthy rice reveals methylobacteria as health signatures with biocontrol capabilities. Frontiers in Plant Science. 15. 10.3389/fpls.2024.1468192.
9. Manit Say & Punlork Heng & Sela Kong & Chin Ping Tan & Sivchheng Phal & Yukleav Nat & Reasmey Tan (2024). Characterization of Physicochemical Properties of Cooking Oils Sold in Phnom Penh, Cambodia. Journal of Food Science and Nutrition Research 7 (2024): 28-36.
10. Thanh Channmuny & Mith Hasika & Peng Chanthol & Servent Adrien & Poss Charlie & Laillou Arnaud & PHAL Sophanith & Avallone Sylvie (2024). Assessment of the nutritional profiles and potentially toxic elements of wild and farmed freshwater fish in Cambodia. Journal of Food Composition and Analysis. 133. 106357. 10.1016/j.jfca.2024.106357.

### 4. List of Publications of D-MIT

1. Kong, P.; Mancas, M.; Gosselin, B.; Po, K. DeepRare: Generic Unsupervised Visual Attention Models. Electronics 2022, 11, 1696. <https://doi.org/10.3390/electronics11111696>. Available: <https://arxiv.org/abs/2109.11439>.
2. M. Matei, P. Kong, and B. Gosselin, "Visual Attention: Deep Rare Features," CoRR, vol. abs/2005.12073, 2020, [Online]. Available: <https://arxiv.org/abs/2005.12073>. (Conferences)
3. Kong Phutphalla & Mancas Matei & Back Mr & Kheang Seng & Gosselin Bernard (2018). Do Deep-

- Learning Saliency Models Really Model Saliency?. 2331-2335. 10.1109/ICIP.2018.8451809.
4. Kong Phutphalla & Mancas Matei & Kheang Seng & Gosselin Bernard (2018). Saliency and Object Detection.
  5. Kean, J., Raveu, N., Kaouach, H., Thourn, K., & Sreng, S. (2021, September). Analysis of Metamaterial Walls Reverberation Chamber by Using Modal Expansion Theory. In *2021 Asia-Pacific International Symposium on Electromagnetic Compatibility (APEMC)* (pp. 1-4). IEEE.
  6. Ban, S., Lauras, M., and Srang, S. (2020, Nov.). Toward Physical Internet-Enabled Supply Chain and Logistics Networks in Developing Countries. PRO-VE 2020 - 21st Working Conference on Virtual Enterprises, Valence, Spain. pp.379-389.
  7. Ban, S., Dan, A., Guinet, F., Portanuen, J., Lauras, M., and Srang, S. (2021, June). Assessing the potentialities of Physical Internet for Developing Countries Last Mile deliveries. IPIC 2021 - 8th International Physical Internet Conference, Online, Greece.
  8. Petitdemange, E., Sam Ban, S., Lauras, M., and Srang, S. (2023, May). Evaluate the Potential of the Physical Internet for Last Mile Delivery in Developing Countries. ICDSST 2023 - 9th International Conference on Decision Support System Technology, Albi, France. pp.203-215.
  9. Srun, C., Chrin, P., Am, S. & Kim, B. (2022). Design of MPPT Algorithms using Simulink Support Package for Arduino Hardware. 2. 151-161. 10.52088/ijesty.v2i4.397.
  10. Srun, C., Chrin, P., Am, S. & Kim, B. (2022). Modeling and Simulation of a Double-Stage Single-Phase Grid- Connected PV System. EPI International Journal of Engineering. 5. 16-20. 10.25042/epi-ije.022022.03.
  11. Srun, C., Lonh, V. & Ny, V. (2022). Experimental in Head Tracking Control of a Four Omni Wheeled Mobile Robot System. Indonesian Journal of Engineering and Science. 3. 15-26. 10.51630/ijes.v3i3.67.
  12. Srun C., Ny, V., Cheat, C., Ching, Sokheang & Ny, P. (2021). Development of Speech Recognition System Based on CMUSphinx for Khmer Language. International Journal of Innovative Research in Science Engineering and Technology. 6. 770-775.
  13. Srun C., Meas, S., Un, S., Saokun, K., & Ny, V. (2021). Prototype Self-Adaptive Traffic Light Control System Using Cameras. EPI International Journal of Engineering. 4. 127-133. 10.25042/10.25042/epi-ije.082021.04.
  14. K. Dinesh Kumar & Sarot Srang & Dona Valy (2023). Evaluating Text-To-Image Gans Performance: A Comparative Analysis of Evaluation Metrics. International Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321-8169. IJRITCC\_June\_2023\_5125.
  15. K. Dinesh Kumar & Sarot Srang & Dona Valy (2023). Visual Storytelling: A Generative Adversarial Networks (Gans) and Graph Embedding Framework. International Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321-8169. IJRITCC\_November\_2023\_5096.
  16. K. Dinesh Kumar & Sarot Srang & Dona Valy (2024). The power of Visual Storytelling: A deep learning framework for educational influence. International Journal of Intelligent Systems and Applications in Engineering ISSN 2147-6799. DIRDC2-614-PUB24\_018
  17. S. Srey & V. Chhour & S. Srang (2024). Lumped Parameter Estimation of a Low Cost DC Motor for Position Controller Design. 2021 International Conference on Advanced Mechatronics, Intelligent Manufacture and Industrial Automation (ICAMIMIA), Surabaya, Indonesia, 2021, pp. 1-6, doi: 10.1109/ICAMIMIA54022.2021.9807810.
  18. Sophyn Srey & Sarot Srang (2024). Adaptive Controller Based on Estimated Parameters for Quadcopter Trajectory Tracking. International Journal of Robotics and Control Systems. Vol. 4, No. 2, 2024, pp. 480-501. ISSN 2775-2658.

## 5. List of Publications of D-MSS

1. Sounean, H., Kinda, H., & Aveline, D. (2021, May). The Cracking Sensitivity of a Na-Geopolymer. In *International RILEM Conference on Early-Age and Long-Term Cracking in RC Structures: CRC 2021* (pp. 165-174). Cham: Springer International Publishing.
2. Mom, S., Hoeun, S., Bernard, F., Kamali-Bernard, S., & Han, V. (2022). The Effect of Thermal Contact Conductance (TCC) Between Aggregate Inclusion and Matrix on Thermal Conductivity of Cement-Based Material. *International Journal of Integrated Engineering*, 14(5), 99-106.
3. Bun, P., Cyr, M., Laniessse, P., Bun, K. N., & Idir, R (2022). Concrete made of 100% recycled materials - Feasibility study, *Resources, Conservation and Recycling*, Volume 180, 2022, 106199, doi.org/10.1016/j.resconrec.2022.106199.



4. Oeng, T., Keo, P., Guezouli, S., & Hjiat, M. (2023). Large displacement analysis of two-layer beam-columns taking into account slip and uplift. *Engineering Computations*, 40(1), 265-295.
5. Ouch, V., Heng, P., Nyugen, Q.-H., Hugues, S., Thierry, S. (2023). An experimental investigation on the dovetail notched connection for cross-laminated-timber-concrete composite slabs. *European Journal of Environmental and Civil Engineering*. 27. 1-31. 10.1080/19648189.2023.2194351.
6. Ouch, V., Heng, P., Nyugen, Q.-H., Hugues, S., Thierry, S. (2022). A Dovetail Notched Connection for Cross-Laminated-Timber-Concrete Composite Slabs: Experimental Investigation. *SSRN Electronic Journal*. 10.2139/ssrn.4112748.
7. Ouch, V., Heng, P., Hugues, S., Thierry, S. (2023). An Experimental and Numerical Investigation on a Dovetail Notched Connection for Cross-Laminated-Timber-Concrete Composite Slabs. 3333-3341.10.52202/069179-0434.
8. Taing Kimninh & Leclercq Pierre (2022). Adoption contextuelle des pratiques pédagogiques : entre écosystèmes physique et logiciel, le cas de l'architecture bioclimatique en Asie du sud-est. *SHS Web of Conferences*. 147. 10.1051/shsconf/202214707002.
9. Taing Kimninh & Andre Philippe & Leclercq Pierre (2024). Analysis of Thermal Performance of Naturally Ventilated Residential Building in Tropical Climate: Case Study of Phnom Penh, Cambodia. *IOP Conference Series: Earth and Environmental Science*. 1199. 012038. 10.1088/1755-1315/1199/1/012038.
10. Kimninh Taing & Sigrid REITER & Virak Han & Pierre Leclercq (2024). Bioclimatic Design Guideline for Design Decision Support to Enhance Residential Building Thermal Performance in Tropical Region. *Sustainability*-3376709 (ISSN 2071-1050).

**Annex 11. ITC lecturers in overseas post-graduate program (2024-2025).**

| <b>No</b> | <b>Nom et prénom</b> | <b>Sexe</b> | <b>Départ.</b> | <b>Diplôme préparé</b> | <b>Université</b>                       | <b>Pays</b> | <b>Date de début de formation</b> | <b>Financement</b>          |
|-----------|----------------------|-------------|----------------|------------------------|---|-------------|-----------------------------------|-----------------------------|
| 1         | SORN Darong          | M           | GEE            | Doctorat               | Université Grenoble Alpes (UGA)         | France      | Septembre 2024                    | AFD                         |
| 2         | ENG Samphors         | F           | GEE            | Doctorat               | Université de Mons                      | Belgique    | Juillet 2024                      | ARES                        |
| 3         | BUN Menhorng         | M           | GEE            | Doctorat               | Toulouse INP                            | France      | Septembre 2021                    | HEIP1                       |
| 4         | SENG Dararaskmey     | F           | GEE            | Master                 | Chulalongkorn University                | Thaïlande   | Septembre 2023                    | Chulalongkorn's scholarship |
| 5         | NOEV Yoklin          | F           | GEE            | Doctorat               | Institut de Technologie du Cambodge     | Cambodge    | Septembre 2024                    | ITC                         |
| 6         | HENG Ratha           | M           | GGG            | Doctorat               | Kyushu University                       | Japon       | Septembre 2024                    | KIZUNA- JICA                |
| 7         | YANN Theara          | M           | GGG            | Doctorat               | Chulalongkorn University                | Thaïlande   | Janvier 2025                      | ASEAN and Non-ASEAN         |
| 8         | CHAN Ratboren        | M           | GRU            | Doctorat               | Université Toulouse III - Paul Sabatier | France      | Septembre 2023                    | BGF                         |
| 9         | PLACK Sokhit         | M           | GTI            | Doctorat               | Institut de Technologie du Cambodge     | Cambodge    | Novembre 2023                     | ITC                         |
| 10        | CHIN Chan Daraly     | M           | GTR            | Doctorat               | Toulouse INP                            | France      | Septembre 2022                    | BGF-MOYES                   |

**Annex 12. ITC students in overseas post-graduate program (2024-2025).**

| No | Nom et prénom      | Sexe | Départ | Diplôme préparé | Université                                  | Pays        | Financement                      |
|----|--------------------|------|--------|-----------------|---|-------------|----------------------------------|
| 1  | CHEA Dalin         | F    | GCA    | Master          | Kasetsart University                        | Thailand    | Agro-Industry                    |
| 3  | CHEA Pheng ou      | M    | GEE    | Master          | Chulalongkorn University                    | Thailand    | Chulalongkorn's scholarship      |
| 4  | CHET Sopanha       | M    | GEE    | Master          | Université Grenoble Alpes (UGA)             | France      | AFD                              |
| 5  | CHIM Chanrya       | F    | GEE    | Master          | Université Grenoble Alpes (UGA)             | France      | AFD                              |
| 6  | KLENG Vireak       | M    | GEE    | Master          | Institute of Technology of Cambodia         | Cambodia    | HEIP 2                           |
| 7  | MONYCHOT Sary      | M    | GEE    | Master          | Université Grenoble Alpes (UGA)             | France      | AFD                              |
| 8  | OENG Kechi         | F    | GEE    | Master          | Institute of Technology of Cambodia         | Cambodia    | HEIP 2                           |
| 9  | OEURN Sothea       | M    | GEE    | Master          | Université Grenoble Alpes (UGA)             | France      | AFD                              |
| 10 | PHON Lundy         | M    | GEE    | Master          | Université de Mons                          | Belgique    | ARES                             |
| 11 | TAING Chhay Leng   | F    | GEE    | Master          | Toulouse INP                                | France      |                                  |
| 12 | TIV Dararith       | M    | GEE    | Master          | SIIT  | Thailand    | SIIT Graduate Scholarships       |
| 13 | TRY Pich           | M    | GEE    | Master          | Czech Technical University                  | Czech       | Czech Government Scholarship     |
| 14 | CHAN Rathbreaksmey | M    | GGG    | Doctorat        | Hohai University                            | China       | Hohai                            |
| 15 | CHHORN Tola        | F    | GGG    | Master          | Ecole des Mines d'Alès                      | France      | Bourse de Gouvernement Française |
| 16 | RUN Sreypich       | F    | GGG    | Master          | Pohang University of Science and Technology | South Korea | GKS-G Scholarship                |
| 17 | HENG Visothi       | M    | GIC    | Master          | RMIT University                             | Australia   | Self-funded                      |
| 18 | SOMOEURN Virakden  | M    | GIC    | Master          | Nankai University / China                   | China       | MOFCOM Scholarship               |
| 19 | YORN Vanda         | M    | GIC    | Master          | Chung-Ang University , South Korea          | Korea       | CAYSS                            |
| 20 | BUN Sopheapanha    | M    | GIM    | Master          | University of Yamanashi                     | Cambodia    | MEXT Scholarship                 |
| 21 | CHEA Sovannarith   | M    | GIM    | Master          | Kagoshima University                        | Japan       | Yonemori Scholarship             |

|    |                      |   |          |          |  |             |                                |
|----|----------------------|---|----------|----------|--|-------------|--------------------------------|
| 22 | HEM Chanvesna        | M | GIM      | Master   | Sorbonne Paris Nord University         | France      | BGF                            |
| 23 | HIM Vannthorng       | M | GIM      | Master   | University of Ulsan                    | Korea       | GKS program                    |
| 24 | HORT Sovanvichea     | M | GIM      | Master   | Samara National Research University    | Russia      | Russian Government Scholarship |
| 25 | MOEUN Vicheka        | F | GIM      | Master   | Chulalongkorn University               | Thailand    | ASEAN & NON-ASEAN Country      |
| 26 | NEY Pothking         | M | GIM      | Master   | Harbin Institute of Technology         | China       | CSC Scholarship                |
| 27 | NOCH Sreyneang       | F | GIM      | Master   | Chulalongkorn University               | Thailand    | ASEAN or Non-ASEAN Scholarship |
| 28 | PHANN Panhaneath     | M | GIM      | Master   | Chulalongkorn University               | Thailand    | ASEAN & Non-ASEAN program      |
| 29 | SEK Sereibot         | M | GIM      | Master   | Insa Toulouse University               | France      | Self-funded                    |
| 30 | SIEB Chanchamnan     | M | GIM      | Doctorat | Jeonbuk National University            | South Korea | Professor's scholarship        |
| 31 | SOK Phearun          | M | GIM      | Master   | Jeonbuk National University (JBNU)     | Korea       | Profesor's scholarship         |
| 32 | SOUS Monypanchakrith | M | GIM      | Master   | GAZI university                        | Turkey      | YTB                            |
| 33 | TANG Hieb Khor       | M | GIM      | Master   | Khon Kaen University                   | Thai        | Princess scholarship           |
| 34 | VIRAK Alexander      | M | GIM      | Master   | University Grenoble Alpes              | France      | Tec21 scholarship              |
| 35 | VIRAK Somonika       | F | GIM      | Master   | University Grenoble Alpes              | France      | Self-funded                    |
| 36 | HONG Vouchly         | F | GIM-ECAM | Master   | Kasetsart University - Sriracha Campus | Thailand    | Scholarship                    |
| 37 | LY Pechvattana       | M | GIM-ECAM | Master   | Kasetsart University - Sriracha Campus | Thailand    | Scholarship                    |
| 38 | LY Rady              | M | GIM-ECAM | Master   | Kasetsart University                   | Thailand    | Scholarship                    |
| 39 | MEY Liza             | F | GIM-ECAM | Master   | Kasetsart University - Sriracha Campus | Thailand    | Scholarship                    |
| 40 | SAN Lihour           | M | GIM-ECAM | Master   | Kasetsart University                   | Thailand    | Scholarship                    |
| 41 | VAN Sela             | M | GIM-ECAM | Master   | Kasetsart University                   | Thailand    | Scholarship                    |
| 42 | BAN Liheang          | M | GRU      | Master   | Chulalongkorn University               | Thailand    | Chulalongkorn University       |
| 43 | BRANG Sokhorng       | M | GRU      | Master   | Chulalongkorn University               | Thailand    | Chulalongkorn University       |
| 44 | CHAN Sameth          | M | GRU      | Master   | Hohai University                       | China       | CSC                            |
| 45 | CHEA Gechor          | F | GRU      | Master   | Chulalongkorn University               | Thailand    | ASEAN countries program        |
| 46 | CHHIM Sophara        | M | GRU      | Master   | Chulalongkorn University               | Thailand    | ASEAN countries program        |

|    |                   |   |     |          |                                |          |   |
|----|-------------------|---|-----|----------|--------------------------------|----------|---|
| 47 | HOR Vichheka      | M | GRU | Master   | Hohai University               | China    | Hohai   |
| 48 | HOOR Sotheara     | M | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 49 | HUONG Oudomsatia  | M | GRU | Doctorat | Kyung Pook National University | Korea    | KING scholarship of Kyungpook National University |
| 50 | HUOT Boramey      | F | GRU | Master   | Hohai University               | China    | Hohai   |
| 51 | IT Soklin         | F | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 52 | KHE Sotheanea     | F | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 53 | KHIM Sokunthea    | F | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 54 | KHOR Sothyda      | F | GRU | Master   | Chulalongkorn University       | Thailand | Chulalongkorn University                          |
| 55 | KOUN Penglong     | M | GRU | Doctorat | Hohai University               | China    | Hohai   |
| 56 | KROUK Sothearith  | M | GRU | Master   | Hohai University               | China    | Hohai   |
| 57 | LENG Bovathanak   | M | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 58 | LIM Vonglorng     | M | GRU | Master   | Hohai University               | China    | CSC   |
| 59 | LOK Lyheng        | M | GRU | Master   | Hohai University               | China    | Hohai   |
| 60 | LY Veasna         | M | GRU | Master   | Hohai University               | China    | CSC   |
| 61 | MEAN Sopheakmony  | F | GRU | Master   | Hohai University               | China    | Mekong-Lancang                                    |
| 62 | MENG Leangse      | F | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 63 | MOM Attitya       | M | GRU | Master   | Hohai University               | China    | Mekong-Lancang                                    |
| 64 | NEOM Sophearak    | M | GRU | Master   | Hohai University               | China    | CSC   |
| 65 | NUTH Panha        | M | GRU | Master   | Chulalongkorn University       | Thailand | Chulalongkorn University                          |
| 66 | OL Kimsor         | M | GRU | Master   | Kyoto University               | Japan    | MEXT  |
| 67 | OR Sopheacha      | M | GRU | Master   | Hohai University               | China    | CSC   |
| 68 | PA Visaseka       | F | GRU | Master   | Hohai University               | China    | CSC   |
| 69 | PHAL Sreyluch     | F | GRU | Master   | Hohai University               | China    | CSC   |
| 70 | PHAN Sophanny     | F | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 71 | PHONG Bunthai     | M | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 72 | PHOUTA Belasoviet | M | GRU | Master   | Hohai University               | China    | Hohai   |
| 73 | PLANG Khimouorn   | M | GRU | Master   | Chulalongkorn University       | Thailand | ASEAN countries program                           |
| 74 | SAM Monyrachana   | F | GRU | Master   | Hohai University               | China    | Hohai   |

|     |                    |   |     |          |  |          |                         |
|-----|--------------------|---|-----|----------|--|----------|-------------------------|
| 75  | SEN Sireiwat       | M | GRU | Master   | Hohai University                                 | China    | Hohai                   |
| 76  | SI Chheng Im       | F | GRU | Master   | Chulalongkorn University                         | Thailand | ASEAN countries program |
| 77  | SOM Bunny          | F | GRU | Master   | Hohai University                                 | China    | Hohai                   |
| 78  | TAUCH Samrethreach | M | GRU | Master   | Chulalongkorn University                         | Thailand | ASEAN countries program |
| 79  | TES Davin          | M | GRU | Doctorat | Institute of Science Tokyo                       | Japan    | MEXT                    |
| 80  | THA Theb           | M | GRU | Master   | Institute of Science Tokyo                       | Japan    | MEXT                    |
| 81  | VETH Seavping      | F | GRU | Master   | Hohai University                                 | China    | Hohai                   |
| 82  | YIN Sunny          | M | GRU | Master   | Chulalongkorn University                         | Thailand | ASEAN countries program |
| 83  | YONG Chhenghor     | F | GRU | Master   | Hohai University                                 | China    | Hohai                   |
| 84  | AUN Chheng Kheang  | M | GS  | Master   | INSA Rennes                                      | France   | Erasmus+                |
| 85  | CHIM Chakrya       | F | GS  | Master   | Institut Polytechnique de Grenoble               | France   | EDC-AFD-EU              |
| 86  | KORN Sengann       | M | GS  | Master   | Université Toulouse III-Paul Sabatier            | France   | Erasmus+                |
| 88  | LEY Satya          | M | GS  | Master   | INSA Rennes                                      | France   | Erasmus+                |
| 89  | MA Song Khun       | M | GS  | Master   | INSA Rennes                                      | France   | Erasmus+                |
| 90  | MONY Rethyden      | M | GS  | Master   | Université de Rennes                             | France   | Erasmus+                |
| 91  | NAING Bora         | M | GS  | Master   | Institut Polytechnique de Grenoble               | France   | EDC-AFD-EU              |
| 92  | OEUN Sothea        | M | GS  | Master   | Institut Polytechnique de Grenoble               | France   | EDC-AFD-EU              |
| 93  | POV Ratha          | M | GS  | Master   | Université de Rennes                             | France   | Erasmus+                |
| 94  | SARY Monychot      | M | GS  | Master   | Institut Polytechnique de Grenoble               | France   | EDC-AFD-EU              |
| 95  | SIENG Soleng       | M | GS  | Master   | Université Sorbonne Paris Nord                   | France   | Erasmus+                |
| 96  | SOK Kungsamreth    | M | GS  | Master   | IMT Mines Alès                                   | France   | Eiffel                  |
| 97  | SRY Vanda          | M | GS  | Master   | Institut Polytechnique de Grenoble               | France   | EDC-AFD-EU              |
| 98  | SUN Setthika       | F | GS  | Master   | IMT Mines Alès                                   | France   | ITC-IMT                 |
| 99  | SUN Soreaksmey     | M | GS  | Master   | Université Toulouse III-Paul Sabatier            | France   | Erasmus+                |
| 100 | CHHORM Pahnarith   | M | GTR | Master   | Sirindhorn International Institute of Technology | Thailand | AI and IoT              |

**Annex 13. Short-term overseas capacity building for lecturers (2024-2025).**

| No | Nom et prénom | Sexe | Dépt. | Université d'accueil  | Titre   | Date de mission        | Financement                            |
|----|---------------|------|-------|---|---|------------------------|--|
| 1  | BUN Saret     | M    | GRU   | Ministry of Natural Resources and Environment, Lao PDR                      | The ASEAN Conference on Combatting Plastic Pollution: Innovation and Partnership to Plastic Pollution     | 28 → 29/10/2024        | UNDP-Cambodia                          |
| 2  | BUN Saret     | M    | GRU   | Stockholm Environment Institute (SEI) Asia Centre, Thailand                 | Mekong Environmental Resilience Week 2024   | 7 → 10/10/2024         | SEI Asia                               |
| 3  | CHAN Sarin    | M    | GIM   | ESCAP, Thailand   | Promoting Passive Cooling Strategies in Building Sector Policy and Practice                               | 15 → 16/08/2025        | ESCAP                                  |
| 4  | CHHUON Kong   | M    | GRU   | FAO and Ministry of Agriculture and Cooperatives, the Royal Thai Government | International Soil and Water Forum  | 9 → 11/12/2024         | FAO                                    |
| 5  | CHHUON Kong   | M    | GRU   | MRC   | Regional training of trainers on the water quality monitoring under the mrc core river monitoring network | 9 → 13/9/2024          | GIZ                                    |
| 6  | CHHUON Kong   | M    | GRU   | Center for Southeast Asian Studies (CSEAS) and Universiti Malaya (UM)       | Regional Policy Dialogue on Circular Economy and Plastic Waste Management in ASEAN                        | 5 → 6-2/2025           | Norwegian Institute for Water Research |
| 7  | CHOM Sreylam  | M    | GIC   | National University of Laos, Lao  | DXSEA ToT   | 4/11/2024→8/11/2024    | Erasmust+ DXSEA                        |
| 8  | DOEURN Seyha  | F    | GCA   | Kanazawa University, Japan  | Research/Training   | 27/10/2024 → 9/11/2024 | SATREPS-Air                            |
| 9  | DOEURN Seyha  | F    | GCA   | Nagoya City Institute for Environmental Sciences, Japan                     | Research/Training   | 18 → 23/1/2025         | SATREPS-Air                            |
| 10 | EK Pichmony   | F    | GCA   | University of Liege, Belgium  | Mentorship Program in Food Processing   | 23/11/2024 → 1/12/2024 | ARES Institutional Support             |
| 11 | EK Pichmony   | F    | GS    | University of Alicante, Spain   | Cambodian Higher Education Advancing in Internationalization (CHAIN)                                      | 10/6/2024 → 20/6/2024  | Erasmus+ Program                       |

|    |                 |   |     |   |  |                         |  |
|----|-----------------|---|-----|---|--|-------------------------|--|
| 12 | EK Pichmony     | F | GS  | Asian Institute of Technology, Thailand                                     | Smart Cities ASEAN Learning Network (SCALE)  | 15 → 17/7/2024          | Erasmus+ Program                                 |
| 13 | ENG Chandoeun   | M | GGG | Gadjah Mada University  | Attending International conference and Collaboration discussion  | 11 → 17/9/2024          | Slef-Financial                                   |
| 14 | HAN Virak       | M | GCI | Université de Liège   | Project Amorce d'amélioration de produits routières  | 25/8/2024 → 1/9/2024    | ARES-Amorce                                      |
| 15 | HAN Virak       | M | GCI | Techtich University Lubeck  | Project ReBuMat  | 1 → 8/9/2024            | ARES-Amorce                                      |
| 16 | HEANG Latin     | M | GIM | Thailand Institute of Science and Technologies Research (TISTR)             | Renewable Energy Technologies and Knowledge Transfer for Strengthening and Achieving ASEAN's Sustainable Development Goals | 20/01/2025 → 07/02/2025 | Thailand International Cooperation Agency (TICA) |
| 17 | HEANG Latin     | M | GIM | ZHEJIANG UNIVERSITY, China  | Training   | 27/10/2024 → 10/11/2024 | ZHEJIANG UNIVERSITY                              |
| 18 | HEL Chanthan    | M | GTR | Chitose Institute of Science and Technology, Japan                          | Sakura Science Exchange Program  | 13 → 20/2/2025          | Sakura Science Exchange Program                  |
| 19 | HENG Sokchhay   | M | GRU | FAO and Ministry of Agriculture and Cooperatives, the Royal Thai Government | International Soil and Water Forum   | 9 → 11/12/2024          | FAO  |
| 20 | HIN Raveth      | M | GS  | Université de Liège   | Formation pédagogique  | 17/9/2024 → 5/10/2024   | ARES-AI 2022-2027                                |
| 21 | HOEURN Seanghai | F | GCA | Indonesia   | Project kick off meeting   | 30/9/2024 → 4/10/2024   | SEARUFF project                                  |
| 22 | HOK Tin         | M | GIC | Korea Advanced Institute of Science & Technology (KAIST), South Korea       | ANLab research visit   | 08/09/2024 → 05/10/2024 | KAIST Professor                                  |
| 23 | IN Sokneang     | F | GCA | Indonesia   | Project kick off meeting   | 30/9/2024 → 4/10/2024   | SEARUFF project                                  |
| 24 | IN Sokneang     | F | GCA | UNIDO headquarter, Vienna, Austria  | Vienna Sustainable Food Packaging ConFex conference  | 9 → 11/10/2024          | Capfish-Project                                  |



|    |                 |   |     |   |  |                         |  |
|----|-----------------|---|-----|---|--|-------------------------|--|
| 25 | KAING Sainglong | M | GGG |   |  |                         |  |
| 26 | KAN Kuchvichea  | M | GCI | Université de Liège   | Project Amorce d'amélioration de produits routières  | 25/8/2024 → 1/9/2024    | ARES-Amorce                                      |
| 27 | KEAN Jeudy      | M | GTR | Chitose Institute of Science and Technology, Japan              | Sakura Science Exchange Program  | 13 → 20/2/2025          | Sakura Science Exchange Program                  |
| 28 | KHON Kimsrornn  | M | GS  | Université Grenoble Alpes                                       | Platform for Research and Training on the Power System   | 23 → 29/9/2024          | AFD-EU   |
| 29 | KHON Kimsrornn  | M | GS  | Fulbright University Vietnam                                    | YSEALI Academy Public Policy Seminar   | 18 → 22/11/2024         | YSEALI Fulbright 2024                            |
| 30 | LAY Heng        | M | GIC | Instituto Superior Técnico                                      | DX.SEA project meeting   | 18 → 25/02/2025         | Erasmust+ DXSEA                                  |
| 31 | LIM Sovanvichet | M | GCI | Université Rennes   | Training mobility  | 27/1/2025 → 8/2/2025    | Erasmus  |
| 32 | LY Soheng       | M | GIM | Thailand Institute of Science and Technologies Research (TISTR) | Renewable Technologies and Knowledge Transfer  | 20/01/2024 → 07/02/2025 | Thailand International Cooperation Agency (TICA) |
| 33 | MUON Ratha      | F | GRU | IRD in Bondy and Marseille                                      | To analyze the samples in the lab in Bondy, and participate to Trophées de l'innovation 2024 (and the phase 2 coaching of the Trophées de l'innovation) in Marseille | 30/8/2024 → 12/10/2024  | IRD  |
| 34 | OENG Kechki     | F | GEE | Fukui University  | Sakura Science visiting  | 8/9/2024 → 14/9/2024    | <u>Sakura Science Exchange Program</u>           |
| 35 | PENG Chanthol   | F | GCA | Kanazawa University   | Research/Training  | 27/10/2024 → 9/11/2024  | SATREPS-Air                                      |
| 36 | PHUN Vengkheang | M | GTI | University of South California                                  | US-ASEAN Smart Mobility Program  | 12 → 20/9/2024          | US DOT   |

|    |                 |   |     |  |  |                       |                             |
|----|-----------------|---|-----|--|--|-----------------------|-----------------------------|
| 37 | PHUN Vengkheang | M | GTI | Toronto Metropolitan University (TMU)        | MOU discussion and signature between ITC and TMU   | 10 → 25/10/2024       | US DOT                      |
| 38 | PHUOY Lyheng    | M | GIM | ITE, Singapore                               | Makerspace training workshop   | 9 → 13/12/2024        | ADB (S4C program)           |
| 39 | SANG Davin      | F | GRU | Flinders University, South Australia         | Unlocking Mekong Region's Hidden Groundwater Potential through Collaboratin and Capacity Building (Mekong) | 11 → 29/11/2024       | Australia Government (DFAT) |
| 40 | SAO Sochan      | F | GRU | Kanazawa University, Japa                    | Short training on air quality monitoring (Data analysis and Particulate matter monitoring)                 | 26/10/2024→10/11/2024 | JICA                        |
| 41 | SAO Sochan      | F | GRU | Soils and Fertilizers Institute, Vietnam     | Soil organic matter and CO2 training and analysis  | 1→15/12/2024          | IRD                         |
| 42 | SAO Sochan      | F | GRU | JICA office in Nagoya, Japan                 | Short training on air quality monitoring (Chemical analysis)   | 18 → 28/1/2025        | JICA                        |
| 43 | SEAK Leng       | F | GIC | National University of Laos, Lao             | DXSEA ToT  | 04 → 08/11/2024       | Erasmust+ DXSEA             |
| 44 | SIM Tepmony     | M | GS  | University of Thessaly, Greece               | Smart Cities ASEAN Learning Network (SCALE)  | 17 → 21/4/2025        | Erasmus+ Program            |
| 45 | SONG Layheang   | M | GRU | Korea International Water Week (KIWW), Korea | 2024 Korea International Water Week (KIWW) Technology, Implementation, Policy (TIP) Platform Session       | 13 → 15/11/2024       | K-Water                     |
| 46 | SONG Layheang   | M | GRU | IRD in Laos                                  | Comité de Pilotage Stratégique et Scientifique   | 17 → 20/11/2024       | IRD                         |
| 47 | SONG Layheang   | M | GRU | KOMEK, Korea                                 | Structured Learning Visit on Exploring Best Practices for Water Resources Management in Korea              | 24 → 30/11/2024       | K-Water                     |

|    |                |   |     |   |  |                      |   |
|----|----------------|---|-----|---|--|----------------------|---|
| 48 | SROY Sengly    | F | GCA | L'Institute Agro Montpellier                      | Training on sensory evaluation of dried fish powder  | 3 → 13/5/2024        | PHC Tonle Sap Project   |
| 49 | SRY Vannei     | M | GIM | Korean Agency for Technology and Standards (KATS) | Cooperation on standards area between Korea and ASEAN  | 26 → 29/11/2024      | Korean Agency for Technology and Standards                        |
| 50 | SUM Rithea     | M | GEE | Fukui University                                  | Sakura Science visiting  | 8/9/2024 → 14/9/2024 | <u>Sakura Science Exchange Program</u>                            |
| 51 | SUONG Malyna   | F | GCA | Institut de Recherche pour le Développement (IRD) | Project closure  | 12 → 21/10/2024      | Plant Health Project  |
| 52 | TAN Reasmey    | F | GCA | Northern Crops Institute, North Dakota USA        | NCI INTSOY Short Course  | 12 → 16 /08/2024     | American Soybean Association                                      |
| 53 | TAN Reasmey    | F | GCA | University of Liege, Belgium                      | Mentorship Program on Food Processing  | 23/11/24 → 1/12/2024 | ARES Institutional Support  |
| 54 | THENG Vouchlay | F | GRU | World Bank, Vietnam                               | Inception Workshop and Exchange Visit in Viet Nam Options for conserving and restoring forests to mitigate floods and improve water services | 9 → 13/12/2024       | World Bank  |
| 55 | THENG Vouchlay | F | GRU | UNDP-Indonesia                                    | ASEAN Blue Innovation Challenge Expo and Business Matching   | 17 → 21/2/2025       | UNDP-Indonesia  |
| 56 | VAI Vannak     | M | GEE | Washington State University (WSU)                 | U.S.-ASEAN Visiting Scholar  | 1/1/2025 → 30/4/2025 | <u>Fulbright U.S.-ASEAN Visiting Scholar Initiative – FY 2025</u> |
| 57 | VALY Dona      | M | GIC | Instituto Superior Técnico                        | DX.SEA project meeting   | 04 → 08/11/2024      | Erasmust+ DXSEA   |
| 58 | VALY Dona      | M | GIC | National University of Laos, Lao                  | DXSEA ToT  | 04 → 08/11/2024      | Erasmust+ DXSEA   |

|    |                        |   |     |                                     |  |                     |  |
|----|------------------------|---|-----|-------------------------------------|--|---------------------|--|
| 59 | VONGCHANH<br>Kinnalesh | F | GIM | National University of Laos         | Lab Base Education<br>Implementation   | 24 → 24/09/2024     | Self-funded                                      |
| 60 | VONGCHANH<br>Kinnalesh | F | GIM | National University of<br>Singapore | 1st GHHIN Southeast Asia Heat<br>Health Forum  | 7 → 10/01/2025      | 1st GHHIN Southeast<br>Asia Heat Health<br>Forum |
| 61 | VONGCHANH<br>Kinnalesh | F | GIM | ESCAP, Thailand                     | PROMOTING PASSIVE<br>COOLING STRATEGIES IN<br>BUILDING SECTOR POLICY<br>AND PRACTICE | 15 → 16/08/2024     | ESCAP  |
| 62 | YANG Panha             | F | GTI | Université de Liège                 | Project Amorce d'amélioration<br>de produits routières                               | 27/8/2024→3/10/2024 | ARES-Amorce                                      |

**Annex 14. Short-term overseas capacity building for students (2024-2025).**

| <b>No</b> | <b>Nom et prénom</b> | <b>Sexe</b> | <b>Dépt.</b> | <b>Université d'accueil</b>                       | <b>Pays</b> | <b>Titre</b>                           | <b>Date de mission</b> | <b>Financement</b>              |
|-----------|----------------------|-------------|--------------|---|-------------|--|------------------------|---------------------------------|
| 1         | MOT Teng             | M           | GEE          | Fukui University                                  | Japon       | Sakura Science visiting                | 10-9-2024 → 14-9-2024  | Sakura Science Exchange Program |
| 2         | NGOUN Kimly          | F           | GEE          | Fukui University                                  | Japon       | Sakura Science visiting                | 8-9-2024 → 14-9-2024   | Sakura Science Exchange Program |
| 3         | TIV Dararith         | M           | GEE          | Fukui University                                  | Japon       | Sakura Science visiting                | 9-9-2024 → 14-9-2024   | Sakura Science Exchange Program |
| 4         | CHHEANG Sreykhouch   | F           | GGG          | Kyushu University                                 | Japon       | Internship and International Symposium | 22-11-2024 → 8-12-2024 | JASSO Scholarship               |
| 5         | CHIN Kav             | M           | GGG          | Kanazawa University                               | Japon       | Sakura Science Program                 | 25-8-2024 → 31-8-2024  | Sakura Science Exchange Program |
| 6         | CHIN Kav             | M           | GGG          | Kyushu University                                 | Japon       | Internship and International Symposium | 22-11-2024 → 8-12-2024 | JASSO Scholarship               |
| 7         | MEACH Vibolreach     | M           | GGG          | Kyushu University                                 | Japon       | Internship and International Symposium | 22-11-2024 → 8-12-2024 | JASSO Scholarship               |
| 8         | NI Sokmeng           | M           | GGG          | Kyushu University                                 | Japon       | Internship and International Symposium | 22-11-2024 → 8-12-2024 | JASSO Scholarship               |
| 9         | RONG Phary           | F           | GGG          | Kyushu University                                 | Japon       | Internship and International Symposium | 22-11-2024 → 8-12-2024 | JASSO Scholarship               |
| 10        | CHAB SREYLEN         | M           | GIC          | Daegu Gyeongbuk Institute of Science & Technology | Corée       | Internship                             | 26-6-2024 → 26-7-2024  | DGIST                           |

|    |                 |   |     |  |           |  |                        |  |
|----|-----------------|---|-----|--|-----------|--|------------------------|--|
| 11 | EM Hengly       | F | GIC | UMONS  | Belgique  | Internship   | 8-4-2024 → 1-7-2024    | ARES                                     |
| 12 | Hok Sochetra    | M | GIC | Denso  | Thaïlande | Internship   | 27-1-2025 → 7-3-2025   | Denso                                    |
| 13 | KHY Punnreay    | M | GIC | National Chung Cheng University                          | Taiwan    | Internship   | 26-2-2024 → 28-6-2024  | National Chung Cheng University          |
| 14 | SONG Selasak    | M | GIC | Université de Namur                                      | Belgique  | Internship   | 4-4-2024 → 4-7-2024    | Erasmus+ International Credit Mobility   |
| 15 | VEASNA Dara     | M | GIC | Danang   | Vietnam   | Training on Web3   | 26-9-2024 → 29/9/2024  | Self-funded                              |
| 16 | YEN Oudom       | M | GIC | Université de Namur                                      | Belgique  | Internship   | 7-4-2024 → 7-7-2024    | Erasmus+ International Credit Mobility   |
| 17 | EL Danin        | M | GIM | ECAM LaSalle   | France    | One semester exchange                                      | 23-9-2024 → 24-01-2025 | Support by ECAM LaSalle                  |
| 18 | HONG Nitmonika  | F | GIM | ECAM LaSalle   | France    | One semester exchange                                      | 23-9-2024 → 24-01-2025 | Support by ECAM LaSalle                  |
| 19 | LAY Chaing Zeu  | M | GIM | ECAM LaSalle   | France    | One semester exchange                                      | 23-9-2024 → 24-01-2025 | Support by ECAM LaSalle                  |
| 20 | SIM Sokhuy      | M | GIM | ECAM LaSalle   | France    | One semester exchange                                      | 23-9-2024 → 24-01-2025 | Support by ECAM LaSalle                  |
| 21 | SRONG Ougy      | M | GIM | ECAM LaSalle   | France    | One semester exchange                                      | 23-9-2024 → 24-01-2025 | Support by ECAM LaSalle                  |
| 22 | DOEM Chomrung   | M | GRU | Institute of Urban Agriculture                           | Chine     | Internship program   | 1-7-2024 → 30-10-2024  | Chinese Academy of Agricultural Sciences |
| 23 | HENG Chanmonida | F | GRU | King Mongkut's University of Technology Thonburi (KMUTT) | Thaïlande | Asian International Mobility for Students (AIMS) Programme | 28-7-2024 → 20-12-2024 | MoEYS of Cambodia                        |
| 24 | KRY Sokleap     | F | GRU | University of Yamanashi                                  | Japon     | International Water Research Exchange Program              | 20-8-2024 → 28-8-2024  | Sakura Science Exchange Program          |

|    |                   |   |     |  |        |   |                       |  |
|----|-------------------|---|-----|--|--------|---|-----------------------|--|
| 25 | LEACH Chanvisarna | F | GRU | Institute of Urban Agriculture               | Chine  | Internship program                            | 1-7-2024 → 30-10-2024 | Chinese Academy of Agricultural Sciences |
| 26 | LIM Monika        | F | GRU | Institute of Urban Agriculture               | Chine  | Internship program                            | 1-7-2024 → 30-10-2024 | Chinese Academy of Agricultural Sciences |
| 27 | MEACH Rachana     | F | GRU | Institute of Urban Agriculture               | Chine  | Internship program                            | 1-7-2024 → 30-10-2024 | Chinese Academy of Agricultural Sciences |
| 28 | OL Somphors       | F | GRU | University of Yamanashi                      | Japon  | International Water Research Exchange Program | 20-8-2024 → 28-8-2024 | Sakura Science Exchange Program          |
| 29 | SAMAI Sany        | F | GRU | University of Yamanashi                      | Japon  | International Water Research Exchange Program | 20-8-2024 → 28-8-2024 | Sakura Science Exchange Program          |
| 30 | SEANG Vanaeth     | F | GRU | Institute of Urban Agriculture               | Chine  | Internship program                            | 1-7-2024 → 30-10-2024 | Chinese Academy of Agricultural Sciences |
| 31 | CHHEANG Seavpao   | M | GS  | INSA Rennes                                  | France | Internship                                    | 28-1-2025 → 30-6-2025 | Erasmus+                                 |
| 32 | HAN Malin         | F | GS  | Grenoble INP-UGA (Université Grenoble Alpes) | France | Internship                                    | 1-3-2025 → 31-8-2025  | EDC-AFD-EU                               |
| 33 | MEAS Samrith      | M | GS  | INSA Rennes                                  | France | Internship                                    | 28-1-2025 → 30-6-2025 | Erasmus+                                 |
| 34 | OEUN Monioudom    | M | GS  | Grenoble INP-UGA (Université Grenoble Alpes) | France | Internship                                    | 1-3-2025 → 31-8-2025  | EDC-AFD-EU                               |
| 35 | SVAY Monineath    | F | GS  | INSA Rennes                                  | France | Internship                                    | 28-1-2025 → 30-6-2025 | Erasmus+                                 |
| 36 | PAK Sori          | M | GTR | Chitose Institute of Science and Technology  | Japon  | Sakura Science Exchange Program               | 13-2-2025 → 20-2-2025 | Sakura Science Exchange Program          |

**Annex 15. Dispatch Professor at ITC (2024-2025).**

| <b>No</b> |     | <b>Nom et prénom</b>     | <b>Université d'origine</b>             | <b>Matière enseignée</b>                                    | <b>Date</b>             | <b>Départ. d'accueil</b> |
|-----------|-----|--------------------------|---|---|-------------------------|--------------------------|
| 1         | M.  | Pierre Leclercq          | Université de Liège                     | Architecture  | 11-01-2025 → 15-01-2025 | GAR                      |
| 2         | Mme | Samia Rajeb Ben          | Université Libre de Bruxelles           | Architecture  | 11-01-2025 → 15-01-2025 | GAR                      |
| 3         | M.  | Robin Hublart            | ARES                                    | Architecture  | 11-01-2025 → 15-01-2025 | GAR                      |
| 4         | M.  | Makara Long              | Université de Liège                     | Ingénierie architecturale                                   | 11-01-2025 → 15-01-2025 | GAR                      |
| 5         | M.  | Kimnenh TAING            | Université de Liège                     | Ingénierie architecturale                                   | 11-01-2025 → 15-01-2025 | GAR                      |
| 6         | M.  | Keh-Jian Shou            | National Chung-hsing University, Taiwan | Landslide Hazard with the Impact of Climate Change          | 04-07-2024              | GGG                      |
| 7         | M.  | Shahab Yasrebi           | Geomaple Geotechnics Inc., Canada       | Innovative Urban Tunnelling and Deep Excavation Techniques  | 22-11-2024              | GGG                      |
| 8         | M.  | Engr. Arnaldo C. Gagula  | Caraga State University, Philippines    | Remote Sensing  | 17-12-2024              | GGG                      |
| 9         | M.  | Nichole Anthony D. Pacle | Caraga State University, Philippines    | GIS   | 17-12-2024              | GGG                      |
| 10        | M.  | Shin Kato                | Japan                                   | Water Supply  | 26-12-2024              | GRU                      |
| 11        | M.  | Bill Young               | Australia                               | Water Scarcity  | 15-01-2025              | GRU                      |
| 12        | M.  | Paul Baudron             | France                                  | Hydro-geochemistry  | 01-09-2023 → 31-07-2025 | GRU                      |
| 13        | M.  | Sylvain Massuel          | France                                  | Hydrogeology  | 19-02-2025 → 05-03-2025 | GRU                      |
| 14        | M.  | Pascal Jouquet           | France                                  | Soil Science  | 01-05-2022 → 31-08-2026 | GRU                      |
| 15        | M.  | Bertrand RAISON          | Université Grenoble Alpes               | Electrical Power System                                     | 10-12-2024 → 15-12-24   | GS                       |
| 16        | M.  | Christophe BOBINEAU      | Université Grenoble Alpes               | Introduction of the application of the IT in the smart grid | 05-11-2025              | GS                       |



## **Annex 16. Detail information on research vision, mission, research interests of ETM Unit.**

### **Cambodian Context**

Cambodia has sustained an impressive average annual economic growth. To ensure enduring and inclusive growth, the nation has embarked on a path to promote industrial development, aiming to foster economic diversification, bolster competitiveness, and enhance productivity. Consequently, there has been a notable surge in energy demand and consumption.

In pursuit of sustainable development, ensuring energy security holds paramount importance, necessitating the expansion of energy sector infrastructure and the development of human resources to keep pace with socio-economic progress. The Rectangular Strategy-Phase IV has underscored one of the lingering challenges in diversification and value creation in the industry and service sectors: high energy prices (electricity rates) compared to neighbouring countries.

However, the landscape is evolving. Until recently, the cost of renewable energy has witnessed a remarkable decline, particularly in solar photovoltaic and onshore wind energy technologies. Expanding the share of renewables in Cambodia's energy mix, alongside diversification and utilization of locally available resources, and the adoption of energy efficiency and conservation measures, will be pivotal for the advancement of the energy sector in the country. In this context, innovations in the energy sector, including solar and wind energy, alongside initiatives like turning waste into warmth and energy efficiency enhancements in distribution systems through the integration of energy management systems and trading, conventional oil, gas and rare earth element exploration, present promising avenues for sustainable development and economic growth.

### **The Research Unit**

The research unit, specializing in energy technology and energy management, boasts internationally recognized expertise in specific fields relevant to Cambodian requirements. This expertise contributes significantly to the exploration of conventional energy resources, as well as the advancement of new and renewable energy sources and energy efficiency and conservation efforts. This is achieved through extensive research, collaborations with international partners, private sectors, and pertinent government agencies, and the cultivation of skilled human resources.

The areas of research and collaboration prioritized by the unit encompass a wide range of topics, including but not limited to biomass and agricultural waste conversion for energy production, solar photovoltaic and thermal energy systems, wind energy technologies, innovative smart grid solutions, micro-grid development for remote areas, energy consumption measurement and analysis methodologies, energy management systems, simulation of large-scale energy systems, and exploration of conventional energy resources.

### **Vision**

To be leading contributor in supporting national energy security through research and innovation, knowledge creation and technology transfer with focus on energy sources diversification, efficient use of energy and environmental friendliness.

### **Mission**

- Producing competent human resources in energy related fields.

- Conducting research in new and renewable energy, energy conversion and recovery, energy conservation, saving and management, and exploration of conventional energy resources to address local and regional issues.
- Closely collaborating with related Ministries, national and international partners and private sectors.
- Disseminate research findings and transfer technologies to the society

## Research Themes

The multidisciplinary team addresses scientific issues in the following sectors:

- New and Renewable Energy: Biomass, Solar PV, Solar PV/T, and Wind Turbine with a focus on design and modelling of processes, fuel and emissions measurements, lab and pilot scale equipment.
- Energy Efficiency and Conservation: Heat recovery, Waste to energy, thermal systems optimization, energy consumption measurement and modelling.
- Smart grid: connexion from renewable sources and optimization of grid electricity distribution and micro-grid for remote areas.
- Energy Management: energy management system, modelling and optimization of large energy systems.

Exploration of conventional energy resources: depositional environment and reservoir characterization, mapping of hydrothermal alteration related base metal deposits, geological mapping and investigation of hydrocarbon potential.

## Researchers

### Senior researchers (11M, 2F)

Dr. KRET Kakda, (Head of ETM Research Unit), Ph.D in Geophysics, Kyushu University, Japan  
*Geophysical exploration (seismic, magnetic, electrical and resistivity methods), Oil and Gas Exploration, remote sensing and GIS, economic geology.*

Dr. OR Chanmoly (Director of RIC), Ph.D. in Petroleum Production Engineering, Kyushu University, Japan  
*Enhanced oil recovery; reservoir engineering; CO<sub>2</sub> sequestration; biomass to energy*

Dr. CHAN Sarin (Head of Industrial and Mechanical Engineering Department), Ph.D. in Engineering, Institute of Technology Bandung, Indonesia and Keio University, Japan  
*Renewable energy, waste heat recovery and heat-activated cooling system*

Dr. AM Sokchea, Ph.D in Energy Engineering, France  
*Energy Power System*

Dr. BUN Long, Ph.D. in Electrical Engineering, INP Grenoble, France  
*Power system, renewable energy system, fault diagnosis*

Dr. CHRIN Phok, Ph.D. in Electrical Engineering, Université Paul Sabatier, Toulouse, France  
*Renewable energy, frugal engineering, asynchronous generator*

Dr. VAI Vannak, Ph.D. in Electrical Engineering, Université Grenoble Alpes, France  
*Power distribution system planning, Rural electrification, Optimization*

Dr. KIM Bunthern, Ph.D in Electrical and Electronics Engineering, Toulouse INP, France  
*Control systems, Renewable energy, Robotics*

Dr. ENG Chandoeun (Head of Faculty of Geo-resources and Geotechnical Engineering), Ph.D. in Geophysics, Kyushu University, Japan  
*Geophysical exploration, Economic geology, Oil and Gas Exploration*

Dr. KHON Kinsornn (Head of Master program, ETM Research Unit), Ph.D., Power system, University of Toulouse III.  
*Power System, Microgrid, Optimization, Planning*

Dr. CHHLONH Chhith, University Grenoble Alpes (UGA), France  
*Fault detection, reconfiguration, restoration, load balancing on LV system, Renewable Energy*

Dr. SIO Sreymean, Petroleum Geology, ITC  
*Petroleum Geology, Mineral and Petroleum Exploration, Characteristic of Mineral Deposit and Petroleum System*

Dr. PECH Sopheap, Vice-Head of Faculty of Geo-resources and Geotechnical Engineering, ITC.  
*Petroleum geology*

#### **Lecturer-researcher (1M, 1F)**

Dr. VONGCHANH Kinnaeth, Ph.D. Institute of Technology Bandung (ITB) and Hokkaido University (HU)  
*Energy Efficiency, Renewable energy, Biomass energy, Drying, Heat Stress*

Mr. EAM Dara, master's in electrical and Energy Engineering, Institute of Technology of Cambodia.

#### **Fulltime-researcher (3M, 1F)**

Mr. ETH Udaya, Master degree, Chulalongkorn University, Thailand  
*Renewable energy, Power system analysis, Energy efficiency, Rural electrification, control system*

Mr. Heang Latin, Master degree, Institute of Technology of Cambodia  
*Biomass to energy, Mechanical design, Heat Stress*

Mr Sorn Darong, Université Grenoble Alpes (UGA), Ph.D candidate, Institut Teknologi Sepuluh November (ITS). *Distribution Management System, Renewable Energy Micro grid planning & Energy Storage, Distribution automation & Real time monitoring system*

Mrs Eng Samphors, Ph.D candidate, Université de Mons, *Distribution Management System, Renewable Energy Micro grid planning & Energy Storage, Distribution automation & Real time monitoring system*

#### **Academic and Research Partners**

Universiti Teknologi Malaysia (UTM)  
University of Liège  
Université Claude Bernard Lyon 1  
Kyoto University (KU)  
Université Grenoble Alpes (UGA)  
Kyushu University  
National University of Singapore (NUS)

The Hong Kong Polytechnic University (PolyU),  
Kyoto University (KU)

### **Non-academic partners**

Ministry of Mines and Energy, Cambodia  
Ministry of Education, Youth and Sports, Cambodia  
Ministry of Industry, Science, Technology and Innovation, Cambodia  
Cambodian Climate Change Alliance  
APSARA Authority  
The Energy Conservation Center Japan (ECCJ)  
Asean Center of Energy (ACE)  
JICA  
G2Elab

### **Industrial Partners and NGOs**

Electricité du Cambodge  
GERES  
ORBIT P. A Co.,Ltd  
Health & Environment International Trust (HEIT)  
Institut Francais pour la Performance du Batiment (IFPEB)  
EnergyLab  
GGGI  
ATS  
Sevea Consulting  
EnerCam Co.,Ltd  
Samnang Angkor Development Co Ltd  
IMECS (CAMBODIA) CO.,LTD  
SMEs involved in Solar Energy development  
Angkor Resources Corp  
Matlab Co., LTD  
Renaissance Minerals (Cambodia) Limited  
UNDP

### **Publications of ETM researchers for the last 5 academic years**

From 2020-2021 to 2024-2025, there are in total **121 research outputs** from ETM unit classified into three categories: Index publications, non-index publications, and Conferences as shown in the Table 6.

Table 6: Summary of number of publications in the last 5 years.

| <b>Publication classification/year</b> | <b>2024-2025</b> | <b>2023-2024</b> | <b>2022-2023</b> | <b>2021-2022</b> | <b>2020-2021</b> | <b>Total</b> |
|--|------------------|------------------|------------------|------------------|------------------|--------------|
| Index publications                     | 1                | 18               | 3                | 14               | 11               | <b>47</b>    |
| Non-index publications                 | 0                | 2                | 0                | 0                | 2                | <b>4</b>     |
| Conferences                            | 5                | 19               | 37               | 5                | 4                | <b>70</b>    |
| <b>Total</b>                           | <b>6</b>         | <b>39</b>        | <b>40</b>        | <b>19</b>        | <b>17</b>        | <b>121</b>   |

## **Annex 17. Detail information on research vision, mission, research interests of FTN Unit.**

### **Cambodian Context**

Although Cambodia is still mainly a rural country with 58% of the population being farmers, the processing of agricultural products is generally family-based or within informal industrial structures, with a low added value and a low level of technology, thus limiting their ability to compete in international markets. Only 10% of the industrial workers are in the food-beverage sector, a great majority (97%) of them working in micro-enterprises with no foreign investment. Besides the need of training technicians and engineers with a focus on agricultural products transformation and quality control, research centres with high level faculty staff are needed to do research on food processes, develop original and innovative products adapted to Cambodian tastes and habits (dry or fermented products), and assist the growing industrial sector in the quality and safety assessment of the food chain.

### **The Research Unit**

The research unit Food Technology and Nutrition is established to enhance the development of food and beverage industries in Cambodia through cost-effective collaborative research and innovation programs between a diverse range of economic partners and the researchers of the Institute of Technology of Cambodia. The Research Unit promotes technical platforms and research projects to support the sectors of food and feed processing, food storage and preservation, and innovative products from agriculture and forestry. Other aspects as product design, cost-effectiveness, waste and by-products minimization, energy consumption reduction or valorisation of Cambodian biodiversity are also studied in the Research Unit. The main goal of this unit is to become a reliable center for research, training and consultancy services in food processing improvement, food fermentation, food product development and innovation, value addition of agricultural products, food nutrition, food safety, food quality analyses and food preservation in order to sustain the development of Cambodia.

### **Vision**

To be an excellent unit for research, innovation, training and consultancy services in the field of food science and technology contributing to sustainable development of Cambodia.

### **Mission**

- To increase the visibility of FTN research unit by strengthening researchers' capacity in food related fields to be nationally and regionally recognized
- To create standardized laboratories for research and hall technology for pilot scale
- To boost the research activities through local and international collaborations (Universities, Government, SMEs, NGOs)
- To promote prototyping and technology transfer; and to provide training and consultancy services to food industries and relevant stakeholders
- To disseminate scientific outputs through national and international publications and scientific events

### **Research Theme**

1. Drying technology
2. Biotechnology (fermentation, microbiology, plant)

3. Extrusion technology
4. Extraction and purification technology
5. Beverage technology
6. Food product development and innovation
7. Food safety and shelf life improvement
8. Food composition and food contaminant analysis

## Researchers

### **Senior researcher (0M, 10F)**

Dr. PHAT Chanvorleak (Head of FTN Research Unit), Ph.D in Food Chemistry, Chung-Ang University, Anseong, South Korea

*Food chemistry, Food Contaminant Analysis, Agrochemical Analysis, Mycotoxin Analysis*

Dr. TAN Reasmey (Deputy Director of RIC), Ph.D in Bioengineering, Tokyo Institute of Technology, Japan

*Food Biotechnology (Vegetable and cereal fermentation), Food Product Development and Innovation, Food and Water Microbiology, Anaerobic Digestion*

Dr. IN Sokneang (Dean of Faculty of Chemical and Food Engineering), Ph.D in Science and Processes of Food and Bio-products, AgroParisTech, Paris, France

*Food Safety and Risk Assessment, Nutrition, Food Processing*

Dr. HOR Sivmey (Vice-Dean of Faculty of Chemical and Food Engineering), Ph.D in Biochemical and Physicochemical of Food, SupAgro Montpellier, France

*Post-harvest Quality, Transformation of Tropical Fruits*

Dr. HOUNG Peany, Ph.D in Chemical Science and Engineering, Tokyo Institute of Technology, Japan

*Chemical Engineering*

Dr. EK Pickmony, Ph.D. in Food Science, Washington State University, USA

*Food Analysis, Cereal Science, Extrusion, Food ingredients, Food Quality, Starch, Biopolymers, Carbohydrates, Plant Proteins*

Dr. SROY Sengly, Ph.D in Nutrition and Food Science, Montpellier SupAgro University, France

*Food Nutrition, Food Processing and Food Development*

Dr. MORM Elen, Ph.D in Chemical Engineering (Transfer, Interfaces and Processing), Free University of Brussels, Belgium

*Drying of Agricultural Crops and Herbal, Bioethanol*

Dr. PHUONG Heangsim, PhD in Processing Engineering, University of Nantes, France

*Enzymes, Enzyme Activity, Biomass, Sugar, Proteins, Carbohydrate Biochemistry*

Ms. YIN Molika, Ph.D in Food Science and Nutrition, Institute Agro/SupAgro Montpellier, France

*Food Product Development and Sensory Evaluation*

### **Lecturer-Researcher (3M, 3F)**

Dr. MITH Hasika, Ph.D in Food Science, Université de Liège, Belgium.

*Plant's Essential Oils/Extracts, Antimicrobials, Antioxidants, Food Microbiology, Food Preservation and Processing, Agro-Food Industry Management*

Dr. YO Eun Sereyvath, Ph.D in Science, Chonnam National University, South Korea  
*Biotechnology, Organic Compounds Analysis (Pesticides and others)*

Dr. SUONG Malyna, Ph.D in Bioengineering, University of Montpellier, France  
*Plant Biodiversity, Microbiology, Genetic Engineering*

Ms. NAT Yukleav, Master in Chemical Engineering, Sirindhorn International Institute of Technology, Thammasat University, Thailand  
*Chemical Engineering*

Mr. HENG Oudam, Master of Biotechnology, Royal Melbourne Institute of Technology (RMIT) University, Australia  
*Genetics and proteomic technology, Next generation sequencing*

Ms. THENG Sokuntheary, Master of Sciences in Microbiology, Montana State University, Bozeman, MT, USA  
*Bacterial cell culture, Protein purification, Cloning, Data analysis*

***Full-time researchers (3M, 7F)***

Ms. CHIN Lyda, Master in Agro-Industrial Product Development, Kasetsart University, Thailand  
*Food processing, Food product development*

Mrs. THANH Channmuny, Master in Health and Food Science, University of Montpellier, France  
*Food science, Food microorganism*

Ms. PHAL Sivchheng, Master in Environment Design, Kanazawa University, Japan  
*Environmental Design*

Mr. LY Luka, Master in Agro-Industrial, Institute of technology of Cambodia, Cambodia  
*Food processing, Quality control*

Mr. SAY Manith, Master of Science in Food Technology, Khon Kaen University, Thailand  
*Snacks production, Frying process*

Ms. OEUM Kakada, Master of Science in Basic Science, Chungnam National University, South Korea  
*Cell Biology, Microbiology, Cancer Biology, Cell cycle, Immunology, and Entomology*

Ms. MAO Socheata, Master in AgroFood Chain, UMR LEREPS/ENSFEA, France  
*Volatile compound analysis*

Mrs. MOM Vattana, Master in Food Science, Kasetsart University, Thailand  
*Food processing, Food product development*

Mr. LAY Sovannmony, Master in Chemical Engineering, De la Salle University, Philippines  
*Extraction*

Ms. SIENG Sreyvich, Master in Chemical Engineering, Gadjah Mada University, Indonesia  
*Chemical Engineering*

### **Academic and Research Partners**

Tokyo Institute of Technology, Japan  
Yamagata University, Japan  
Université de Liège, Belgium  
Université de Bruxelles, Belgium  
SupAgro-Montpellier, France  
AgroSup-Dijon, France  
Polytech Lille, France  
Institut National Polytechnique de Toulouse (INP Toulouse), France  
French Agricultural Research Centre for International Development (CIRAD), France  
Institut de recherche pour le développement (IRD), France  
Aix-Marseille Université, France  
Université Claude Bernard Lyon 1, France  
Kasetsart University, Thailand  
Hanoi University of Science and Technology (HUST), Vietnam  
Chung-Ang University, South Korea  
Chonnam National University, South Korea

### **Non-academic partners**

Ministry of Education, Youth and Sports, Cambodia  
Ministry of Industry and Handicraft, Cambodia  
Ministry of Commerce, Cambodia  
General Secretariat of the National Science and Technology Council, Ministry of Planning  
National Productivity Centre of Cambodia (NPCC), Cambodia  
Ministry of Environment, Cambodia  
Tonle Sap Authority, Cambodia  
Department of Agro-industry, Ministry of Agriculture, Forestry and Fisheries, Cambodia  
Ministry of Rural Development, Cambodia

### **Industrial Partners and NGOs**

LyLy Company Co. Ltd  
Cambodia Brewery Limited  
Baca-Villa Productions Co Ltd  
Cambodia Beverages Company  
Mee Chiet  
Eche Ngov Heng Food Production of Kampot Co., Ltd  
Kang Sosedra Enterprise  
Phnom Penh Safe Food  
Healthy Food Enterprise  
Dara Food Enterprise  
DKSH  
Indochina Rice Mill Limited  
Food Enterprise  
Confirel  
Golden Silk  
Rosmeric Paper



Chaktomuk Pest Services Co., Ltd (Orkin Cambodia)  
 Ringacam  
 Khmer Fresh Milk Co., Ltd  
 Bodia Spa  
 Aprati Foods (Cambodia) Ltd

### **Publications of FTN researchers for the last 5 academic years**

For the last 5 academic years, there are in total 163 research outputs from FTN unit classified into three categories: Index publications, Non-index publications, and Conferences as shown in the Table 7 below.

Table 7: Summary of number of publications in last 5 years

| <b>Publication classification/year</b> | <b>2024-2025</b> | <b>2023-2024</b> | <b>2022-2023</b> | <b>2021-2022</b> | <b>2020-2021</b> | <b>Total</b> |
|--|------------------|------------------|------------------|------------------|------------------|--------------|
| Index publications                     | 5                | 14               | 14               | 8                | 7                | <b>48</b>    |
| Non-index publications                 | 3                | 4                | 6                | 7                | 14               | <b>34</b>    |
| Conferences                            | 23               | 17               | 16               | 11               | 14               | <b>81</b>    |
| <b>Total</b>                           | <b>31</b>        | <b>35</b>        | <b>36</b>        | <b>26</b>        | <b>35</b>        | <b>163</b>   |

## **Annex 18. Detail information on research vision, mission, research interests of MIT Unit.**

### **Cambodian Context**

In Cambodia, the rapid growth of the IT and communications sector is at the heart of a digital transformation that spans across the entire nation, revolutionizing the way data is collected, transferred, and utilized. This evolution is especially significant in sectors such as agriculture, public health, and urban management, where the ability to generate vast amounts of data can lead to innovative solutions to pressing challenges. The emerging of generative AI and its popularity underscore the transformative potential of advanced technologies in creating new content, solving complex issues, and streamlining decision-making processes. Amidst this digital revolution, the integration of electronics and IoT technologies is pivotal for developing interconnected systems that enhance real-time data processing and communication capabilities. These technologies are crucial for facilitating immediate and effective responses to environmental crises, public health emergencies, and climate change challenges. Similarly, advancements in robotics and automation are driving significant improvements in efficiency and productivity across multiple industries, including food, mining, and manufacturing. By leveraging robotics, Cambodia is able to introduce smart, affordable, and innovative solutions that can automate complex processes, boost production efficiency, and foster the growth of SMEs with high-technology aspirations but limited capital.

As Cambodia navigates through these technological advancements, the emphasis on these key research areas is critical. These technologies not only promise to enhance the nation's responsiveness to immediate and long-term challenges but also pave the way for a future that embraces sustainable development and technological sophistication.

### **Vision**

To be a center of excellence in developing innovative solutions within the realms of Intelligent Mechatronics, Artificial Intelligence, and Advanced Telecommunications.

### **Mission**

To advance applied multidisciplinary research of Mechatronics, Artificial Intelligence, Telecommunication, and Aerospace through national and international collaborations for fostering national academic community and serving society.

### **The Research Themes**

The combination of the different areas: information science and mechatronics allows developing specific topics related to the Cambodian context as:

- Aerospace and Space Engineering
- Artificial Intelligence (Machine Learning, Deep Learning, and Optimization)
- Intelligent Mechatronics
- Telecommunication and Internet of Things
- Operation Research
- Supply Chain Management

### **Researchers**

**Senior Researchers (10M, 0F)**

Dr. VALY Dona (Head of MIT research unit), Ph.D. in Engineering Science and Technology, Université catholique de Louvain, Belgium.

*Document Image Analysis, Computer Vision, Natural Language Processing*

Dr. PO Kimtho, Ph.D. in Communication Engineering, Tokyo Institute of Technology, Japan.

*Digital Signal Processing; radio communication; microwave and RF systems*

Dr. SRANG Sarot, Ph.D. in Engineering, Tokyo Institute of Technology, Japan

*Instrumentation, estimation, control and robotics, dynamic modelling, simulation, Artificial Intelligence.*

Dr. PEC Rothna, PhD from Chung Ang University, Republic of Korea

*Signal Processing and Mobile Communication*

Dr. SRENG Sokchenda, Ph.D. in Telecommunication Engineering, INP Toulouse, France

*Wireless communications, satellite communications, digital image processing*

Dr. SIM Tepmony, Ph.D. in Information Science, Electronics and Communications, Telecom Paris, France

*Markov theory; statistics; probability; maximum likelihood*

Dr. THOURN Kosorl, Ph.D. in International Development Engineering, Tokyo Institute of Technology, Japan

*Computational methods for electromagnetics, electromagnetic compatibility, wave propagation, pattern recognition, image processing, computer vision*

Dr. PHAUK Sökkhey, Ph.D. in Interdisciplinary Intelligent System, majoring in Data Science, University of the Ryukyus, Japan

*Educational Data Mining, AI in Education, Data Science in agriculture, and Data Science for Sustainable Development Goals (SDGs)*

Dr. KIM Bunthern, Ph.D. in Electrical Engineering, INP Toulouse, France

*Control system, robotics, renewable energy, automation, energy generation system*

Mr. SOK Kimheng, Master in Computer Science, INSA de Rennes, France

*Privacy, Security, Blockchain*

### **Lectuerer-researchers (7M, 0F)**

Dr. NGET Rithea, Ph.D. in information Science, Japan Advanced Institute of Science and Technology, Japan

*Network coding and IoTs*

Mr. HEL Chanthan, Master in Telecommunication, Chulalongkorn University, Thailand

*Wireless communication, Technology for agriculture*

Mr. CHHORN Sopheaktra, Master in Electrical and Energy Engineering from Chulalongkorn University, Thailand.

*Measurement instrument, Internet of Thing and Medical device*

Dr. HAS Sothea, Ph.D. in Theoretical study and applications of machine learning methods, Sorbonne Université, France  
*Supervised/unsupervised/deep learning, aggregating and modeling*

Mr. CHOU Koksai, Master in Logistics and Supply Chains System Engineering, Sirindhorn International Institute of Technology, Thammasat University, Thailand  
*Computer Vision, Robotic, Automation System, Supply Chain*

Dr. KEAN Jeudy, Ph.D. in Telecommunication Engineering, INP-ENSEEIHIT Toulouse, France.

Mr. KEO Chivorn, Master in Industrial and Mechanical Engineering from Institute of Technology of Cambodia, Cambodia.

### **Fulltime-researchers (6M, 0F)**

Mr. KUY Movsun, Ph.D. candidate in Computer Network, Université de Namur, Belgium.

Mr. PICH Reatrey, Ph.D. candidate in Network and Cyber Security, Institute of Technology of Cambodia, Cambodia.

Mr. CHIN Chan Daraly, Ph.D. candidate in Network and Machine Learning, INP-ENSEEIHIT Toulouse, France.

Mr. BUN Menghorng, Ph.D. candidate in Control and Diagnostic of Electrical System, INP-ENSEEIHIT Toulouse, France.

Mr. SREY Sokserey, Master of Engineering in Robotics, Institute of Technology of Cambodia, Cambodia.

Mr. TANG Sou Bun, Master of Engineering in Robotics, Institute of Technology of Cambodia, Cambodia.

### **Academic Partners**

Université de Namur, Belgium  
Université de Liège, Belgium  
Université catholique de Louvain, Belgium  
Université de Mons, Belgium  
Tokyo Institute of Technology, Japan  
Toyohashi University of Technology, Japan  
Chitose Institute of Science and Technology, Japan  
University of Fukui, Japan  
Tokyo Polytechnic University, Japan  
INP Toulouse, France  
Institut Mines-Telecom, France  
Universitas Pendidikan Ganesha, Indonesia  
Universiti Kebangsaan Malaysia, Malaysia  
University of Sydney, Australia

## Non-academic partners

Asian Office of Aerospace Research and Development  
Ministry of Education, Youth and Sports, Cambodia  
Ministry of Water Resources and Meteorology, Cambodia  
Ministry of Rural Development, Cambodia  
Ministry of Industry and Handicraft, Cambodia  
Ministry of Public Works and Transport, Cambodia  
Ministry of Environment, Cambodia  
Ministry of Health, Cambodia  
Ministry of Culture and Fine Art, Cambodia  
JICA, Japan  
Institut Pasteur du Cambodge

## Industrial Partners and NGOs

Solar Green Energy Co., Ltd. Cambodia  
AI Farm  
Louvain Cooperation  
Eclosio  
iDE  
Yamato Green Co., Ltd.

## Publications of MIT researchers for the last 5 academic years

From 2020-2021 to 2024-2025, there are in total 171 research outputs from MIT unit classified into three categories: Indexed Publications, Non-indexed Publications, and Conference Papers as shown in the Table 8 below.

Table 8. Summary of number of publications in last 5 years

| Publication classification/year | 2024-2025 | 2023-2024 | 2022-2023 | 2021-2022 | 2020-2021 | Total |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-------|
| Indexed Publications            | 3         | 7         | 8         | 6         | 6         | 30    |
| Non-indexed Publications        | 5         | 10        | 2         | 6         | 6         | 29    |
| Conferences                     | 37        | 40        | 30        | 1         | 0         | 108   |
| <b>Total</b>                    | 45        | 57        | 40        | 13        | 12        | 167   |

## **Annex 19. Detail information on research vision, mission, research interests of MSS Unit.**

### **Cambodian Context**

To achieve the Sustainable Development Goals (SDGs), Cambodia has embraced the UN 2030 Agenda for SDGs. The country aims to become an upper middle-income status by 2030. To achieve this, the government has set up a policy to push up research and innovation that reflects the country's needs. Promoting domestic products is one of the focuses of the policy that requires research and innovation, specifically in engineering and construction materials.

Currently, raw rubber in Cambodia is one of the main agro-industrial products contributing about USD 400 million in 2021 to the country's economy through exportation. With the limitation of knowledge in rubber technology in Cambodia, almost all the value-added rubber products such as rubber bands, gloves, flip flops, and rubber inner tubes are imported to support the needs of the country. Moreover, if looking at the construction sector, new challenges have to be met: the construction sector boomed in 2016 with a total investment of 8.5 b\$. There are over 900 high-rise buildings (more than 5 floors), the majority of them in Phnom Penh and Sihanoukville. The fast evolution of Cambodian cities causes issues of quality (qualified human resources, redefining building standards), sustainability (depletion of local resources in construction materials), and affordability with eco-friendly materials that can adapt to local resources.

The MSS is not limited to the building industry, as there are also big challenges in recycling or recovering materials from waste, replacing polymers from fossil origin with natural polymers, and producing sustainable products from local materials. The Materials Science and Structure Research Unit was established to build up a group of researchers with similar skills and working fields as an interdisciplinary to achieve a common goal.

### **Research Unit**

The Material Sciences and Structure Research Unit focuses on research and innovation trends in engineering and construction material, especially with low carbon impact materials and light structures, including geotechnical engineering, underground structures, structural engineering, minerals, polymers, ceramics and alloys to address specific needs for Cambodia. The research unit also pays attention to the Architectural Engineering field, especially the studies on affordable housing. Our researchers work closely with local and international partners to push applied research and transform it into innovation for promoting the economic growth of the country.

### **Vision**

The vision of the MSS Research Unit is to be a national leading and excellent center for research, development, and innovation that can offer advanced technology and technical solutions in the fields of materials and structures to the industries. MSS Research Unit will be a source for technical innovation transfer, and producing scientists and engineers.

### **Mission**

- Conduct basic and applied research focused on materials and structure
- Promote R&D linkage between government, universities, and private sectors
- Promote research capacity, scientific communications, and entrepreneurship
- Promote technology transfer, develop product prototypes, and push for commercialization

## **Research Theme**

### ***Materials Science and Engineering***

- Mineralization
- Engineering materials such as bio-materials, polymer, rubber, and ceramic
- Construction Materials such as stabilized soils, eco-pave blocks, cementitious material, and bitumen

### ***Structural Engineering***

- Structural design & performance of buildings
- Heritage Preservation
- FEM simulation and analysis
- Composite structures
- Post-installed anchors such as bundled and glass fiber rebars

### ***Architectural Engineering***

- Life cycle assessment
- Building Information Modeling
- Green buildings
- Sustainable design

### ***Transport and Infrastructure***

- Air pollution control
- Traffic
- Infrastructure development
- Bridge engineering

## **Researchers**

### **Senior Researchers (8M, 2F)**

Dr. DOUNG Piseth (Head of MSS Research Unit), PhD in Civil Engineering, Tokyo Institute of Technology, Japan  
Steel structures, Tall steel/concrete building systems, Earthquake engineering, and Structural engineering

Dr. YOS Phanny, PhD in Materials Engineering, Kyushu University, Japan  
Natural rubber, Natural rubber latex, Polymer composites

Dr. HAN Virak, PhD in Civil Engineering, Kochi University of Technology, Japan  
Civil engineering materials, Concrete, Modeling

Dr. HIN Raveth, PhD in Material Engineering, University of Rennes 1, France  
Mechanical Behavior of Materials, Glass Structures, Civil Engineering

Dr. PROK Narith, PhD in Civil Engineering, Kochi University of Technology, Japan  
Soil-structure interaction; earthquake; tsunami

Dr. KAN Kuchvichea, PhD in Civil Engineering, Université Libre de Bruxelles, Belgium  
Soil mechanics, Construction materials

Dr. BUN Polyka, PhD in Material Engineering, Institute of Technology of Cambodia, Cambodia

Simulation of thin wall structures, and Concrete and ceramic materials

Dr. SEANG Sirisokha, PhD in Economy Geology, Kyushu University, Japan  
Earth mineral, Mineralization, Geology

Dr. HENG Sounean, D. Eng., INSA Rennes, France  
Mechanics of materials and structures

Dr. OEUNG Thaileng, D. Eng., INSA Rennes, France  
Steel-concrete composite materials and structures

Dr. CHHIT Saosometh, D. Eng., University of Ghent, Belgium  
Materials Science

### **Lecturer-Researchers (0)**

#### **Full-time Researchers (4M, 3F)**

**Mrs. AUN Srean**, PhD candidate, Université de Rennes, France, and ITC  
Research area: Biomaterials/ Bioplastic innovation, Air pollution control

**Mrs. KETH Kannary**, PhD candidate, Université Libre de Bruxelles, Belgium, and ITC  
Research area: Architectural design, Building Information Modeling (BIM)

**Mrs. TAING Kimnenh**, PhD candidate, University of Liege, Belgium, and ITC  
Research area: Sustainable design, Architecture, Numerical model

**Mr. LONG Makara**, PhD candidate, University of Liege, Belgium, and ITC  
Research area: Sustainable building design, Life cycle assessment, Green building

**Mr. SOM Chansamnang**, PhD candidate in Civil Engineering, INSA Rennes, France, and ITC  
Research area: Effect of the addition of natural fibers on shrinkage, Cracking risk, and Healing capacity of cementitious materials

**Mr. PLACK Sokhit**, PhD candidate, Institute of Technology of Cambodia  
Research area: Transport engineering, Traffic and air pollution

**Mr. NUTH Visal**, PhD candidate, Université de Lorraine, France, and ITC  
Research area: Soil mechanics, Road structure

### **Academic and Research Partners**

Université Libre de Bruxelles, Belgium  
Université de Liege, Belgium  
Toronto Metropolitan University, Canada  
INSA de Rennes, France  
Sorbonne Paris Nord University, France  
Université de Lorraine, France  
Université de Rennes, France  
Université de Rennes 1, France  
University of Stuttgart, Germany  
Fukuoka University



Kanazawa University, Japan  
 Kyushu University, Japan  
 Tokyo Institute of Technology, Japan  
 Yokohama National University, Japan  
 Universiti Sains Malaysia, Malaysia  
 Chulalongkorn University, Thailand  
 King Mongkut's University of Technology Thonburi (KMUTT), Thailand

### **Non-Academic Partners**

Ministry of Education, Youth and Sports, Cambodia  
 Ministry of Public Works and Transport, Cambodia  
 Ministry of Culture and Fine Arts, Cambodia  
 Ministry of Mines and Energy, Cambodia  
 Ministry of Environment, Cambodia  
 Cambodia Rubber Research Institute, Cambodia

### **Industrial Partners and NGOs**

SNP-PT International Co., Ltd, Thailand  
 Fyfe Asia Pte Ltd, Singapore  
 IKEE group, Cambodia  
 HILTI, Thailand  
 Cart Tire Co., Ltd  
 ISI Steel

### **Publications of MSS researchers for the last 5 academic years**

From 2020-2021 to 2024-2025, there are in total 114 research outputs from the MSS unit classified into three categories: Indexed Publications, Non-indexed Publications, and Conference Papers as shown in the Table below.

Table 9: Summary of number of publications in last 5 years

| <b>Publication classification/year</b> | <b>2024-2025</b> | <b>2023-2024</b> | <b>2022-2023</b> | <b>2021-2022</b> | <b>2020-2021</b> | <b>Total</b> |
|--|------------------|------------------|------------------|------------------|------------------|--------------|
| Indexed Publications                   | 3                | 5                | 5                | 2                | 3                | <b>18</b>    |
| Non-indexed Publications               | 8                | 1                | 3                | 1                | 2                | <b>15</b>    |
| Conference Papers                      | 8                | 22               | 41               | 9                | 2                | <b>81</b>    |
| <b>Total</b>                           | <b>19</b>        | <b>28</b>        | <b>49</b>        | <b>11</b>        | <b>7</b>         | <b>114</b>   |

## **Annex 20. Detail information on research vision, mission, research interests of WAE Unit.**

### **Cambodian Context**

Water is a huge issue in the world and particularly in Cambodia. Although the country is crossed by the Mekong river and possesses a large fresh water lake (the Tonle Sap Great lake), Cambodia is vulnerable to the succession of annual floods and droughts with severe episodes. Many problems arise due changes in land use, natural resources exploitation and climate change. Moreover, there is concern with current and future situation of intensive use of ground water for irrigation in the dry season, sea water intrusion in the coastal areas, heavy metals release due to mining activities, non-point source pollution from agriculture, soil erosion, air pollution, and urbanization with no waste water treatment. Besides regional water environmental issues, the quality of water is low in rural areas or low-income urban environments with contamination of crops, faecal contamination and strong arsenic concentration in ground water in the Lower Mekong area.

Research plays a pivotal role in environmental protection by providing the knowledge to better understand and manage issues such as climate change and water quality & availability. In parallel, the development of innovative and environmentally friendly technologies can offer sustainable economic opportunities through the responsible management of both natural and man-made resources. Often, environmental challenges go beyond national frontiers and require a coordinated approach in ASEAN and at global level.

#### **Vision**

Our vision is to become a well-known knowledge hub to provide the scientific research information on utilization and management of water and environment for sustainable development in the region.

#### **Purposes**

- To bring together institutional-wide centers and researchers to tackle national, regional and global water and environmental issues through multi and interdisciplinary research under Research and Innovation Center.
- To develop and offer graduate program on Science in Water and Environmental Engineering that support to country development and benefit to civil society.
- To provide knowledge, skill, tool, and awareness pertaining to water and environmental quality and human-environment interactions in order to improve and sustain the function of environmental systems, protect human health and economic growth.

#### **Mission**

1. Conducting multi-disciplinary and interdisciplinary both basic and applied research on the utilization and protection of the environment, minimization and treatment of pollution particularly to the water resources, hydrological and ecological systems.
2. Developing, demonstrating and disseminating new finding and methodology supporting to science and engineering for the environmental management and monitoring, disaster management, ecological restoration, treatment and disposal of pollution.
3. Collaborating on the local and global scale in research and education to protect the precision resources that comply with national policy and SDG to sustain human life.
4. Educating and training personnel for management, supervision and operation of water resources and environmental systems.

#### **Research Theme**

The research unit Water and Environment is established to address the needs of Cambodia in this very large field. The research Unit has strong interactions with a worldwide community of researchers and stakeholders focused on various research theme. The research activity and themes include the following but not limited to:

- **Hydrology and Water Resources Management:** Hydrological Modeling and Analysis, Hydrogeological Analysis, Groundwater and surface water interaction, Water Balance, Soil Erosion, River Bank Erosion and failure, Land Use Change, Environmental Modelling, Watershed Carrying Capacity, GIS and Remote Sensing, Hydraulic Structure ...
- **Climate Change and Disaster Risk Management:** Weather Forecasting, Weather Forecasting, Climate Change Modeling, Climate Change Downscaling, Climate Change Impacts, Climate Change Vulnerability and Adaptation, Tropical Meteorology, Flood/Drought Management, other hazards...
- **Urban Water Supply, and Wastewater Treatment:** Drinking Water Assessment and Treatment, Pollution Management, Waste Water Treatment, WASH, Water Treatment Technology, Microbiology, Water Quality Modeling, Water Biochemistry...
- **Coastal and Marine Environment (CME):** Seawater Intrusion, Coastal Processes and Sediment Transport, Coastal Wetland Ecosystem, Sea Surface Current, Sea Grass and Coral Protection, Wave Impact on Coastal and Offshore Structures, Coastal Karst Landforms, Coastal Geology, Coastal Flood Management...
- **Soil and irrigation:** Soil-Plant-Water Relation, Agricultural Water Management, Soil Quality.
- **Urban Environmental Management (UEM):** Air Pollution Management, Solid Waste Management, Hazardous Waste Management, Environmental Health and Risk Assessment

## Researchers

### *Senior Researcher (7F, 4M)*

Dr. PENG Chanthol (Head of WAE Research Units), Dr. Eng. in Life Science and Technology, Tokyo Institute of Technology, Japan.

*Food and Environmental Microbiology, Water Quality Monitoring*

Dr. CHHOUN Kong, Ph.D. in Environmental Engineering, University of the Philippines-Diliman and Tokyo Institute of Technology, Japan.

*Environmental Hydrology, integrated water resources management, watershed hydrology*

Dr. ANN Vannak, Ph.D in Water Science and Technology, Universitat de Girona, Spain

*Water-Soil-Plant-Microorganism Interactions and Biodiversity, Hydrologic processes in a river basin, Climate change-related topics*

Dr. KET Pinnara, Ph.D. in Agricultural Science and Biological Engineering, University of Liege-Gembloux Agro-Bio Tech, Belgium

*Irrigation water saving for crop production*

Dr. TY Bore Borey, Ph.D. in Environmental Engineering, University of the Philippines-Diliman and Hokkaido University, Japan

*Leaching, Wastewater Treatment, Water and Wastewater Treatment, Ion Exchange Resins*

Dr. KHOEURN Kimleang, Ph.D. in Sustainable Resources Engineering, Hokkaido University, Japan.

*Water and Wastewater Treatment, Mine Water and Remediation, Heavy Metal Leaching and speciation, Extraction, Sorption-Desorption Processes, Environmental Chemistry, Geochemical Modeling, Environmental Pollution and Waste Management*

Dr. THENG Vouchlay, Dr.Eng. in Civil and Environmental Engineering, Tokyo Institute of Technology, Japan.

*Water Quality Modelling and Assessment, Water and Wastewater Treatment*

Dr. SANG Davin, PhD in Chemistry and Process Engineering (Double degrees) from École Nationale Supérieure de Chimie de Rennes (ENSCR), France.

*Water and wastewater treatment, Environmental Analysis, Water Analysis, Liquid chromatography, Adsorption, Membrane bioreactor, Treatment of micropollutants, Activated carbon production from solid waste.*

Mrs. HANG Leakhena, M. Eng. in Environmental Engineering, University of The Philippine Diliman, Philippine.

*Indoor/Outdoor air pollution*

Dr. BUN Saret, PhD in Environmental Engineering from Chulalongkorn University, Thailand.

*Water and Wastewater Engineering*

Dr. HAM Phaly, PhD in Environmental Engineering from Chulalongkorn University, Thailand.

*Water and wastewater, air pollution control.*

### ***Lecturer-Researcher (3F, 5M)***

Dr. DOUNG Ratha, PhD in Environmental Engineering, University of Philippines Diliman (UPD) and Tokyo Institute of Technology (TIT), Japan

*Hydrogeology; groundwater modeling; coastal aquifer management*

Dr. PEN Sytharith, Ph.D in Environmental engineering, Hokkaido University, Japan

*Bed instability in suspended load dominated environments*

Dr. EANG Khy Eam, Ph.D. in Sustainable Resources Engineering, Hokkaido University, Japan.

*Environmental Geochemistry, Water Environment, Hydrogeology, Geochemical Modeling and Solute Transport, Sustainable Resources Management, Geomechanics and Rock Slope Stability*

Dr. SOK Ty, PhD in Functional Ecology and Environment (Double Degree) from National Polytechnic Institute of Toulouse (INP-Toulouse), France.

*Hydrology, Water Resources, Climate change and Environmental Monitoring and Assessment*

Dr. SONG Layheang, PhD in Continental Surfaces and Interfaces, Hydrology, Université Toulouse III - Paul Sabatier, France.

*Hydrology, Soil Erosion, Disaster and Agricultural Irrigation and Modeling.*

Dr. HEU Rina, Dr. Eng. in Civil and Environmental Engineering, Tokyo Institute of Technology, Japan.

*Water Quality and Environmental Assessment, Water Treatment Technology, Environmental Ecosystems, Water Supply and Sanitation*

Ms. DOEURN Seyha, Master in Environmental Management, Kyoto University, Japan

*WASH (Water, Sanitation, and Hygiene), Drinking water quality, Water Supply, and Wastewater characterization*

Dr. MUON Ratha, PhD in Environmental Science (Double Degree) from Sorbonne Université, France.

*Soil Science, Mapping (GIS), Ecosystem services provide by termite mounds*

***Full-time Researcher (3F, 2M)***

Ms. PHOEURN Chanarun, Master in Environmental Engineering, University of the Philippines-Diliman

*Water Quality, GIS, Irrigation System*

Mr. Kimhuy Sok, Master in Water Resources Engineering, Chulalongkorn University, Thailand

*Water Resources Management, Drought Assessment, Shoreline Evolution, Nearshore Sediment Transport, Radiometric Dating of Sediment*

Ms. LAI Chenda, Ph.D candidate (double degree) in Water and Environment, Institute of Technology of Cambodia, Cambodia and Agronomy and Bio-engineering at ULiège, Belgium.

*Water Quality, Nutrient Leaching Management, Soil Science, Agronomy, Plant Nutrition*

Mrs. CHANTO Monychot Tepy, Ph.D candidate (year 1), Master in Environmental Design, Kanazawa University, Japan

*Water Quality and Pollution, Biological Wastewater Treatment, Environmental Biotechnology, Microbial Community Analysis, Environmental and Food Microbiology*

Mr. CHAN Ratboren, Ph.D candidate (year 1), M. Eng. in Environmental Engineering, Kasetsart University, Thailand.

*Water Quality Assessment, Water and Wastewater Treatment, Membrane Bioreactor, Antibiotics Treatment.*

Mr. PHUONG Sovathana, Master in Microbiology and Microbial Technology, Chulalongkorn University, Thailand

*Environmental Microbiology, Bioremediation, Microplastics Pollution, Antibiotic Resistance*

Ms. THEAP CHAKRYA, Master in Sustainable Energy and Resources Engineering, Kasetsart University, Thailand.

*Sustainable Energy, Renewable Energy, Biomass Conversion, Thermal Treatment, Waste To Energy, Solid Waste Management.*

Mr. SOK Sereyvathana, Ph.D candidate (year 2). Master in Water and Environmental Engineering, Institute of Technology of Cambodia, Cambodia

*Water Treatment Technology, Micropollutant Removal, Renewable Energy, and Adsorption.*

**Academic Partners**

Royal University of Agriculture, Cambodia

Royal University of Phnom Penh, Cambodia

Tokyo Institute of Technology, Japan

Tokyo University of Agriculture and Technology, Japan

University of Girona, Spain

Université de Toulouse, France

Université de Liège-Gembloux, Belgium

CARE, Ho Chi Minh City, Vietnam

Guilin University of Technology, China  
Wuhan University, China  
Kanazawa University, Japan  
Kyoto University, Japan  
Chulalongkorn University, Thailand  
University of Nantes, France  
CNRS, France  
IRD, France  
Etc.

#### **Non-academic partners**

Ministry of Education, Youth and Sports, Cambodia  
Ministry of Water Resources and Meteorology, Cambodia  
Ministry of Rural Development, Cambodia  
Ministry of Industry and Handicraft, Cambodia  
Ministry of Public Works and Transport, Cambodia  
Ministry of Environment, Cambodia  
JICA, Japan  
JST, Japan  
AFD, France  
APN, Japan  
Etc.

#### **Industrial Partners and NGOs**

Phnom Penh water supply Authority  
SAFEGE  
BORDA  
GRET  
B2G  
Weventure

#### **Publications of WAE researchers for the last 5 academic years**

In last five academic year from 2020-2021 to 2024-2025, there are in total 184 research outputs from WAE unit classified into three categories: Indexed Publications, Non-indexed Publications, and Conference Papers as shown in the Table 19 below.

Table 10 : Summary of number of research publications in last 5 years

| <b>Publication classification/year</b> | <b>2024-2025</b> | <b>2023-2024</b> | <b>2022-2023</b> | <b>2021-2022</b> | <b>2020-2021</b> | <b>Total</b> |
|--|------------------|------------------|------------------|------------------|------------------|--------------|
| Indexed Publications                   | 7                | 24               | 27               | 10               | 14               | <b>82</b>    |
| Non-indexed Publications               | 5                | 4                | 7                | 6                | 3                | <b>25</b>    |
| Conference Papers                      | 33               | 4                | 25               | 15               | 0                | <b>77</b>    |
| <b>Total</b>                           | <b>45</b>        | <b>32</b>        | <b>59</b>        | <b>31</b>        | <b>17</b>        | <b>184</b>   |

**Annex 21. New Research Projects in 2024-2025 of ETM Unit.**

| <b>No.</b> | <b>Project/Research Topic</b>   | <b>Name of Researcher</b>  | <b>Fund</b>                       | <b>Total budget</b> | <b>Period</b> | <b>Objectives</b>   | <b>Status</b> |
|------------|---|--|-----------------------------------|---------------------|---------------|---|---------------|
| 1          | Capacity for Cambodian Energy Efficiency (CapCEE)   | Dr. VONGCHAN Kinnaeth<br>Dr. CHAN Sarin<br>Mr. HEANG Latin   | LED                               | 552,322             | 2025-2026     | <ul style="list-style-type: none"> <li>- CEMAT program is upgraded and equipped to offer quality training services for energy managers and auditors</li> <li>- SES-ITC strengthens the energy efficiency to the public and private sectors</li> </ul>   | New           |
| 2          | Python-Based LV Microgrid Planning Strategies: Clustered Topology and PV Hosting Capacity | Dr. VAI Vannak<br>Mr. EAM Dara<br>Mr. SUK Sievlong<br>Ms. NEOV Yoklin<br>Mr. YOU Lyhour<br>Mr. HEANG Sokleap | ZE: Zero-Emission Energy Research | 3000 USD            | 2024-2025     | <ul style="list-style-type: none"> <li>- Conduct desk research for microgrid planning and load profiles,</li> <li>- Develop an algorithm for optimal microgrid topologies: Clustering techniques with Python-based open-source software,</li> <li>- Develop an algorithm for PV hosting capacity at the clustered households with different tariffs, and validate with a small-scale prototype for monitoring and management</li> </ul> | New           |
| 3          | Training Programme to Promote Low Carbon Buildings in Cambodia                            | Dr. CHAN Sarin<br>Dr. VONGCHANH Kinnaeth<br>Mr. HEANG Latin  | GGGI                              | 89,970              | 2024-2027     | <ul style="list-style-type: none"> <li>- Recruit and train 20 Qualified Master Trainers (MTs) for delivering the LCB training programme</li> <li>- Translate and Adapt Training Modules into Khmer.</li> <li>- Organize and Deliver the Training Programme (2.5 Years).</li> </ul>  | New           |

**Annex 22. New Research Projects in 2024-2025 of FTN Unit.**

| <b>No.</b> | <b>Project/Research Topic</b>  | <b>Name of Researcher</b>  | <b>Fund</b> | <b>Total budget</b> | <b>Period</b> | <b>Objectives</b>   | <b>Status</b> |
|------------|--|--|-------------|---------------------|---------------|---|---------------|
| 1          | The development of functional beverages with improved nutritional and sensorial properties toward local economic growth through diversifying Cambodia's agriculture products | Dr. PHAT Chanvorleak<br>Dr. TAN Reasmey<br>Dr. MITH Hasika<br>Dr. SROY Sengly<br>Dr. EK Pichmony<br>Dr. THANH Channmuny<br>Dr. HOUNG Peany | MoEYS       | 1,488,000           | 2025-2029     | To develop soy-based drink, mango drink, and fermented drink for commercialization                                  | New           |
| 2          | Improvement of quality of Kimchi and garlic/ginger in honey  | Dr. MITH Hasika  | CAPRED & KE | 8,000               | 2025          | Product quality improvement   | New           |
| 3          | Pesticide Analysis in irrigation water of different rice practices_WAT4CAM   | Dr. PHAT Chanvorleak<br>Dr. YOEUN Sereyvath  | CIRAD-AFD   | 24000               | 2024-2025     | To investigate pesticide residues in heavy rice production region in Kanhhot, Battambang, and Rovieng, Preah Vihear | New           |



**Annex 23. New Research Projects in 2024-2025 of MIT Unit.**

| <b>No.</b> | <b>Project/Research Topic</b>   | <b>Name of Researcher</b>   | <b>Fund</b>   | <b>Total budget</b> | <b>Period</b> | <b>Objectives</b>   | <b>Status</b> |
|------------|---|---|---|---------------------|---------------|---|---------------|
| 1          | Integrating the Electrification and Smart Mechanisation of Two-Wheel Tractors with Precision Agriculture for Improved Productivity and Sustainability | Dr. SRANG Sarot (PI)<br>Dr. VALY Dona<br>Mr. KEO Chivorn<br>Mr. SREY Sokserey | ACIAR   | 200,000             | 2024-2029     | The aim of this project is to build the technological and socio-economic foundations for the design, manufacture, and field evaluation of electric and smart two-wheel tractors with precision agriculture capability, aiming to critically evaluate its potential to enhance the sustainability and productivity of Cambodian agriculture. | New           |
| 2          | Development of Two Mobile Robots for Joining a Robocon Competition in 2025  | Dr. SRANG Sarot (PI)<br>Mr. SREY Sokserey                                     | Takahashi Industrial & Economic Research Foundation | 7,000               | 2024-2025     | To provide lab members with a real and competitive environment to enhance their robotics skills through the design, development, and deployment of two mobile robots for the 2025 robotics competition.   | New           |
| 3          | Design and Implementation of Health Monitoring for Older People   | Dr. NGETH Rithea (PI)<br>Mr. SUM Rithea                                       | Takahashi Industrial & Economic Research Foundation | 5,000               | 2024-2025     | To design and implement an affordable health monitoring system for older people living in rural area in Cambodia. Specific objectives are as following. (1) Design and develop an affordable ECG monitoring system; (2) Design a user interface; (3) Design an uploading data protocol to a cloud server.                                   | New           |
| 4          | Autonomous Land-Leveling Robot Tractor  | Dr. SRANG Sarot (PI)<br>Mr. TANG Sou Bun                                      | Ministry of Agriculture, Forestry and Fishery       | 20,000              | 2024-2025     | Develop a robot tractor capable of autonomously or semi-autonomously leveling agricultural land.  | New           |
| 5          | "Kayvika" Khmer Sign Language Translation   | Mr. CHOU Koksai LANG<br>Bandithvipho  | Khmer Enterprise                                    | 1,500               | 2024-2026     | The research aims to create a two-way sign language translation application. The app will translate from Khmer voice to sign language and will translate from sign language to Khmer voice.   | New           |

**Annex 24. New Research Projects in 2024-2025 of MSS Unit.**

| No. | Project/Research Topic  | Name of Researcher  | Fund      | Total budget | Period    | Objectives   | Status |
|-----|---|---|-----------|--------------|-----------|--|--------|
| 1   | Enhanced Durability and Sustainability of Asphalt Concrete through Waste Plastic Recycling                                  | Dr. Kuchvichea KAN, PI<br>Dr. Phanny YOS, Co-PI   | JICA-LBE  | 14,950       | 2025-2026 | 1. Developing Modified Emulsion Asphalts using recycled waste plastic and waste oil.<br>2. Developing cold-mixed asphalt concrete that incorporates recycled plastic pellets, providing a sustainable, climate-resistant pavement material | New    |
| 2   | Hybrid Coatings For The Photodynamic Inactivation Of Microbial Infections   | Mrs. AUN Srean<br>Prof. YANN Molard<br>Assoc. Prof. Dr. Marian Amela-Cortes<br>Asst. Prof. Dr. YOS Phanny | BGF-MoEYS | 42,500       | 2024-2027 | 1) to design and characterize the robust innovative multi-component combination for antimicrobial disinfection under visible light irradiation   | New    |
| 3   | Climate-resilient soil stabilization in cambodia's SUBGRADE: adapting to the challenge of flooding and seasonal variations. | Mr. Nuth Visal<br>Prof. Olivier CUISINIER, (Supervisor, UL)<br>Dr. KAN Kuchvichea, (Supervisor, ITC)      | BGF-MoEYS | 42,500       | 2024-2027 | 1) to pinpoint challenges of flooding and variation in temperature of mechanical property.<br>2) to enhance the soil subgrade in response to Cambodian seasonal challenges   | New    |
| 4   | Natural Rubber Latex Powdered Gloves for Medical applications   | Dr. Yos Phanny<br>Ms. Sreng Laymey  | Takahashi | 4990         | 2024-2025 | - Produce examination powdered gloves from natural rubber latex<br>- Examine antimicrobial effect biofillers such as pomelo, mangosteen, ginger, and sugarcane bagasse on latex gloves   | New    |

**Annex 25. New Research Projects in 2024-2025 of WAE Unit.**

| No. | Project/Research Topic   | Name of Researcher  | Fund                                 | Total budget | Period    | Objectives   | Status |
|-----|--|---|--------------------------------------|--------------|-----------|--|--------|
| 1   | SATREPS: development and social implementation of greenhouse gas emission reduction technologies in paddy fields of west tonle sap lake by establishing a large paddy area water management system | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. Peng Chanthol<br>Dr. Ket Pinnara | SATREPS/JST/JICA                     | 250000       | 2024-2028 | Preparation to launch in April 2024  | New    |
| 2   | Integrated River Basin Management of the Mekong Basin Tributary for Adaptation to Climate Change   | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. OEURNG Chantha                   | Mekong Korea Cooperation Fund (MKCF) | 380000       | 2024-2027 | <ul style="list-style-type: none"> <li>- Identify flood hazards through field-based and modeling approaches by integrating extensive update datasets (hydrology, climate, land use, water quality, infrastructure) and strengthening community resilience.</li> <li>- Assess soil erosion and water quality to identify sustainable river basin management measures.</li> <li>- Introduce nature base solution (NBS) into watershed management for improvement of flood risk and soil loss and biodiversity within the river basin.</li> <li>- To build capacity for integrated river basin management at the national and sub-national levels.</li> </ul> | New    |

|   |  |  |  |        |           |  |     |
|---|--|--|--|--------|-----------|--|-----|
|   |  |  |  |        |           | To develop and mainstream the policy brief for multi-stakeholders from the sub-national to the national level.   |     |
| 3 | Addressing Water Scarcity through Groundwater Use: Development of Solar-Powered Groundwater Treatment System for Remote Area of Cambodia | Dr. BUN Saret<br>Dr. HAM Phally  | MTT-RRP  | 33000  | 2024-2025 | (i) preliminary assessment including groundwater quality assessment as an input data for treatment technology design and social survey for assessing the demand and perspective of the target end users of the newly developed water treatment unit, (ii) optimization of groundwater treatment process in terms of treatment performance and power consumption, and (iii) evaluation the operation performance of prototype system in the real scale community. | New |
| 4 | Development of Eco-Friendly Microplastic Removal Filters from Seawater for Sea Salt Farms in Cambodia                                    | Dr. THENG Vouchlay<br>Ms. DOEURN Seyha,<br>Mr. HENG Oudam,<br>Dr. PENG Chanthol,<br>Mr. PHUONG Sovathana | UNDP   | 39000  | 2024-2025 | The main objective of the project is starting a pilot EMRF for the first microplastics (MPs) removal from seawater for salt farm in Cambodia, and raise awareness among the people about the risk of consuming microplastics through the food chain  | New |
| 5 | Establishment of Sustainable Groundwater Management Platform in the Lower Mekong Region  | Dr. EANG Khyeam  | Mekong-Republic of Korea Cooperation Fund (MKCF) | 499647 | 2025-2028 | To develop a Comprehensive Groundwater Database to track and analyze groundwater changes annually, serving as a benchmark for sustainable management in the Lower Mekong Region. To promote Regional Collaboration among Mekong countries and the ROK for Adaptive Groundwater Governance, integrating multi-year trend analysis into cross-border policy frameworks and capacity-building efforts.  | New |
| 6 | Establishing an Evidence-based National Adaptation   | Dr. SOK Ty<br>Dr. SONG Layheang  | Ministry of Environment (GREEN CLIMATE FUND)     | 60000  | 2024-2025 | To analyze climate data and write a National Climate Report for Cambodia   | New |

|   |   |  |     |        |               |   |     |
|---|---|--|-----|--------|---------------|---|-----|
|   | Plan (NAP):<br>National Climate<br>Report   | Dr. KET Pinnara<br>Mr. HOUT Meng<br>Hour   |     |        |               |   |     |
| 7 | Sustaining the<br>shared groundwater<br>resources of the<br>Transboundary<br>Cambodia-Vietnam<br>Mekong River Delta<br>aquifer under<br>climate change<br>impacts through<br>Strategic Gender<br>equality, disability,<br>and social inclusion<br>(GEDSI) tools and<br>suitable Nature-<br>based Solution<br>(SAGA) | Dr. PEN<br>Sytharith, Dr.<br>SANG Davin  | SEI | 5000   | 2024-<br>2025 | -Enhance resilience in the face of climate change by<br>integrating energy, food, and water nexus<br><br>-Gender mainstreaming in groundwater resources<br>management   | New |
| 8 | Evaluation of<br>Nature-based<br>solutions for the<br>enhancement of<br>urban water security<br>in South-East Asian<br>Cities   | Dr. PEN<br>Sytharith<br>Dr. HEU Rina   | APN | 8000   | 2024-<br>2025 | Access water supply and demand scenario of the<br>Phnom Penh city of Cambodia.<br><br>Identify feasible nature-based solution to enhance<br>urban water security for drinking water and industrial<br>water uses.<br><br>Assess environmental and socio-economic impacts of<br>the feasible NBS using water case study. | New |
| 9 | Anticipating the<br>inversions of the<br>Tonle Sap river<br>(INVERSAP)  | Dr. DUONG<br>Ratha<br>Dr. Paul<br>Baudron,<br>Dr. Ratha Doung,<br>Dr. Khy Eam<br>Eang, | IRD | 100000 | 2024-<br>2025 | Anticipating the inversion of the Tonle Sap river<br>through collaborative sampling.  | New |

|    |   |  |                  |       |               |   |     |
|----|---|--|------------------|-------|---------------|---|-----|
|    |   | Mr. Sambo Lun,<br>Dr. Sytharith Pen,<br>Mr. Vuthy Chork,<br>Dr. Sylvain<br>Massuel<br>Mr. Jonathan Van<br>Hanja<br>Dr. Kong Chhuon |                  |       |               |   |     |
| 10 | Research<br>collaboration on<br>sustainable water<br>resources<br>management in Koh<br>Ker heritage site                          | Mr. SOK<br>Kimhuy<br>Mr. Chork vuthy,<br>Dr. Heng<br>Sokchhay,<br>Chhoun Kong  | NAPV             | 12000 | 2024-<br>2025 | 1. Planning atlas; 2. Hydraulic infrastructure system;<br>3. Water resources utilization; 4. Natural disasters; 5.<br>Catchment development plans   | New |
| 11 | Restoration of the<br>Preah Vihear<br>Temple's Gopura V<br>(Phase II)   | Mr. SOK<br>Kimhuy<br>Mr. Chork vuthy,<br>Dr. Heng<br>Sokchhay,<br>Chhoun Kong  | NAPV             | 51500 | 2024-<br>2025 | 1. Seismic survey;<br>2. Hydrological study; 3. Geotechnical study;<br>4. Technical presentation and meeting at province  | New |
| 12 | Mutual learning<br>toward just-in-time<br>information for<br>grassroots climate<br>adaptation in the<br>lower Mekong<br>countries | Dr. PENG<br>Chanthol<br>Ms. DOEURN<br>Seyha;<br>Dr. THENG<br>Vouchlay  | Toyota Fondation | 60000 | 2024-<br>2026 | Understand best practices of people along the Mekong<br>River toward climate change adaptation for<br>hydrological change of the Mekong River (water level<br>change and local adaptation) and share the knowledge<br>between Thailand and Cambodia | New |

**Annex 26. List of Ongoing Projects in ETM in 2024-2025.**

| No. | Project/Research Topic   | Name of Researcher  | Fund     | Budget 2023-2024 | Total budget (USD) | Period    | Objectives   | Outputs   |
|-----|--|---|----------|------------------|--------------------|-----------|--|---|
| 1   | Accelerating Digital Transformation for Higher Education Institutions in Southeast Asia (DX.SEA) | Dr. OR Chanmoly<br>Mr. LAY Heng<br>Dr. VALY Dona                                      | Erasmus+ | N/A              | 42534              | 2023-2025 | <ul style="list-style-type: none"> <li>- developing digital campus blueprint</li> <li>- enhance digital leadership competencies</li> <li>- improve the quality of online learning and teaching</li> <li>- improve methodologies and pedagogical approaches for digital learning</li> </ul> | <ul style="list-style-type: none"> <li>- The primary deliverables of this project are a digital transformation blueprint, training materials, and Train for Trainers (ToT) for developing campus ICT infrastructure and a digital learning management system, designing digital content for digital education, and implementing effective</li> <li>- Digital teaching, evaluation, and quality assurance</li> </ul> |
| 2   | Training Programme to Promote Low Carbon Buildings in Cambodia                                   | Dr. CHAN Sarin<br>Dr. VONGCHANH Kinnaeth<br>Mr. HEANG Latin                           | GGGI     | 44985            | 89970              | 2024-2027 | <ul style="list-style-type: none"> <li>- Recruit and train 20 Qualified Master Trainers (MTs) for delivering the LCB training programme</li> <li>- Translate and Adapt Training Modules into Khmer.</li> <li>- Organize and Deliver the Training Programme (2.5 Years).</li> </ul>         | <ul style="list-style-type: none"> <li>1) 20 master trainers will be recruited and trained in training of trainer (ToT)</li> <li>2) All training modules will be translated into Khmer</li> <li>3) 300 trainees will be recruited and trained on low carbon building</li> </ul>   |
| 3   | Platform for research and training on Power System   | Dr.KHON Kimsornn<br>Mr.SUK Sievlong<br>Dr. VAI Vannak<br>Mr. EAM Dara<br>Dr. BUN Long | AFD      | 468929           | 1048685            | 2023-2027 | <ul style="list-style-type: none"> <li>1) To provide training skill to EDC staff , upgrade laboratories, and training facilities, 2) To produce highly qualified human resource in the field of power system at master and PhD levels.</li> </ul>  | 30 master's degree , 2 PhD Double-degree, 2 PhD Internationals  |

|   |   |  |                                   |        |        |           |  |   |
|---|---|--|-----------------------------------|--------|--------|-----------|--|---|
| 4 | Python-Based LV Microgrid Planning Strategies: Clustered Topology and PV Hosting Capacity | Dr. VAI Vannak<br>Mr. EAM Dara<br>Mr. SUK Sievlong<br>Ms. NEOV Yoklin<br>Mr. YOU Lyhour<br>Mr. HEANG Sokleap | ZE: Zero-Emission Energy Research | 3000   | 3000   | 2024-2025 | 1) Conduct desk research for microgrid planning and load profiles, 2) Develop an algorithm for optimal microgrid topologies: Clustering techniques with Python-based open-source software, 3) Develop an algorithm for PV hosting capacity at the clustered households with different tariffs, and validate with a small-scale prototype for monitoring and management | Test the proposed method with different test systems  |
| 5 | Capacity for Cambodian Energy Efficiency (CapCEE)   | Dr. VONGCHAN Kinnaeth<br>Dr. CHAN Sarin<br>Mr. HEANG Latin   | LED                               | 147152 | 552322 | 2025-2026 | <ul style="list-style-type: none"> <li>- CEMAT program is upgraded and equipped to offer quality training services for energy managers and auditors</li> <li>- SES-ITC strengthens the energy efficiency to the public and private sectors</li> </ul>  | <ul style="list-style-type: none"> <li>1) At least 60 certified energy managers and auditors certified CEMAT by the end of the project</li> <li>2) Reduction of 20,000kg of CO2 emissions due to energy audits conducted by certified managers</li> <li>3) ITC becomes a recognized national centre for energy efficiency training</li> </ul> |



**Annex 27. List of Ongoing Projects in FTN in 2024-2025.**

| No. | Project/Research Topic  | Name of Researchers  | Fund            | Budget (2024-2025) | Total budget (USD) | Period    | Objectives   | Outputs   |
|-----|---|--|-----------------|--------------------|--------------------|-----------|--|---|
| 1   | Agroecology and Safe Food System Transitions (ASSET)  | Dr. HOUNG Peany  | EU/AFD and GRET | 55200              | 231000             | 2020-2025 | To make food and agricultural systems in Southeast Asia more sustainable, safer and inclusive, through harnessing the potential of agroecology to transform them                                   | <ul style="list-style-type: none"> <li>- Training/staff capacity building</li> <li>- Staff mobility</li> <li>- Strengthening network/collaboration</li> </ul>   |
| 2   | Development of high nutritional value farmed fish and safe processed products (smoked and fermented fish) in Cambodia | Dr. MITH Hasika<br>Dr. PHAT Chanvorleak<br>Dr. KHOEUN Kimleang<br>Dr. SROY Sengly<br>Ms. MOM Vattana<br>Mr. LAY Sovannmony | ARES            | 50000              | 200000             | 2022-2027 | Contribute to the development of sustainable aquaculture value chains in Cambodia and to improve food safety and nutritional quality of marketed farmed and caught fish products in Cambodia       | <ul style="list-style-type: none"> <li>- a strategy to empower a Cambodian sustainable agroindustrial value chain has been implemented and tested at a pilot-scale on fish value chain through the creation of a network of scientists and stakeholders working together with relevant technologies and approaches</li> <li>- Graduation of undergraduate and graduate students (2 Ph.D students)</li> <li>- Staff capacity building</li> </ul> |
| 3   | Assessment of air quality and impact in potential areas in Cambodia   | Mrs. SIENG Sreyvich  | JICA/JST        | NA                 | NA                 | 2023-2026 | To monitor the air pollutants emitted from various sources in Cambodia and their impact on public health and environment   | <ul style="list-style-type: none"> <li>- Staff capacity upgrade</li> <li>- Journal publications</li> </ul>  |
| 4   | Laboratory of Excellence in co-engineering for Sustainable Agrosystems (acronym: LMI LEAD)                            | Dr. SUONG Malyna (Southern leader)<br>Dr. MOULIN Lionel (Northern leader)  | IRD             | 20000              | 70000              | 2024-2028 | <ul style="list-style-type: none"> <li>- To promote the “One Health” approach for sustainable rice production in Cambodia</li> <li>- To develop alternative methods contributing to the</li> </ul> | <ul style="list-style-type: none"> <li>• 1 laboratory platform will be established at ITC</li> <li>• At least 2 international journal</li> <li>• At least 3 scientific events will be organized</li> <li>• Capacity building: at least 10 master students, at least 20</li> </ul>   |

|   |   |  |  |       |         |           |   |   |
|---|---|--|--|-------|---------|-----------|---|---|
|   |   | Dr. BELLAFFIORE<br>Stéphane<br>Ms. OEUM<br>Kakada, PhD<br>student  |  |       |         |           | reduction of environmental pollution (incl. pesticides)<br>- To the efficiency of water management<br>- To increase the use of agrobiodiversity approaches in rice production                             | undergraduate student will be graduated from the project  |
| 5 | Promoting integrated pest management and sustainability of the fragrant rice quality in Cambodia by valorization of native microbiota (acronym: Healthyrice- FEF) | Dr. SUONG Malyna (ITC leader)<br>Dr. BELLAFFIORE Stéphane (IRD leader)<br>Dr. SENG Vang (GDA/MAFF leader)<br>Dr. TRAN Thi Anh-Dao (Coordinator from the Embassy of France) | Ministry of Europe and Foreign Affairs (via the Embassy of France) | 14000 | 280000  | 2024-2025 | To develop integrated pest management approaches for rice crops with the farmers in order to propose sustainable alternatives based on the use of plant microbiota to guarantee the quality of rice aroma | - 1 Net-house will be established at ITC<br>- Support equipments<br>- Capacity building and networking with policymakers, and relevant stakeholders |
| 6 | Training in the use of molecular tools for diagnosis of rice diseases to support the transition towards integrated pest management (Acronym: DiagnoPathoRice)     | Dr. SUONG Malyna (ITC leader)<br>Dr. BELLAFFIORE Stéphane (IRD leader)   | IRD  | 1000  | 3000    | 2024-2026 | To train staffs/research students on the use of molecular tools to diagnosis the rice pathogens   | • Capacity building: Staffs and research students will be trained on molecular tools  |
| 7 | Pesticide Analysis in irrigation water of different rice practices_WAT4CAM  | Dr. PHAT Chanvorleak<br>Dr. YOEU Sereyvath   | CIRAD-AFD  | 12000 | 24000   | 2024-2025 | To investigate pesticide residues in heavy rice production region in Kanhhot, Battambang, and Rovieng, Preah Vihear   | - Training/staff capacity building<br>- Reference standard materials<br>- Journal publication<br>- Strengthening network/collaboration              |
| 8 | The development of functional beverages with improved nutritional and sensorial properties toward   | Dr. PHAT Chanvorleak<br>Dr. TAN Reasmey  | MoEYS  | 0     | 1488000 | 2025-2029 | To develop soy-based drink, mango drink, and fermented drink for commercialization  |   |

|   |  |   |             |   |       |      |                             |  |
|---|--|---|-------------|---|-------|------|-----------------------------|--|
|   | local economic growth through diversifying Cambodia's agriculture products | Dr. MITH Hasika<br>Dr. SROY Sengly<br>Dr. EK Pichmony<br>Dr. THANH Channmuny<br>Dr. HOUNG Peany |             |   |       |      |                             |  |
| 9 | Improvement of quality of Kimchi and garlic/ginger in honey                | Dr. MITH Hasika   | CAPRED & KE | 0 | 8,000 | 2025 | Product quality improvement |  |

### Annex 28. List of Ongoing Projects in MIT in 2024-2025.

| No. | Project/Research Topic  | Name of Researcher  | Fund  | Budget 2024-2025 | Total Budget | Period    | Objectives  |
|-----|---|---|---|------------------|--------------|-----------|---|
| 1   | Integrating the Electrification and Smart Mechanisation of Two-Wheel Tractors with Precision Agriculture for Improved Productivity and Sustainability | Dr. SRANG Sarot (PI)<br>Dr. VALY Dona<br>Mr. KEO Chivorn<br>Mr. SREY Sokserey | ACIAR   | 16195            | 200000       | 2024-2029 | The aim of this project is to build the technological and socio-economic foundations for the design, manufacture, and field evaluation of electric and smart two-wheel tractors with precision agriculture capability, aiming to critically evaluate its potential to enhance the sustainability and productivity of Cambodian agriculture. |
| 2   | Development of Two Mobile Robots for Joining a Robocon Competition in 2025  | Mr. SREY Sokserey (PI)<br>Dr. SRANG Sarot                                     | Takahashi Industrial & Economic Research Foundation | 1750             | 7000         | 2024-2025 | To provide lab members with a real and competitive environment to enhance their robotics skills through the design, development, and deployment of two mobile robots for the 2025 robotics competition.   |
| 3   | Design and Implementation of Health Monitoring for Older People   | Dr. NGETH Rithea (PI)<br>Mr. SUM Rithea                                       | Takahashi Industrial & Economic Research Foundation | 3750             | 5000         | 2024-2025 | To design and implement an affordable health monitoring system for older people living in rural area in Cambodia. Specific objectives are as following. (1) Design and develop an affordable ECG monitoring system; (2) Design a user interface; (3) Design an uploading data protocol to a cloud server.                                   |
| 4   | Autonomous Land-Leveling Robot Tractor  | Dr. SRANG Sarot (PI)<br>Mr. TANG Sou Bun                                      | Ministry of Agriculture, Forestry and Fishery       | 5000             | 20000        | 2024-2025 | Develop a robot tractor capable of autonomously or semi-autonomously leveling agricultural land.  |
| 5   | User Identification through Online Khmer Handwriting Analysis Using Deep Learning   | Dr. VALY Dona (PI)<br>Mr. NGIN Kimlong  | JICA LBE INACON                                     | 3400             | 13,812       | 2025      | The research aims to create a Khmer online handwriting dataset, develop a deep learning model for handwriting analysis, and build prototype applications for user authentication and script learning.   |
| 6   | Investigation of configuration issues related to SDN/NFV deployments  | Mr. KUY Movsun  | ARES  | 2000             | 80000        | 2020-2024 | (1) Experiment with NFV deployment on resource constrained datacenter.<br>(2) Experiment with NFV deployment across federated networks.   |
| 7   | The vehicle as an intelligent thing   | Mr. CHIN Chan Daraly  |   | N/A              | N/A          | 2022-2025 | Transforming the role of the vehicle into an active and intelligent actor on the road by exploiting these sensing, computing and communication capabilities for making the transportation people and goods safer, more efficient, greener and more entertaining.  |

|   |  |  |                  |       |       |           |   |
|---|--|--|------------------|-------|-------|-----------|---|
| 8 | Integrated Decision Support System for Non-Communicable Ocular Diseases using Machine Intelligence | Dr. Wan Mimi<br>Diyana Wan Zaki (UKM)<br>Dr. VALY Dona | ASEAN IVO        | 16068 | 22016 | 2023-2024 | <p>1. Development of the Decision Support System to screen anterior segment-related NCODs using ASPIs captured using smartphone cameras.</p> <p>2. Development of machine intelligence models with the best classifier that provides the highest classification and prediction accuracies to detect identified anterior segment NCOD</p> <p>3. Societal, health and well-being impact analysis with the underprivileged old folks and rural communities</p> |
| 9 | "Kayvika" Khmer Sign Language Translation  | Mr. CHOU<br>Koksai<br>LANG<br>Bandithvipho             | Khmer Enterprise | 750   | 1500  | 2024-2026 | The research aims to create a two way sign language translation application. The app will translate from Khmer voice to sign language and will translate from sign language to Khmer voice.   |

**Annex 29. List of Ongoing Projects in MSS in 2024-2025.**

| N o. | Project/Research Topic  | Name of Researchers   | Fund      | Budget 2024-2025 | Total budget (USD) | Period      | Objectives   | Outputs   |
|------|---|---|-----------|------------------|--------------------|-------------|--|---|
| 1    | Enhanced Durability and Sustainability of Asphalt Concrete through Waste Plastic Recycling                                  | Dr. Kuchvichea KAN, PI<br>Dr. Phanny YOS, Co-PI   | JICA-LBE  | ~ 9,000          | 14,950             | 2025 - 2026 | 1. Developing Modified Emulsion Asphalts using recycled waste plastic and waste oil.<br>2. Developing cold-mixed asphalt concrete that incorporates recycled plastic pellets, providing a sustainable, climate-resistant pavement material | - Conference and journal publications<br>- Bachelor and master students graduated<br>- Develop and modify emulsion with plastic (knowledge) |
| 2    | Hybrid Coatings For The Photodynamic Inactivation Of Microbial Infections   | Mrs. AUN Srean<br>Prof. YANN Molard<br>Assoc. Prof. Dr. Marian Amela-Cortes<br>Asst. Prof. Dr. YOS Phanny | BGF-MoEYS | ~ 9,000          | 42,500             | 2024 - 2027 | 1) to design and characterize the robust innovative multi-component combination for antimicrobial disinfection under visible light irradiation   | - PhD thesis<br>- Publications<br>- Collaboration   |
| 3    | Climate-resilient soil stabilization in cambodia's SUBGRADE: adapting to the challenge of flooding and seasonal variations. | Mr. Nuth Visal<br>Prof. Olivier CUISINIER, (Supervisor, UL)<br>Dr. KAN Kuchvichea, (Supervisor, ITC)      | BGF-MoEYS | ~ 3,500          | 42,500             | 2024 - 2027 | 1) to pinpoint challenges of flooding and variation in temperature of mechanical property.<br>2) to enhance the soil subgrade in response to Cambodian seasonal challenges   | - PhD thesis<br>- Publications<br>- Collaboration   |
| 4    | Natural Rubber Latex Powdered Gloves for Medical applications   | Dr. Yos Phanny<br>Ms. Sreng Laymey  | Takahashi | 380              | 4990               | 2024 - 2025 | - Produce examination powdered gloves from natural rubber latex<br>- Examine antimicrobial effect biofillers such as pomelo, mangosteen, ginger, and sugarcane bagasse on latex gloves   | - 4 undergraduate theses<br>- Possible 1 journal paper<br>- Poster presentation in 1 international conference                               |

|   |  |   |           |         |           |             |  |   |
|---|--|---|-----------|---------|-----------|-------------|--|---|
| 5 | Evaluation technico-socio-économique des infrastructures routières au Cambodge   | Dr. Phun Veng Kheang<br>Dr. HAN Virak<br>Dr. KAN Kuchvichea | ARES      | ~25,000 | 80,000    | 2023 - 2025 | Geological and geotechnical hazards linked to road infrastructure in Cambodia<br><br>The quality of current road infrastructure in Cambodia<br><br>The effect of the quality of road infrastructure on the socio-economic development of Cambodia  | - Conference and journal publications<br>- Master and PhD students graduated<br>- Transfer knowledge<br>- Policy recommendation |
| 6 | SATREPS Project: « Establishment of Risk Management Platform for Air Pollution in Cambodia, “Air sampling and traffic” | Mrs. AUN Srean<br>Mr. PLACK Sokhit                          | JST-JICA  | 1,500   | 4,500,000 | 2022 - 2027 | - Air sampling for:<br>1. Residential<br>2. Industry<br>3. Urban<br>4. Landfilled<br>- Air pollution due to traffic  | - Journal publications,<br>- Research equipment,<br>- Capacity building for students and researchers                            |
| 7 | Effect of The Addition of Natural Fibers on Shrinkage, Cracking Risk and Healing Capacity of Cementitious Materials    | Mr. SOM Chansamnang   | BGF-MoEYS | 8,019   | 32,076    | 2023 - 2026 | - Valorize natural, local and renewable products and reduce the CO <sub>2</sub> emissions comparing to the production of classic fibers<br>- Produce self-healing capacity in cementitious materials by natural fibers as a reservoir<br>- Limit crack and improve mechanical properties of cementitious materials<br>- Reduce construction cost and building maintenance<br>- Increase lifespan of structures | - PhD thesis<br>- Publications  |
| 8 | Managing the collaboration between architect, structure, and MEP in service of construction 4.0: ITC's workshop case   | Ms. KETH Kannary  | ARES      | 22,500  | 102,000   | 2020 - 2025 | The objective of this research:<br>-To understand the multi-disciplines collaboration (architecture, structural, and MEP) in Cambodia's current construction stage.<br>-To identify the difference of the guideline/protocol BIM in the European context.  | - PhD Thesis<br>- Conferences<br>- Journal papers   |

|    |   |                  |                          |        |         |             |   |   |
|----|---|------------------|--------------------------|--------|---------|-------------|---|---|
|    |   |                  |                          |        |         |             | -To propose the guideline/protocol BIM aligned with the Cambodian context.<br>-To propose the integration of BIM training in Architectural engineering students in Cambodia.  |   |
| 9  | Sustainable building designs integrated life-cycle assessment (LCA), for best strategies to design the green residential building in Phnom Penh, Cambodia | Mr. LONG Makara  | ARES – COMBOd IA Project | 22,500 | 102,000 | 2021 - 2025 | Analyze building LCA towards green residential building design by integrating the sustainability aspect to propose design strategy and guidelines to reduce the carbon footprint and overall environmental impact of building | - PhD Thesis<br>- Conferences<br>- Journal papers   |
| 10 | Energy-based design for buildings and Steel ring damper for seismic application   | Dr. DOUNG Piseth | KMUTT                    | 1,000  | 20,000  | 2020 - 2025 | To develop a new steel damper<br>To assess the cumulative seismic energy in buildings<br>To develop an energy-based seismic design method for buildings   | - Conference and journal publications<br>- New seismic steel dampers are developed<br>- New seismic-based design is developed |



**Annex 30. List of Ongoing Projects in WAE in 2024-2025.**

| No. | Project/Research Topic  | Name of Researchers  | Source of Funding | Budget 2024-2025 | Total budget (USD) | Period    | Objectives   | Outputs   |
|-----|---|--|-------------------|------------------|--------------------|-----------|--|---|
| 1   | SATREPS:<br>Establishment of Risk Management Platform for Air Pollution in Cambodia | Dr. OR Chanmoly<br>Dr. PENG Chanthol<br>Dr. KHOEURN Kimleang<br>Ma. HANG Leakhena  | JST/JICA          | 500000           | 5000000            | 2022-2027 | To contribute to the creation and establishment of a safe and comfortable living environment from the viewpoint of air pollution, essential for the sustainable development of tourism, which leads to economic benefits to the Cambodian people and to creation of a far better and comfortable environment for residents and tourists from all over the world. | <ul style="list-style-type: none"> <li>- Second JCC conducted on September, 2023</li> <li>- Sampling training was conducted by KU postdoctoral research to students at ITC</li> <li>- Researcher capacity building training were conducted in Japan between July-August, 2023.</li> <li>- Weekly, and monthly meeting have been conducting to update each group progress, discussion, and planning</li> <li>- Several abstract presented and going to present in International Conference.</li> </ul> |
| 2   | Preventing zoonotic diseases emergenc   | Dr. THENG Voulay<br>Dr. PENG Chanthol<br>Dr. Ann Vannak<br>Ms. CHANTO Monychottepy | EU/AFD            | 0                | 0                  | 2022-2027 | To study risks of emergence of zoonotic diseases impacted by the hydrological dynamics, climate, and environment in diversified ecosystems in Cambodia   | <ul style="list-style-type: none"> <li>- Impact of hydrological factor on antibiotic resistant bacteria</li> </ul>  |

|   |  |   |                                      |        |        |           |   |  |
|---|--|---|--------------------------------------|--------|--------|-----------|---|--|
| 3 | Photoproduction of radicals and their effects on carbon dynamics in tropical lakes<br>(JSPS-Photochem)   | Dr. THENG Vochlay<br>Dr. PENG Chanthol<br>Dr. SANG Davin                | JSPS                                 | 0      | 700    | 2023-2027 |   | <ul style="list-style-type: none"> <li>- Kick off meeting was conducted on October, 2023</li> <li>- Primary sampling and experiment will be conducted in March, 2024</li> </ul>  |
| 4 | SATREPS: development and social implementation of greenhouse gas emission reduction technologies in paddy fields of west tonle sap lake by establishing a large paddy area water management system | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. Peng Chanthol<br>Dr. Ket Pinnara | SATREPS/JST/JICA                     | 150000 | 250000 | 2024-2028 | Preparation to launch in April 2024   | <ul style="list-style-type: none"> <li>- Manuals on the intermittent irrigation and drainage systems</li> </ul>  |
| 5 | Integrated River Basin Management of the Mekong Basin Tributary for Adaptation to Climate Change   | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. OEURNG Chantha                   | Mekong Korea Cooperation Fund (MKCF) | 130000 | 380000 | 2024-2027 | <ul style="list-style-type: none"> <li>- Identify flood hazards through field-based and modeling approaches by integrating extensive update datasets (hydrology, climate, land use, water quality, infrastructure) and strengthening community resilience.</li> <li>- Assess soil erosion and water quality to identify sustainable river basin management measures.</li> </ul> | <ul style="list-style-type: none"> <li>- Improve flood resilience and reduce damage and loss for social and economic development in the river basin.</li> <li>- Strengthen the watershed management under climate and land-use change pressure by integrating natural base solution (NBS).</li> <li>- Enhance policy direction in sustainable watershed management from the</li> </ul> |

|   |  |  |         |       |       |           |   |  |
|---|--|--|---------|-------|-------|-----------|---|--|
|   |  |  |         |       |       |           | <ul style="list-style-type: none"> <li>- Introduce nature base solution (NBS) into watershed management for improvement of flood risk and soil loss and biodiversity within the river basin.</li> <li>- To build capacity for integrated river basin management at the national and sub-national levels.</li> <li>- To develop and mainstream the policy brief for multi-stakeholders from the sub-national to the national level.</li> </ul>   | national to the sub-national level.                    |
| 6 | Addressing Water Scarcity through Groundwater Use: Development of Solar-Powered Groundwater Treatment System for Remote Area of Cambodia | Dr. BUN Saret<br>Dr. HAM Phally                      | MTT-RRP | 33000 | 33000 | 2024-2025 | <ul style="list-style-type: none"> <li>(i) preliminary assessment including groundwater quality assessment as an input data for treatment technology design and social survey for assessing the demand and perspective of the target end users of the newly developed water treatment unit,</li> <li>(ii) optimization of groundwater treatment process in terms of treatment performance and power consumption, and (iii) evaluation the operation performance of prototype system in the real scale community.</li> </ul> |  |
| 7 | Laboratory of Excellence in co-engineering Sustainable   | Dr. SUONG Malyna<br>(Dr. EANG Khy Eam is one of work | IRD     | 12200 | 52000 | 2023-2028 | <ul style="list-style-type: none"> <li>- Reducing environmental pollution (incl. pesticides)</li> <li>- Better water management</li> <li>- Increased use of agrobiodiversity</li> </ul>   | Kick off meeting of project has not yet been conducted |

|    |  |  |  |       |        |           |   |  |
|----|--|--|--|-------|--------|-----------|---|--|
|    | Agrosystems (LMI-LEAD)   | package leader)  |  |       |        |           | <ul style="list-style-type: none"> <li>- Promotion of the "One Health" approach</li> <li>- Improving food security</li> </ul>   |  |
| 8  | Réhabilitation et gestion durable de la fertilité des sols pour une agriculture durable et résiliente au Cambodge (ReaSol) | Dr. Ratha MUON; Dr. SONG Layheang  | IRD  | 40000 | 130000 | 2023-2025 | <ul style="list-style-type: none"> <li>- To improve understanding of socio-economic and environmental factors impact on soil fertility;</li> <li>- To identify and promote innovative agricultural practices for soil rehabilitation and improve of the farmer livelihood</li> </ul>  |  |
| 9  | Development of Eco-Friendly Microplastic Removal Filters from Seawater for Sea Salt Farms in Cambodia                      | Dr. THENG Vouchlay<br>Ms. DOEURN Seyha,<br>Mr. HENG Oudam,<br>Dr. PENG Chanthol,<br>Mr. PHUONG Sovathana | UNDP   | 39000 | 39000  | 2024-2025 | <p>The main objective of the project is starting a pilot EMRF for the first microplastics (MPs) removal from seawater for salt farm in Cambodia, and raise awareness among the people about the risk of consuming microplastics through the food chain</p>  | <p><b>Output 1:</b> Feasibility study (field trip) with documentation of microplastic pollution in seawater and sea salt in the target study area</p> <p><b>Output 2:</b> Producing a Prototype of Eco-Friendly Microplastic Removal Filter (EMRF) in Lab scale and tested in a sea salt farm in the target study area</p> |
| 10 | Establishment of Sustainable Groundwater Management Platform in the Lower Mekong Region                                    | Dr. EANG Khyeam  | Mekong-Republic of Korea Cooperation Fund (MKCF) | 0     | 499647 | 2025-2028 | <p>To develop a Comprehensive Groundwater Database to track and analyze groundwater changes annually, serving as a benchmark for sustainable management in the Lower Mekong Region.</p> <p>To promote Regional Collaboration among Mekong countries and the ROK for Adaptive Groundwater Governance, integrating multi-</p> | <p>Output 1: Pilot Testing in Key Locations &amp; Capacity-Building</p> <p>Output 2: Development of a Groundwater Management Model for Policy Recommendations and training</p> <p>Output 3: Established Physical Information Center and Interactive Online</p>   |

|    |   |  |  |       |       |           |   |  |
|----|---|--|--|-------|-------|-----------|---|--|
|    |   |  |  |       |       |           | year trend analysis into cross-border policy frameworks and capacity-building efforts.  | Platform for Groundwater Management in the Mekong Region & Stakeholder Engagement  |
| 11 | Establishing an Evidence-based National Adaptation Plan (NAP): National Climate Report  | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. KET Pinnara<br>Mr. HOUT Meng Hour | Ministry of Environment (GREEN CLIMATE FUND) | 60000 | 60000 | 2024-2025 | To analyze climate data and write a National Climate Report for Cambodia  |  |
| 12 | Sustaining the shared groundwater resources of the Transboundary Cambodia-Vietnam Mekong River Delta aquifer under climate change impacts through Strategic Gender equality, disability, and social inclusion (GEDSI) tools and suitable Nature-based Solution (SAGA) | Dr. PEN Sytharith, Dr. SANG Davin  | SEI  | 5000  | 5000  | 2024-2025 | -Enhance resilience in the face of climate change by integrating energy, food, and water nexus<br><br>-Gender mainstreaming in groundwater resources management | Provide base line and existing policies and planning in groundwater management in Cambodia;<br>Synthesis stressors from climate and human factor in groundwater management |
| 13 | Evaluation of Nature-based solutions for the enhancement of urban water   | Dr. PEN Sytharith<br>Dr. HEU Rina  | APN  | 8000  | 8000  | 2024-2025 | Access water supply and demand scenario of the Phnom Penh city of Cambodia.<br><br>Identify feasible nature-based solution to enhance urban water               | Using PCSWMM Model to set up the urban water profile   |

|    |  |   |             |       |        |           |   |   |
|----|--|---|-------------|-------|--------|-----------|---|---|
|    | security in South-East Asian Cities  |   |             |       |        |           | security for drinking water and industrial water uses.<br><br>Assess environmental and socio-economic impacts of the feasible NBS using water case study.   | Apply Nature-based solution scenario to assess water availability and water using in the urban area   |
| 14 | Anticipating the inversions of the Tonle Sap river (INVERSAP)  | Dr. DUONG Ratha<br>Dr. Paul Baudron,<br>Dr. Ratha Doung,<br>Dr. Khy Eam Eang,<br>Mr. Sambo Lun,<br>Dr. Sytharith Pen,<br>Mr. Vuthy Chork,<br>Dr. Sylvain Massuel<br>Mr. Jonathan Van Hanja<br>Dr. Kong Chhuon | IRD         | 10000 | 100000 | 2024-2025 | Anticipating the inversion of the Tonle Sap river through collaborative sampling.   | <ul style="list-style-type: none"> <li>- Isotopic balance of Tonle Sap Lake</li> <li>- River-scale survey (sampling+DGPS)</li> <li>- Water supply authorities: data acquisition, collection and treatment</li> <li>- Confluence sampling and ADCP measurements</li> <li>- Hydrodynamic modelling + ADCP measurements</li> </ul> |
| 15 | ECOsystem services derived from TERmite mounds in the lower Mekong basin (in Cambodia and Laos) (ECOTER) | Dr. MUON Ratha<br>Dr. MUON Ratha<br>Dr. Pascal Jouquet<br>Dr. Sochan Sao, Dr. Vannak Ann,   | ANR, France | 15000 | 565000 | 2023-2027 | <ul style="list-style-type: none"> <li>- To identify and quantify ecosystem services (ES) provided by TM in LMB</li> <li>- To identify the environmental and socio-economic dynamics that condition their preservation by stakeholders and</li> <li>- To consider solutions based on the management and use of TM to</li> </ul> | <p>WP1: Abundance and utilization of Termite mounds (TMs) by the population</p> <p>WP2. TM properties</p> <p>WP3. Crop growth and resistance</p> <p>WP4. Food security and</p>  |

|    |   |   |                  |       |        |           |   |   |
|----|---|---|------------------|-------|--------|-----------|---|---|
|    |   | Dr. Pinnara Ket   |                  |       |        |           | meet the needs of populations (health, food...) in LMB.   | human health<br>WP5. Economic assessment  |
| 16 | Development of IR technologies, and distribution of C in Chrey Bak catchment (FairCarbon)                       | Dr. MUON Ratha<br>Dr. Pascal Jouquet                              | ANR, France      | 0     | 120000 | 2022-2028 | To develop IR technologies to estimate C sequestration  | - Soil analyse (pH, EC, PS, and C)<br>- Training modeling, INFRARED                               |
| 17 | Research collaboration on sustainable water resources management in Koh Ker heritage site                       | Mr. SOK Kimhuy<br>Mr. Chork vuthy, Dr. Heng Sokchhay, Chhoun Kong | NAPV             | 12000 | 12000  | 2024-2025 | 1. Planning atlas; 2. Hydraulic infrastructure system; 3. Water resources utilization; 4. Natural disasters; 5. Catchment development plans   | Flow measurement in the Stung Rongea River  |
| 18 | Restoration of the Preah Vihear Temple's Gopura V (Phase II)  | Mr. SOK Kimhuy<br>Mr. Chork vuthy, Dr. Heng Sokchhay, Chhoun Kong | NAPV             | 51500 | 51500  | 2024-2025 | 1. Seismic survey;<br>2. Hydrological study; 3. Geotechnical study;<br>4. Technical presentation and meeting at province<br>-   | Groundwater monitoring; weather station installation; LiDAR survey.                               |
| 19 | Mutual learning toward just-in-time information for grassroots climate adaptation in the lower Mekong countries | Dr. PENG Chanthol<br>Ms. DOEURN Seyha;<br>Dr. THENG Vouchlay      | Toyota Fondation | 4500  | 60000  | 2024-2026 | Understand best practices of people along the Mekong River toward climate change adaptation for hydrological change of the Mekong River (water level change and local adaptation) and share the knowledge between Thailand and Cambodia | - Workshop of knowledge exchange<br>- Video of the best practice behavior and information sharing |

**Annex 31. List of Completed Research Projects in 2024-2025 of ETM Unit.**

| No. | Project/Research Topic  | Name of Researcher  | Fund                                | Budget 2023-2024 | Total budget (USD) | Period    | Objectives  | Outputs   |
|-----|---|---|-------------------------------------|------------------|--------------------|-----------|---|---|
| 1   | Development of a Virtual Cambodian Power System- Towards an Innovation Micro-Grid in Cambodia | Dr. Vai Vannak<br>Ms. Eng Samphors<br>Dr. Bun Long<br>Mr. Eth Oudaya<br>Mr. Khon Kimsrornn<br>Mr. Chhith Chhlonh      | HEIP                                | 24824            | 390800             | 2020-2024 | 1) To develop tools for distribution system architectures<br>2) To develop tools for microgrid architectures<br>3) To develop tools for self-healing operation of distribution systems and microgrids<br>4) To set-up a testbed for distribution system and microgrid   | 1) Upgrade three ITC staffs from master to Ph.D.,<br>2) At least four master students will graduate<br>3) At least five international peer-reviewed journals will be published<br>4) At least ten international peer-reviewed conferences will be published<br>5) A testbed platform at ITC |
| 2   | Optimal Fault location Isolation, and restoration procedure for LV microgrids.                | Mr. Chhloh Chhith<br><br>Dr. VAI Vannak<br><br>Prof. RAISON Bertrand<br><br>Assoc. Prof. ALVAREZ-HERAULT Marie-Cécile | French Government Scholarship (BGF) | 19650            | 28584              | 2021-2024 | <ul style="list-style-type: none"> <li>To develop an algorithm for microgrid topologies planning with various options (i.e. AC, AC/DC, and DC).</li> <li>To develop an algorithm to make the system self-healing operation include fault location, insolation, and restoration (FLIR) integrate with PV.</li> </ul> | <ul style="list-style-type: none"> <li>2 international journals</li> <li>3 international conferences (1 published, 2 writing)</li> </ul>  |



|   |  |   |          |       |       |           |  |  |
|---|--|---|----------|-------|-------|-----------|--|--|
| 3 | Optimal energy-management system in smart-building                       | Dr. KHON Kimsornn<br>Mr. SORN Darong<br>Mrs. ENG Samphors<br>Ms. MIN Taingliv<br>Mr. LIM Phing  | JICA-LBE | 14149 | 14149 | 2023-2024 | <ul style="list-style-type: none"> <li>- TO develop an algorithm for the energy efficiency in the smart building</li> <li>- To develop a prototype of the energy management in the smart building tools</li> </ul>                       | 1) Two undergraduate students will graduate under this project2) Three international peer-reviewed conferences will be published   |
| 4 | The Optimization of Algae Cultivation for Biofuel Production in Cambodia | Dr. OR Chanmoly<br>Mr. HENG Ratha<br>Dr. ENG Chandoeun<br>Dr. YOEU N Sereyvath<br>Ms. PECH Sopheap<br>Ms. SIO Sreymean<br>Mr. KONG Sela | JICA-LBE | 14985 | 14985 | 2023-2024 | <ul style="list-style-type: none"> <li>- To identify the ultimate conditions suitable for Cambodia and types for cultivating algae toward the biofuel production.</li> <li>- To extract the biofuel from the cultivated algae</li> </ul> | 1) Two bachelor students are graduated<br>2) Two conference papers are submitted<br>3) One article journals submission/publication<br>4) Three students (4th -years students) will use the project data to write the internship report |

**Annex 32. List of Completed Research Projects in 2024-2025 of FTN Unit.**

| No. | Project/Research Topic  | Name of Researchers  | Fund                | Budget (2023-2024) | Period    | Objectives  | Outputs   |
|-----|---|--|---------------------|--------------------|-----------|---|---|
| 1   | ASEAN Network for Green Entrepreneurship and Leadership/ ANGEL                                    | Dr. YOEUN Sereyvath<br>Ms. NET Marinich  | Eramus +            | 50685              | 2021-2024 | Green entrepreneurship and leadership   | <ul style="list-style-type: none"> <li>- IT equipment</li> <li>- Training/staff capacity building</li> <li>- Staff mobility</li> <li>- Strengthening network/collaboration</li> </ul>                                 |
| 2   | Impact of initial composition and processing techniques on aromatic quality of mango              | Ms. CHIN Lyda<br>Dr. MITH Hasika<br>Dr. HOR Sivmey                               | BGF & MoEYS         | NA                 | 2021-2024 | To identify the biochemical composition (volatile compounds and aroma precursors) of three contrasted cultivars at three ripening stages before and after each processing (drying, puree, and vacuum frying)  | <ul style="list-style-type: none"> <li>- Staff capacity upgrade</li> <li>- Journal publications</li> </ul>  |
| 3   | HEALTH OF PLANTS IN THEIR SOCIO-ECOLOGICAL ECOSYSTEM (Plant Health)                               | Dr. SUONG Malyna<br>Dr. MOULIN Lionel<br>Dr. BELLAFFIORE Stéphane                | Agropolis Fondation | 30000              | 2022-2024 | To explore the root microbiome of rice in Cambodia and exploit root-associated bacteria as biofertilizers for rice plant  | <ul style="list-style-type: none"> <li>- Joint indexed publications</li> <li>- Staff capacity building</li> <li>- Equipment and consumable</li> </ul>   |
| 4   | Deciphering the function of the plant parasitic nematode microbiome in suppressive soils (DEPPAS) | Dr. SUONG Malyna<br>Dr. BELLAFFIORE Stéphane<br>Mr. BARBIER Michel (PhD student) |                     | 15100              | 2022-2024 | The overall objective is to decipher the plurality of interactions between a soil pathogen, the plant and soil microorganisms in different ecosystems with the aim of searching for microorganisms that may play a role in biocontrol                           | <ul style="list-style-type: none"> <li>- Joint Indexed publications with ITC affiliation</li> <li>- Consumables and lab supports</li> <li>- Networking for further research proposals</li> </ul>                      |
| 5   | Improving fresh-water fish powder production for versatile use in Cambodian diets                 | Dr. IN Sokneang<br>Dr. SROY Sengly<br>Ms. HOEUN Seanghai                         | CAPFish-UNIDO-EU    | 20000              | 2023-2024 | The development of fish processing solutions with the aim to improve the nutritional performance and efficiency of fish processing technologies, including relevant food safety aspects. This project will therefore contribute to the further development of a | <ul style="list-style-type: none"> <li>- Graduation of undergraduate students</li> <li>- Lab equipment</li> <li>- Staff capacity building</li> <li>- SME collaboration</li> <li>- International conference</li> </ul> |

|    |   |   |                  |       |           |  |   |
|----|---|---|------------------|-------|-----------|--|---|
|    |   |   |                  |       |           | sustainable freshwater fish-based food system in Cambodia  |   |
| 6  | Improvement of Dried Fish Quality through Drying Technology Development                                   | Dr. HOUNG Peany<br>Dr. EK Pichmony                  | CAPFish-UNIDO-EU | 20000 | 2023-2024 | To compare different drying technologies and identify the one which is suitable for obtaining good quality of dried fish products with an acceptable production cost in Cambodia context   | <ul style="list-style-type: none"> <li>- Graduation of undergraduate students</li> <li>- Lab equipment</li> <li>- Staff capacity building</li> <li>- SME collaboration</li> </ul>                                   |
| 7  | Development of Instant Fish Soups for Commercialization   | Mr. KONG Sela<br>Dr. TAN Reasmey                    | CAPFish-UNIDO-EU | 20000 | 2023-2024 | To innovate 3 different instant fish soup products that will be formulated from our Khmer traditional dishes, such as Somlor Broheu Trey, instant Ngam Ngov Trey, and Khor Trey  | <ul style="list-style-type: none"> <li>- Graduation of undergraduate students</li> <li>- Lab equipment</li> <li>- Staff capacity building</li> <li>- SME collaboration</li> <li>- Internation conference</li> </ul> |
| 8  | Development of nutrient-dense waffle rolls for children by incorporating Cambodian freshwater fish powder | Dr. EK Pichmony<br>Dr. SROY Sengly                  | CAPFish-UNIDO-EU |       | 2023-2024 | To focus on the development of the waffle rolls containing fish powders from two fish species  | <ul style="list-style-type: none"> <li>- Graduation of undergraduate and graduate students</li> <li>- Lab equipment</li> <li>- Staff capacity building</li> <li>- SME collaboration</li> </ul>                      |
| 9  | Shelf life improvement and development of fish Jerky products   | Dr. MORM Elen<br>Dr. SROY Sengly<br>Dr. MITH Hasika | CAPFish-UNIDO-EU | 10000 | 2023-2024 | To improve the shelf life of dry fish Jerky and to develop a ready-to-eat fish Jerky product   | <ul style="list-style-type: none"> <li>- Graduation of undergraduate students</li> <li>- Staff capacity building</li> <li>- SME collaboration</li> </ul>  |
| 10 | Production of Organic-mineral Fertilizers from Local Raw Materials  | Dr. YOEN Sereyvath                                  | MoEYS            | 20000 | 2023-2024 | 1. Optimization and production of potassium humate from local raw materials (brown coal and peat) by adapting the cavitation technology.<br>2. Formulation and production of organic-mineral fertilizers for Cambodian agriculture based on humates. | <ul style="list-style-type: none"> <li>-Fertilizer analysis methods are developed</li> <li>-Graduation of undergraduate students</li> <li>- Staff capacity building</li> <li>-Scientific manuscript</li> </ul>      |
| 11 | Development of oyster sauce from Cambodian oysters and green mussels for commercialization                | Dr. TAN Reasmey                                     | CAPFish-UNIDO-EU | 15000 | 2023-2024 | To develop oyster sauce from Cambodian oysters and green mussels for commercialization.  | <ul style="list-style-type: none"> <li>- Reduce the cost of raw material as well as the final product by mixing green mussels with</li> </ul>   |

|    |   |                 |                  |       |           |  |  |
|----|---|-----------------|------------------|-------|-----------|--|--|
|    |   |                 |                  |       |           |  | <p>oysters as green mussels are very much cheaper than oysters;</p> <ul style="list-style-type: none"> <li>- Oyster sauce made by using Cambodian fresh oysters and green mussels is first produced in Cambodia instead of importing ingredients from abroad to make oyster sauce;</li> <li>- Provide the technology transfer to Phnom Pich BunKhea Fish Sauce Enterprise for commercialization in order to promote the economic growth of fishery sector in Cambodia;</li> <li>- Oyster sauce produced can replace some commercial oyster sauces and sell in the supermarkets;</li> <li>- Research members and students gain the knowledge in doing research on fishery products</li> </ul> |
| 12 | Health risk assessment and quality improvement of Cambodian smoked fish | Dr. MITH Hasika | CAPFish-UNIDO-EU | 14900 | 2023-2024 | <ol style="list-style-type: none"> <li>1. Survey for health risk assessment &amp; current practice</li> <li>2. Develop analytical method for PAHs analysis</li> <li>3. Assess of PAHs contaminants in smoked fish</li> <li>4. Propose modified processing technique to reduce PAHs levels</li> </ol> | <ul style="list-style-type: none"> <li>- Database of smoked fish consumption behaviour of different categories of consumer</li> <li>- Database of common practice and perception of local processors</li> <li>- Database of health risk assessment of</li> </ul>   |

|    |   |  |                  |       |           |   |   |
|----|---|--|------------------|-------|-----------|---|---|
|    |   |  |                  |       |           |   | carcinogenic PAHs (PAHs level)<br>- Standard method for PAHs analysis<br>- Updated new method/technique to enhance the quality of smoked fish<br>- Graduation of undergraduate students<br>- Scientific manuscript<br>- SME collaboration   |
| 13 | Improvement on quality, safety, and shelf-life (including packaging) of fermented Pangasius fish for accessing to new markets | Dr. IN Sokneang<br>Ms. HOEUN<br>Seanghai | CAPFish-UNIDO-EU | 7220  | 2023-2024 | 1. Improvement fermented Pangasius fish processing by using different food additives.<br>2. Study on different packaging such as bottle, plastic bottle, seal bag packaged and vacuum packaged to extension of shelf-life of the fermented Pangasius fish product and improvement of the quality stability.<br>3. Produce quality control guideline for fermented Pangasius fish processing | - Hygienic Practice Guideline and check list (5S and GHP) for fermented Pangasius fish production<br>- Improve Fermented Pangasius fish products ready for new market<br>- Graduation of undergraduate students<br>- Scientific manuscript<br>- SME collaboration   |
| 14 | Feasibility study of Siem Reap's Prahok toward Geographical Indication: History, technology, and quality                      | Dr. PENG Chanthol<br>Mr. HENG Oudam      | CAPFish-UNIDO-EU | 15000 | 2023-2024 | To characterize Siem Reap's Prahok in relation to a geographical indication (GI) with a focus on three key criteria of GI, namely the history, technology, and quality of Prahok produced in Siem Reap and compare with that of Battambang's  | - A report of Prahok's history, technology including process involve, raw material, etc. for the Siem Reap's Prahok that can be used for applying for GI certificate;<br>- A scientific evidence based on the distinguished characteristic of Siem Reap's Prahok in term of microbial community involved in fermentation of the Prahok as may contribute to the |

|    |  |   |                     |       |           |   |   |
|----|--|---|---------------------|-------|-----------|---|---|
|    |  |   |                     |       |           |   | differentiation of unique product quality of Siem Reap's Prahok compare to other provinces.<br>- A conclusion on the characteristic of Siem Reap's Prahok for the GI certificate and recommendation.<br>- Graduation of undergraduate students<br>- SME collaboration |
| 15 | Study on the effect of steam conditions (temperature, time, and green mussel size) on the organoleptic quality and safety quality of green mussels | Dr. IN Sokneang<br>Ms. HOEUN Seanghai   | CAPFish-UNIDO-EU    | 10723 | 2023-2024 | To study on the different steaming conditions, especially temperature and time and green mussels' size to produce the steam green mussels with good quality (especially organoleptic quality) and safety  | - Development proper steam conditions for green mussels to meet market standards<br>- Guideline on steam procedure and storage conditions for green mussels<br>- Graduation of undergraduate students<br>- Scientific manuscript<br>- SME collaboration               |
| 16 | Soil-borne legacy and microbiota-mediated disease resistance in rice-based systems in Cambodia (acronym: MiMeDiR)                                  | Dr. SUONG Malyna (ITC leader)<br>Dr. MOULIN Lionel (IRD leader)<br>Ms. JOBERT Léa (PhD student) | Agropolis Fondation | 10000 | 2024      | <ul style="list-style-type: none"> <li>To understand the influence of a plant's phytosanitary status on its root microbiome, and to search for a specific signature of the plant's "good health"</li> <li>To identify the effects of "soil born legacy" on plant protection against pathogens</li> <li>to understand the links between microbial diversity, agronomic practices including the use of cover crops in the off-season, and the induction of better plant resistance to pathogens.</li> </ul> | <ul style="list-style-type: none"> <li>At least 1 international journal</li> <li>Capacity building</li> </ul>   |

|    |   |   |       |  |           |  |   |
|----|---|---|-------|--|-----------|--|---|
| 17 | Reducing Foodborne Pathogen Contamination of Vegetables in Cambodia: Innovative Research, Targeted Interventions, and Impactful, Cambodian-Led Engagement | Dr. PENG Chanthol<br>Mrs. CHANTO Monychot<br>Tepy Mr.<br>HENG Oudam | USAID |  | 2020-2024 | To reduce the prevalence and incidence of foodborne pathogen contamination of vegetables produced and sold in Cambodia | <ul style="list-style-type: none"> <li>- Strengthen collaboration with local and international research institute</li> <li>- Capacity building of researcher</li> <li>- Human resource development through involvement of Engineering and Master students in the project</li> </ul> |
|----|---|---|-------|--|-----------|--|---|

**Annex 33. List of Completed Research Projects in 2024-2025 of MIT Unit.**

| <b>No.</b> | <b>Project/Research Topic</b>  | <b>Name of Researcher</b>   | <b>Fund</b>          | <b>Total Budget</b> | <b>Period</b> | <b>Objectives</b>   |
|------------|--|---|----------------------|---------------------|---------------|---|
| 1          | Smart Mushroom Control System Development  | Mr. TEP Sovichea (PI)<br>Mr. CHHORN Sopheaktra<br>Mr. PROEUNG Bunrong | iDE                  | 82,000              | 2023-2024     | <ul style="list-style-type: none"> <li>- Setup mushroom houses at ITC for straw and oyster mushroom growing process</li> <li>- Set up a controlled environment for growing mushroom</li> <li>- Develop mushroom control system</li> <li>- Estimate the final specifications of sensing and control system including costs, capacity of control</li> </ul> |
| 2          | Development of autonomous and semi-autonomous mobile robots to participate in Robocon 2024 | Ms. OUM Sotheara<br>Dr. SRANG Sarot                                   | Takahashi Foundation | 3,750               | 2023-2024     | Producing omnidirectional mobile robots with (semi-) autonomous capabilities for educational purposes as well as joining ABU Robocon 2024.  |
| 3          | Development of APSARA-1 (2U CubeSat) Engineering Model                                     | Dr. SRANG Sarot<br>Mr. SREY Sokserey                                  | MoEYS                | 60,000              | 2022-2024     | To capture an image and transmit the data to the ground station.  |



**Annex 34. List of Completed Research Projects in 2024-2025 of MSS Unit.**

| No. | Project/Research Topic  | Name of Researchers                       | Fund      | Budget 2024-2025 | Total budget (USD) | Period    | Objectives   | Outputs  |
|-----|---|---|-----------|------------------|--------------------|-----------|--|--|
| 1   | Development of Starch Based Film for Biodegradable Packaging Using Cambodian Cassava as Starch Source | Mrs. AUN Srean<br>Mrs. Nat Yukliv         | Takahashi | 1975             | 3975               | 2023-2024 | The purpose of this research study is to develop cassava starch-based film. Three different types of cassava starch based-film will be studied and compared its properties, which are native cassava starch film, acid hydrolysis of cassava starch film, and cassava starch/Poly Lactic Acid (PLA) film   | <ul style="list-style-type: none"> <li>- Publications</li> <li>- Students will graduate</li> </ul>                               |
| 2   | Green BIM - Analysis of BIM approach for designing a bioclimatic building                             | Ms. TAING Kimnenh                         | ARES      | 22500            | 102000             | 2020-2024 | <ul style="list-style-type: none"> <li>- Find bioclimatic design to achieve thermal comfort in building specific in tropical region by using BIM as instrument</li> <li>- BIM to facilitate at the early stage of this design process to avoid certain conflicts between architect and engineer</li> <li>- Perspective of application of BIM and Bioclimatic design in AEC sector in Cambodia</li> </ul> | <ul style="list-style-type: none"> <li>- PhD Thesis</li> <li>- Conferences</li> <li>- Journal papers</li> </ul>                  |
| 3   | Performance of Tyfo(R) FibrAnchor under axial load  | Dr. PROK Narith<br>Dr. RATH Sovann Sathya | Fyfe Asia | 7000             | 7000               | 2023-2024 | <p>To investigate the pull-out behavior of FRP Anchor using experiment</p> <p>To investigate the pull-out behavior of FRP Anchor using simulation</p>  | <ul style="list-style-type: none"> <li>- Publications</li> <li>- Students will graduate</li> <li>- Knowledge transfer</li> </ul> |
| 4   | Investigation of Steel-Concrete Composite Structural Elements under Various Loadings                  | Dr. OEUNG Thaileng                        | TMU       | 15500            | 15500              | 2024-2025 | <ul style="list-style-type: none"> <li>- To investigate the smart high-performance concrete materials</li> </ul>   | <ul style="list-style-type: none"> <li>- Conference and journal publications</li> <li>- Staff capacity building</li> </ul>       |
| 5   | ERASMUS KA-171 (French Partners):   | Dr. YOS Phanny                            | Erasmus   | -                | -                  | 2023-2025 | Capacity building of ITC staff in Materials engineering field  | Staff capacity building  |

|   |  |                        |          |   |       |               |   |  |
|---|--|------------------------|----------|---|-------|---------------|---|--|
|   | Capacity building on<br>Materials Engineering                                  |                        |          |   |       |               |   |  |
| 6 | Experimental<br>Identification of<br>Hardening Behavior of<br>G300 Steel Grade | Dr. CHHIT<br>Saosometh | JICA-LBE | - | 15000 | 2023-<br>2024 | - Define another quality control<br>technique for the raw<br>materials to be made<br>construction pipe. | - 2 undergraduate theses<br>- possible 1 journal paper |

**Annex 35. List of Completed Research Projects in 2024-2025 of WAE Unit.**

| No. | Project/Research Topic   | Name of Researchers | Source of Funding | Budget 2024-25 | Total budget | Period    | Objectives   | Outputs  |
|-----|--|---------------------|-------------------|----------------|--------------|-----------|--|--|
| 1   | Development of Electrocoagulation-Floation (ECF) Reactor for Removal Turbidity, Color, and Oil & Grease from Slaughterhouse Wastewater | Dr. SANG Davin      | LBE/JICA          | 0              | 15000        | 2023-2024 | Development of Electrocoagulation-Floation (ECF) Reactor for Removal Turbidity, Color, and Oil & Grease from Slaughterhouse Wastewater | <ul style="list-style-type: none"> <li>- Develop a prototype of Reactor system for treatment slaughterhouse wastewater</li> <li>- Field visit to slaughterhouse and ground water sampling</li> <li>- National journal</li> </ul> <p>Kimlay Ngorn, Saret Bun, Davin Sang, Phaly Ham, Rathborey Chan (2023), Groundwater quality assessment towards sand filter modification for a rural community of Cambodia, 2023. Techno-Sciences Research Journal (accepted).</p> <ul style="list-style-type: none"> <li>- Join international conference Saret Bun, Davin Sang, Phally ham, rathborey Chan (2023), Microplastics in the Mekong river of Cambodia. " A sustainable Natural and Engineered water systems Management conference, December 13-16 at Patumwan Princess hotel, Bangkok</li> <li>- one poster</li> </ul> <p>Pisey Phorn, Sakada Peov, Sreylim Eang, Phaly Ham, Rathborey Chan, and Saret Bun (2023). Optimization of aerated electrocoagulation-flotation process for color turbidity, and oil</p> |

|   |   |                                     |          |       |       |           |   |  |
|---|---|-------------------------------------|----------|-------|-------|-----------|---|--|
|   |   |                                     |          |       |       |           |   | removal from synthetic slaughterhouse wastewater's 12TH SCIENTIFIC DAY, June 8-9, 2023, Phnom Penh, Cambodia.<br><ul style="list-style-type: none"> <li>- 3 engineering students graduated</li> <li>- 1 master student is now conducting his research in the first year.</li> </ul>  |
| 2 | Development of locally-produced ceramic pot filter for household groundwater purification in rural Cambodia                     | Dr. Rina HEU                        | LBE/JICA | 0     | 15000 | 2023-2024 | To develop hybrid ceramic pot filter combined with coconut shell based granular activated carbon for metal removal in natural groundwater | <ul style="list-style-type: none"> <li>- Fieldwork for groundwater collection</li> <li>- Groundwater quality testing</li> <li>- Field visit to private water supply operator</li> <li>- Develop hybrid ceramic pot filter</li> <li>- Publication: Leng, B., Wai, M. P., Menh, L., Si, C. I., &amp; Heu, R. (2023). Groundwater Purification Using Bio-Sand Filter Modified with Iron Oxide-Coated Sand and Activated Carbon. Key Engineering Materials, 972, 79-88.</li> </ul> |
| 3 | Development of monitoring and controlling of IoT based aquaponics system using green energy (Acronym: smart aquaponics project) | Dr. TY Boreborey<br>Dr. KET Pinnara | LBE/JICA | 15000 | 15000 | 2023-2024 | Development of monitoring and controlling of IoT based aquaponics system using green energy.  | Perform pre-trail of the system including water quality control, and sea water formulation   |
| 4 | Stopping Macro- and Microplastic Pollutants by  | Dr. BUN Saret                       | UNDP     | 0     | 18000 | 2024      | To reduce both macro- and microplastic pollutions in the sea, installing the barrier at the discharge                                     |  |

|   |  |                                 |          |   |       |           |  |  |
|---|--|---------------------------------|----------|---|-------|-----------|--|--|
|   | Installing Solar-Powered Air Bubble Screening (SBS) Device at Discharge Wastewater Canal to the Sea of Sihanoukville, Cambodia | Dr. HAM Phally                  |          |   |       |           | wastewater canal could be the effective and applicable concepts. Therefore, the present project aims to develop the innovative approach to block macro- and microplastics before entering the sea by using solar-powered air bubble screening (SBS) device installing at the discharge wastewater canal in Sihanoukville of Cambodia.  |  |
| 5 | Rural Community Training on Safe Water Quality and its On-site Demonstration Testing   | Dr. BUN Saret<br>Dr. HAM Phally | SUMERNET | 0 | 5000  | 2024      | The objective of the present activity is to provide a training and on how to define the safe water and information of health effect of drinking untreated water as well as to demonstrate the scientific measurement of on-site water use to notify that not all clear water can be drunk (e.g. using alcohol as a clear liquid but cannot be drunk). The activities will be conducted at the community scale through various instruments including lecture slide, printed document in local language, poster, actual experiment of water quality measurement and health effect. Different communities around Tonle Sap River will be designed for the activities. | -  |
| 6 | Development of Electrocoagulation-Floatation (ECF) Reactor for Removal Turbidity, Color, and Oil & Grease from                 | Dr. SANG Davin                  | LBE/JICA | 0 | 15000 | 2023-2024 | Proposal accepted  | <ul style="list-style-type: none"> <li>- Develop a prototype of Reactor system for treatment slaughterhouse wastewater</li> <li>- Field visit to slaughterhouse and ground water sampling</li> <li>- National journal</li> </ul> |

|   |  |              |          |   |       |           |  |  |
|---|--|--------------|----------|---|-------|-----------|--|--|
|   | Slaughterhouse Wastewater                              |              |          |   |       |           |  | <p>Kimlay Ngorn, Saret Bun, Davin Sang, Phaly Ham, Rathborey Chan (2023), Groundwater quality assessment towards sand filter modification for a rural community of Cambodia, 2023. Techno-Sciences Research Journal (accepted).</p> <ul style="list-style-type: none"> <li>- Join international conference Saret Bun, Davin Sang, Phally ham, rathborey Chan (2023), Microplastics in the Mekong river of Cambodia. " A sustainable Natural and Engineered water systems Management conference, December 13-16 at Patumwan Princess hotel, Bangkok</li> <li>- one poster Pisey Phorn, Sakada Peov, Sreylim Eang, Phaly Ham, Rathborey Chan, and Saret Bun (2023). Optimization of aerated electrocoagulation-flotation process for color turbidity, and oil removal from synthetic slaughterhouse wastewater's 12TH SCIENTIFIC DAY, June 8-9, 2023, Phnom Penh, Cambodia.</li> <li>- 3 engineering students graduated</li> </ul> <p>1 master student is now conducting his research in the first year.</p> |
| 7 | Development of locally-produced ceramic pot filter for | Dr. HEU Rina | LBE/JICA | 0 | 15000 | 2023-2024 | To develop hybrid ceramic pot filter combined with coconut shell based | <ul style="list-style-type: none"> <li>- Fieldwork for groundwater collection</li> <li>- Groundwater quality testing</li> </ul>  |

|    |   |                                     |          |       |       |           |   |  |
|----|---|-------------------------------------|----------|-------|-------|-----------|---|--|
|    | household groundwater purification in rural Cambodia  |                                     |          |       |       |           | granular activated carbon for metal removal in natural groundwater  | <ul style="list-style-type: none"> <li>- Field visit to private water supply operator</li> <li>- Develop hybrid ceramic pot filter</li> </ul> Publication: Leng, B., Wai, M. P., Menh, L., Si, C. I., & Heu, R. (2023). Groundwater Purification Using Bio-Sand Filter Modified with Iron Oxide-Coated Sand and Activated Carbon. Key Engineering Materials, 972, 79-88. |
| 8  | Development of monitoring and controlling of IoT based aquaponics system using green energy (Acronym: smart aquaponics projec   | Dr. TY Boreborey<br>Dr. KET Pinnara | LBE/JICA | 15000 | 15000 | 2023-2024 | Proposal accepted   | Perform pre-trail of the system including water quality control, and sea water formulation   |
| 9  | Stopping Macro- and Microplastic Pollutants by Installing Solar-Powered Air Bubble Screening (SBS) Device at Discharge Wastewater Canal to the Sea of Sihanoukville, Cambodia | Dr. BUN Saret<br>Dr. HAM Phally     | UNDP     | 0     | 18000 | 2024      | To reduce both macro- and microplastic pollutions in the sea, installing the barrier at the discharge wastewater canal could be the effective and applicable concepts. Therefore, the present project aims to develop the innovative approach to block macro- and microplastics before entering the sea by using solar-powered air bubble screening (SBS) device installing at the discharge wastewater canal in Sihanoukville of Cambodia. |  |
| 10 | Rural Community Training on Safe Water Quality and  | Dr. BUN Saret                       | SUMERNET | 0     | 5000  | 2024      | This proposed activity goal is to extent the understanding or perspective of the people in the rural  |  |

|  |   |                   |  |  |  |  |  |  |
|--|---|-------------------|--|--|--|--|--|--|
|  | its On-site<br>Demonstration<br>Testing | Dr. HAM<br>Phally |  |  |  |  | <p>community of Cambodia about how to define the safe water for their daily use and its health effect caused by contaminated water to ensure the people will not judge the water quality by eye or its clearness leading to drink direct raw water without proper treatment.</p> <p>The objective of the present activity is to provide a training and on how to define the safe water and information of health effect of drinking untreated water as well as to demonstrate the scientific measurement of on-site water use to notify that not all clear water can be drunk (e.g. using alcohol as a clear liquid but cannot be drunk). The activities will be conducted at the community scale through various instruments including lecture slide, printed document in local language, poster, actual experiment of water quality measurement and health effect. Different communities around Tonle Sap River will be designed for the activities.</p> |  |
|--|---|-------------------|--|--|--|--|--|--|



### Annex 36. Research Proposal in 2024-2025 of ETM Unit.

| No. | Project/Research Topic  | Name of Researcher   | Fund                              | Total budget | Period    | Objectives  | Status |
|-----|---|--|-----------------------------------|--------------|-----------|---|--------|
| 1   | Climate-Smart Agriculture Solutions   | Dr. Kret Kakda<br>Dr. Seang Sirisokha<br>Mr.   | USAID                             | \$150,000    | 2024-2026 | <ul style="list-style-type: none"> <li>- Maintaining or increasing agricultural productivity through mitigating climate change impacts and increasing climate change adaptation;</li> <li>- Increasing farm efficiency by adopting agricultural technologies (such as climate-resilient farming techniques); and</li> <li>- Improving value-added food processing, reducing production and processing costs, creating safe and</li> </ul> | Failed |
| 2   | Capacity for Cambodian Energy Efficiency (CapCEE)   | Dr. VONGCHAN Kinnaeth<br>Dr. CHAN Sarin<br>Mr. HEANG Latin   | LED                               | 552,322      | 2025-2026 | <ul style="list-style-type: none"> <li>- CEMAT program is upgraded and equipped to offer quality training services for energy managers and auditors</li> <li>- SES-ITC strengthens the energy efficiency to the public and private sectors</li> </ul>   | Passed |
| 3   | Python-Based LV Microgrid Planning Strategies: Clustered Topology and PV Hosting Capacity | Dr. VAI Vannak<br>Mr. EAM Dara<br>Mr. SUK Sievlong<br>Ms. NEOV Yoklin<br>Mr. YOU Lyhour<br>Mr. HEANG Sokleap | ZE: Zero-Emission Energy Research | 3000 USD     | 2024-2025 | <ul style="list-style-type: none"> <li>- Conduct desk research for microgrid planning and load profiles,</li> <li>- Develop an algorithm for optimal microgrid topologies: Clustering techniques with Python-based open-source software,</li> <li>- Develop an algorithm for PV hosting capacity at the clustered households with different tariffs, and validate with a small-scale prototype for monitoring and management</li> </ul>   | Passed |
| 4   | Training Programme to Promote Low Carbon Buildings in Cambodia                            | Dr. CHAN Sarin<br>Dr. VONGCHANH Kinnaeth<br>Mr. HEANG Latin  | GGGI                              | 89,970       | 2024-2027 | <ul style="list-style-type: none"> <li>- Recruit and train 20 Qualified Master Trainers (MTs) for delivering the LCB training programme</li> <li>- Translate and Adapt Training Modules into Khmer.</li> <li>- Organize and Deliver the Training Programme (2.5 Years).</li> </ul>  | Passed |

**Annex 37. Research Proposal in 2024-2025 of FTN Unit.**

| No. | Project/Research Topic   | Name of Researcher   | Fund                     | Total budget | Period    | Objectives   | Status    |
|-----|--|--|--------------------------|--------------|-----------|--|-----------|
| 1   | Valorization of Cambodian low-value fish through canning technology  | Dr. MORM Elen<br>Dr. PHAT Chanvorleak<br>Dr. MITH Hasika   | ARES                     | 80,000       | 2025-2026 | To develop the canned fish-based product using the freshwater and saltwater fish species                                       | In review |
| 2   | The development of functional beverages with improved nutritional and sensorial properties toward local economic growth through diversifying Cambodia's agriculture products | Dr. PHAT Chanvorleak<br>Dr. TAN Reasmey<br>Dr. MITH Hasika<br>Dr. SROY Sengly<br>Dr. EK Pichmony<br>Dr. THANH Channmuny<br>Dr. HOUNG Peany | MoEYS                    | 1,488,000    | 2025-2029 | To develop soy-based drink, mango drink, and fermented drink for commercialization   | Passed    |
| 3   | Isolation the non-biogenic amine production starter cultures for Prahoc processing   | Dr. THANH Channmuny<br>Dr. MITH Hasika<br>Dr. YOEURN Sereyvath Ms.<br>LONH Sony  | LBE-JICA                 | 14,987       | 2025      | To isolate for the non-biogenic production stains from the commercial Prahoc and apply as starter culture in Prahoc processing | Failed    |
| 4   | Isolation the non-biogenic amine production starter cultures for Prahoc processing   | Dr. THANH Channmuny<br>Dr. PHAT Chanvorleak<br>Dr. MITH Hasika<br>Dr. COLLOMBEL Ingrid<br>Prof. WACHE Yves                                 | PROGRAMME TONLÉ SAP 2025 | 19,850       | 2025-2026 | To investigate the biogenic amines suppression ability of the isolated starter culture in Prahoc processing                    | In review |

|   |   |   |                |         |           |   |        |
|---|---|---|----------------|---------|-----------|---|--------|
| 5 | Improvement of quality of Kimchi and garlic/ginger in honey   | Dr. MITH Hasika   | CAPRED & KE    | 8,000   | 2025      | Product quality improvement   | Passed |
| 6 | Intelligent and sustainable fish and sea food packaging based on Cambodian cassava starch responsive to histamine | Dr. PHAT Chanvorleak<br>Dr. YOEU Sereyvath<br>Dr. MITH Hasika<br>Dr. YOS Phanny | SEA-Europe JFS | 330,375 | 2025-2027 | To develop a sustainable biodegradable intelligent food packaging based on innovative polymer produced from Cambodian cassava starch, allowing customer monitoring the quality of food through optical detection of histamine | Failed |
| 7 | Pesticide Analysis in irrigation water of different rice practices_WAT4CAM  | Dr. PHAT Chanvorleak<br>Dr. YOEU Sereyvath                                      | CIRAD-AFD      | 24000   | 2024-2025 | To investigate pesticide residues in heavy rice production region in Kanghot, Battambang, and Rovieng, Preah Vihear   | Passed |

### Annex 38. Research Proposal in 2024-2025 of MIT Unit.

| No. | Project/Research Topic  | Name of Researcher   | Fund  | Total budget | Period    | Objectives  | Status    |
|-----|---|--|---|--------------|-----------|---|-----------|
| 1   | Integrating the Electrification and Smart Mechanisation of Two-Wheel Tractors with Precision Agriculture for Improved Productivity and Sustainability | Dr. SRANG Sarot (PI)<br>Dr. VALY Dona<br>Mr. KEO Chivorn<br>Mr. SREY Sokserey              | ACIAR   | 200,000      | 2024-2029 | The aim of this project is to build the technological and socio-economic foundations for the design, manufacture, and field evaluation of electric and smart two-wheel tractors with precision agriculture capability, aiming to critically evaluate its potential to enhance the sustainability and productivity of Cambodian agriculture. | Passed    |
| 2   | Development of Two Mobile Robots for Joining a Robocon Competition in 2025  | Dr. SRANG Sarot (PI)<br>Mr. SREY Sokserey  | Takahashi Industrial & Economic Research Foundation | 7,000        | 2024-2025 | To provide lab members with a real and competitive environment to enhance their robotics skills through the design, development, and deployment of two mobile robots for the 2025 robotics competition.   | Passed    |
| 3   | Design and Implementation of Health Monitoring for Older People   | Dr. NGETH Rithea (PI)<br>Mr. SUM Rithea  | Takahashi Industrial & Economic Research Foundation | 5,000        | 2024-2025 | To design and implement an affordable health monitoring system for older people living in rural area in Cambodia. Specific objectives are as following. (1) Design and develop an affordable ECG monitoring system; (2) Design a user interface; (3) Design an uploading data protocol to a cloud server.                                   | Passed    |
| 4   | GRAN-SEA Project: Granulometry Analysis of Southeast Asian Granular Agricultural Products Using Image Feature Processing                              | Dr. Made Windu Antara Kesiman<br>Dr. VALY Dona   | Forum Asosiasi LPPM LPTK Negeri Indonesia           | 10,000       | 2025-2026 | The GRAN-SEA Project aims to develop a dataset, explore image processing methods, and create an automated system for granulometric analysis of Southeast Asian agricultural commodities, ensuring efficient, high-capacity quality assessment aligned with industry standards.  | Submitted |
| 5   | Development of a Locally Adaptive Aqua-Agriculture System with a DX-driven Knowledge Sharing Platform   | Dr. VALY Dona<br>Dr. KET Pinnara<br>Dr. PEC Rothna<br>Dr. TY Boreborey<br>Mr. HEL Chanthan | SATREPS   |              | 2025-2030 | The C-Agri Project develops a smart Aqua-Agriculture system using IoT, AI, and automation for resource efficiency, establishes a demonstration farm for technology transfer, promotes sustainable food systems, and enhances research collaboration and capacity building in Cambodia.  | Submitted |

|   |  |  |   |           |           |   |          |
|---|--|--|---|-----------|-----------|---|----------|
| 6 | Innovative Production Line for Smart Electronic Devices for Regional Products and Applications             | Dr. VALY Dona<br>Dr. KRET Kakda<br>Mr. HEL Chanthan                      | HEIP2   | 1,217,938 | 2025-2029 | The project focuses on developing an advanced PCB fabrication and assembly process to enhance production efficiency and quality. It aims to design and prototype AI-powered smart farm controllers to improve agricultural productivity and energy monitoring devices for accurate consumption tracking and system integration. Additionally, the project will implement a commercialization strategy to strengthen industrial linkages and drive market adoption of these innovations. | Rejected |
| 7 | Optimizing Plant Growth in Indoor Vertical Farming: Leveraging AI and IoT with Biodegradable Growing Media | Dr. KET Pinnara<br>Mr. HEL Chanthan<br>Dr. VALY Dona<br>Dr. TY Boreborey | JICA LBE<br>INACON                            | 15,000    | 2025      | This research explores how integrating AI and IoT with biodegradable growing media can optimize resource efficiency in indoor vertical farming. It investigates how real-time data analytics improve water, energy, and nutrient management, aiming to enhance crop yield, sustainability, and urban food security while reducing environmental impact.   | Rejected |
| 8 | Autonomous Land-Leveling Robot Tractor   | Dr. SRANG Sarot (PI)<br>Mr. TANG Sou Bun                                 | Ministry of Agriculture, Forestry and Fishery | 20,000    | 2024-2025 | Develop a robot tractor capable of autonomously or semi-autonomously leveling agricultural land.  | Passed   |
| 9 | "Kayvika" Khmer Sign Language Translation  | Mr. CHOU Koksai<br>LANG<br>Bandithvipho                                  | Khmer Enterprise                              | 1,500     | 2024-2026 | The research aims to create a two-way sign language translation application. The app will translate from Khmer voice to sign language and will translate from sign language to Khmer voice.   | Passed   |

**Annex 39. Research Proposal in 2024-2025 of MSS Unit.**

| No. | Project/Research Topic  | Name of Researcher  | Fund      | Total budget | Period    | Objectives   | Status |
|-----|---|---|-----------|--------------|-----------|--|--------|
| 1   | Enhanced Durability and Sustainability of Asphalt Concrete through Waste Plastic Recycling                                  | Dr. Kuchvichea KAN, PI<br>Dr. Phanny YOS, Co-PI   | JICA-LBE  | 14,950       | 2025-2026 | 1. Developing Modified Emulsion Asphalts using recycled waste plastic and waste oil.<br>2. Developing cold-mixed asphalt concrete that incorporates recycled plastic pellets, providing a sustainable, climate-resistant pavement material | Passed |
| 2   | Hybrid Coatings For The Photodynamic Inactivation Of Microbial Infections   | Mrs. AUN Srean<br>Prof. YANN Molard<br>Assoc. Prof. Dr. Marian Amela-Cortes<br>Asst. Prof. Dr. YOS Phanny | BGF-MoEYS | 42,500       | 2024-2027 | 1) to design and characterize the robust innovative multi-component combination for antimicrobial disinfection under visible light irradiation   | Passed |
| 3   | Climate-resilient soil stabilization in cambodia's SUBGRADE: adapting to the challenge of flooding and seasonal variations. | Mr. Nuth Visal<br>Prof. Olivier CUISINIER, (Supervisor, UL)<br>Dr. KAN Kuchvichea, (Supervisor, ITC)      | BGF-MoEYS | 42,500       | 2024-2027 | 1) to pinpoint challenges of flooding and variation in temperature of mechanical property.<br>2) to enhance the soil subgrade in response to Cambodian seasonal challenges   | Passed |
| 4   | Natural Rubber Latex Powdered Gloves for Medical applications   | Dr. Yos Phanny<br>Ms. Sreng Laymey  | Takahashi | 4990         | 2024-2025 | - Produce examination powdered gloves from natural rubber latex<br>- Examine antimicrobial effect biofillers such as pomelo, mangosteen, ginger, and sugarcane bargasse on latex gloves  | Passed |

|   |   |   |                          |           |           |  |           |
|---|---|---|--------------------------|-----------|-----------|--|-----------|
| 5 | Enhancing Sustainability in Concrete Products using Municipal Waste   | Dr. Hin Raveth<br>Dr. Heng Sounean<br>Dr. Bun Polyka  | Beton Block&Pave Company | 10,000    | 2024-2025 | - To study and produce concrete products using municipal wastes  | In review |
| 6 | Smartphone-based Bridge Monitoring Involving Local Communities  | Asst. Prof. Dr. Hirao Kensho<br>Dr. Doung Piseth<br>Prof. Dr. Sasaki Eiichi                                   | Kajima Foundation        | 65,000    | 2025-2027 | to develop a bridge damage monitoring application where local residents participate by using their smartphones to capture and evaluate bridge conditions   | In review |
| 7 | Implementation of reusing soil waste from low lying plain as a backfill of MSE geogrid reinforced vertical slopes | Dr. Oeng Thaileng<br>Dr. Heng Sounean<br>Mr. Nuth Visal   | JICA-LB                  | 14,114    | 2025-2026 | - To investigate the soil waste for reuse as a backfill for construction of RC slope.  | Failed    |
| 8 | Securing Environment by Recycling Marine Waste into Usable Concrete Block for Construction                        | Dr. Heng Sounean<br>Dr. Oeng Thaileng<br>Dr. Doung Piseth   | UNDP                     | 39,000    | 2024-2025 | - To study and engage coastal communities for the collection of waste<br>- To produce prototypes of pave block products for waste  | Failed    |
| 9 | Rubber-based value-added product improvement of rubber floor mat used for shock absorption applications           | Dr. Yos Phanny<br>Dr. Doung Piseth<br>Ms. Sreng Laymey<br>Dr. Yin Molika<br>Dr. Houng Peany<br>Mrs. Aun Srean | HEIP2                    | 1,018,542 | 2025-2029 | - To set up rubber technology hall to be capable in producing the real-scaled rubber floor mat towards commercialization.<br>- To produce human resources in the field of rubber processing technology as part to support the economic growth and industries needs in this field.<br>- To Improve the physical and mechanical properties of rubber floor mat prototypes from ITC SGA#12 towards commercialization. | Failed    |

**Annex 40. Research Proposal in 2024-2025 of WAE Unit.**

| No. | Project/Research Topic   | Name of Researcher  | Fund                                 | Total budget | Period    | Objectives   | Status               |
|-----|--|---|--------------------------------------|--------------|-----------|--|----------------------|
| 1   | Integrating Habitat Design and Community Engagement for Sustainable Ecosystem Restoration  | Dr. PENG Chanthol   | Darwin, UK                           | 90000        | -         | -  | Under assessment     |
| 2   | Cambodia Air Innovation Monitoring System  | Dr. OR Chanmoly   | USASCP, U. S                         | 399000       | -         | -  | Suspended evaluation |
| 3   | SATREPS: development and social implementation of greenhouse gas emission reduction technologies in paddy fields of west tonle sap lake by establishing a large paddy area water management system | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. Peng Chanthol<br>Dr. Ket Pinnara | SATREPS/JST/JICA                     | 250000       | 2024-2028 | Preparation to launch in April 2024  | Passed               |
| 4   | Integrated River Basin Management of the Mekong Basin Tributary for Adaptation to Climate Change   | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. OEURN Chantha                    | Mekong Korea Cooperation Fund (MKCF) | 380000       | 2024-2027 | - Identify flood hazards through field-based and modeling approaches by integrating extensive update datasets (hydrology, climate, land use, water quality, infrastructure)and strengthening community resilience. | Passed               |



|   |  |  |         |       |           |   |        |
|---|--|--|---------|-------|-----------|---|--------|
|   |  |  |         |       |           | <ul style="list-style-type: none"> <li>- Assess soil erosion and water quality to identify sustainable river basin management measures.</li> <li>- Introduce nature base solution (NBS) into watershed management for improvement of flood risk and soil loss and biodiversity within the river basin.</li> <li>- To build capacity for integrated river basin management at the national and sub-national levels.</li> </ul> <p>To develop and mainstream the policy brief for multi-stakeholders from the sub-national to the national level.</p> |        |
| 5 | Addressing Water Scarcity through Groundwater Use: Development of Solar-Powered Groundwater Treatment System for Remote Area of Cambodia | Dr. BUN Saret<br>Dr. HAM Phally  | MTT-RRP | 33000 | 2024-2025 | (i) preliminary assessment including groundwater quality assessment as an input data for treatment technology design and social survey for assessing the demand and perspective of the target end users of the newly developed water treatment unit, (ii) optimization of groundwater treatment process in terms of treatment performance and power consumption, and (iii) evaluation the operation performance of prototype system in the real scale community.  | Passed |
| 6 | Development of Eco-Friendly Microplastic Removal Filters from Seawater for Sea Salt Farms in Cambodia                                    | Dr. THENG Vouchlay<br>Ms. DOEURN Seyha,<br>Mr. HENG Oudam,<br>Dr. PENG Chanthol,<br>Mr. PHUONG Sovathana | UNDP    | 39000 | 2024-2025 | The main objective of the project is starting a pilot EMRF for the first microplastics (MPs) removal from seawater for salt farm in Cambodia, and raise awareness among the people about the risk of consuming microplastics through the food chain   | Passed |

|    |   |  |  |        |           |   |        |
|----|---|--|--|--------|-----------|---|--------|
| 7  | Establishment of Sustainable Groundwater Management Platform in the Lower Mekong Region   | Dr. EANG Khyeam  | Mekong-Republic of Korea Cooperation Fund (MKCF) | 499647 | 2025-2028 | To develop a Comprehensive Groundwater Database to track and analyze groundwater changes annually, serving as a benchmark for sustainable management in the Lower Mekong Region. To promote Regional Collaboration among Mekong countries and the ROK for Adaptive Groundwater Governance, integrating multi-year trend analysis into cross-border policy frameworks and capacity-building efforts. | Passed |
| 8  | Establishing an Evidence-based National Adaptation Plan (NAP): National Climate Report  | Dr. SOK Ty<br>Dr. SONG Layheang<br>Dr. KET Pinnara<br>Mr. HOUT Meng Hour | Ministry of Environment (GREEN CLIMATE FUND)     | 60000  | 2024-2025 | To analyze climate data and write a National Climate Report for Cambodia  | Passed |
| 9  | Sustaining the shared groundwater resources of the Transboundary Cambodia-Vietnam Mekong River Delta aquifer under climate change impacts through Strategic Gender equality, disability, and social inclusion (GEDSI) tools and suitable Nature-based Solution (SAGA) | Dr. PEN Sytharith, Dr. SANG Davin  | SEI  | 5000   | 2024-2025 | -Enhance resilience in the face of climate change by integrating energy, food, and water nexus<br><br>-Gender mainstreaming in groundwater resources management   | Passed |
| 10 | Evaluation of Nature-based solutions for the  | Dr. PEN Sytharith<br>Dr. HEU Rina  | APN  | 8000   | 2024-2025 | Access water supply and demand scenario of the Phnom Penh city of Cambodia.   | Passed |

|    |   |   |      |        |           |   |        |
|----|---|---|------|--------|-----------|---|--------|
|    | enhancement of urban water security in South-East Asian Cities                            |   |      |        |           | Identify feasible nature-based solution to enhance urban water security for drinking water and industrial water uses.<br><br>Assess environmental and socio-economic impacts of the feasible NBS using water case study . |        |
| 11 | Anticipating the inversions of the Tonle Sap river (INVERSAP)                             | Dr. DUONG Ratha<br>Dr. Paul Baudron,<br>Dr. Ratha Doung,<br>Dr. Khy Eam Eang,<br>Mr. Sambo Lun,<br>Dr. Sytharith Pen,<br>Mr. Vuthy Chork,<br>Dr. Sylvain Massuel<br>Mr. Jonathan Van Hanja<br>Dr. Kong Chhuon | IRD  | 100000 | 2024-2025 | Anticipating the inversion of the Tonle Sap river through collaborative sampling.   | Passed |
| 12 | Research collaboration on sustainable water resources management in Koh Ker heritage site | Mr. SOK Kimhuy<br>Mr. Chork vuthy,<br>Dr. Heng Sokchhay,<br>Chhoun Kong   | NAPV | 12000  | 2024-2025 | 1. Planning atlas; 2. Hydraulic infrastructure system; 3. Water resources utilization; 4. Natural disasters; 5. Catchment development plans   | Passed |
| 13 | Restoration of the Preah Vihear Temple's Gopura V (Phase II)                              | Mr. SOK Kimhuy<br>Mr. Chork vuthy,<br>Dr. Heng Sokchhay,<br>Chhoun Kong   | NAPV | 51500  | 2024-2025 | 1. Seismic survey;<br>2. Hydrological study; 3. Geotechnical study;<br>4. Technical presentation and meeting at province  | Passed |

|    |   |  |                  |       |           |   |        |
|----|---|--|------------------|-------|-----------|---|--------|
| 14 | Mutual learning toward just-in-time information for grassroots climate adaptation in the lower Mekong countries | Dr. PENG Chanthol<br>Ms. DOEURN Seyha;<br>Dr. THENG Vouchlay | Toyota Fondation | 60000 | 2024-2026 | Understand best practices of people along the Mekong River toward climate change adaptation for hydrological change of the Mekong River (water level change and local adaptation) and share the knowledge between Thailand and Cambodia | Passed |
|----|---|--|------------------|-------|-----------|---|--------|

#### **Annex 41. List of index publication from ETM Research Unit for the last 5 year.**

1. Oudaya Eth, Vannak Vai and Long Bun. (2024). Optimal Topology with Improved Phase Balancing and PV Hosting Capacity in a Low Voltage Distribution System. IJEETC. Doi : 10.18178/ijeetc.13.5.343-353.
2. Samphors Eng, Vannak Vai, Sothea Oeun, Monychot Sary, Phanit So, Dara Eam, Sokleap Heang, Sievlong Suk, Chhith Chhlonh, Darong Sorn, Kimsrornn Khon, Oudaya Eth. (2023). Development of Distribution System Automation for Teaching and Research at ITC: Digital Tool and GUI in MATLAB and SCADA. APPEEC. Doi: 10.1109/APPEEC57400.2023.10561917
3. Chhlonh, C., Alvarez-Herault, M. C., Vai, V., & Raison, B. (2023, October). Designing AC Low-Voltage Topologies for a Non-Electrified Area—A Case Study in Cambodia. In 2023 IEEE PES Innovative Smart Grid Technologies Europe (ISGT EUROPE) (pp. 1-6). IEEE.
4. Chhlonh, C., Alvarez-Herault, M. C., Vai, V., & Raison, B. (2023, October). Low-Voltage Microgrid Planning Strategies for an Isolated Village—A Case Study in Cambodia. In IECON 2023-49th Annual Conference of the IEEE Industrial Electronics Society (pp. 1-6). IEEE.
5. Pheak Kor, Kinnaeth Vongchanh, Latin Heang, Sarin Chan, Jackie Yang, (2023). MEASUREMENT SURVEY ON CONSTRUCTION LABOUR PRODUCTIVITY UNDER HEAT STRESS DURING THE COOL SEASON IN CAMBODIA, Journal of emerging technologies and innovative research (JETIR), 10(10), e174-e180.
6. Pisal Ken, Kinnaeth Vongchanh, Sarin Chan, Latin Heang, Samoeurn Cheng, (2023). THERMAL PROPERTIES OF BIOMASS BRIQUETTES MADE FROM WASTE MATERIALS, , Journal of emerging technologies and innovative research (JETIR), 10(10), e532-e538.
7. Sam Oeurn Cheng, Kinnaeth Vongchanh, Sarin Chan, Pisal Ken, Latin Heang, (2023). Experimental Study and Energy Analysis of Biomass Briquettes Produced from Dried Tree Leaves, Sawdust, Sugar Bagasse, and Rice Husk Using Fish Oil as a Binder, Journal of emerging technologies and innovative research (JETIR), 10(10), e532-e538.
8. Pheakdey Choun, Viza Heang, Sarin Chan, Kinnaeth Vongchanh, (2023), Investigation of the Effectiveness of the Modeling on the Glazed Window by Energy Simulation using EnergyPlus, Case study: Phnom Penh City, Cambodia, Journal of emerging technologies and innovative research (JETIR), 10(9), g114-g122.
9. Sophal Pey, Sarin Chan, Kinnaeth Vongchanh, Pheakdey Choun, (2023), Simulation of the Indirect Evaporative Cooling System using the 2-D Model Cross-flow for Cambodia's Climate Conditions, Journal of emerging technologies and innovative research (JETIR), 10(10), c299-c309.
10. Phoeurng Tork, Sarin Chan, Kinnaeth Vongchanh, Pheakdey Choun, (2023) Feasibility Study on the use of rooftop solar-powered Air conditioning in Residential Building, Case study: Phnom Penh City, Cambodia, Journal of emerging technologies and innovative research (JETIR), 10(10), c169-c177.
11. Mengly Morn, Kinnaeth Vongchanh, Sarin Chan, (2023) DESCRIPTIVE RESULTS OF THE PRELIMINARY DESIGN APPROACH OF THE SURVEY ON HEAT STRESS AMONG PRIMARY SCHOOL STUDENTS IN CAMBODIA, Journal of emerging technologies and innovative research (JETIR), 10(10), e197-e205.
12. Kimhak Neak, Kakda Kret, Tola Sreu, Sirisokha Seang, Chanmoly Or. (2023). The Milestone of Cambodian First Oil Production in the Khmer Basin, Gulf of Thailand. Open Journal of Yangtze Gas and Oil. 10.4236/ojogas.2023.82003.
13. Kimhak Neak, Kakda Kret, Tola Sreu, Sirisokha Seang, Sokunthea Khoun, Chanmoly Or. (2023). Integrated Petrophysical and Petrographical Studies for Reservoir Characterization: A Case Study of the

Khmer Basin in Cambodian Water, Gulf of Thailand. *International Journal of Oil, Gas and Coal Engineering*.

14. Sio, S., Or, Ch., Eng, Ch., Pech, S., Sreu, T. (2023). Review of Sedimentary Basin Evolution in Cambodia based on Tectonic Setting and Logical Information. *Berita Sedimentologi Indonesian Journal of Sedimentary Geology*, 9(2), 108-130. DOI: 10.51835/bsed.2023.49.2.403
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17. Eam, D., Vai, V., Chhlonh, C., & Eng, S. (2023). Planning of an LVAC Distribution System with Centralized PV and Decentralized PV Integration for a Rural Village. *Energies*, 16(16), 5995. DOI: <https://doi.org/10.3390/app11052146>
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19. Kimsrornn KHON, Chhith Chhlonh, Vannak VAI, Marie-Cecile ALVAREZ-HERAULT, Bertrand RAISON and Long BUN. 2023. Comprehensive low voltage microgrid planning methodology for rural electrification. <https://ieeexplore.ieee.org/abstract/document/10000324>
20. O. Eth, V. Vai, L. Bun, S. Eng and K. Khon, "Optimal Radial Topology with Phase Balancing in LV Distribution System Considering Energy Loss Reduction: A Case Study in Cambodia," 2022 4th International Conference on Electrical, Control and Instrumentation Engineering (ICECIE), Kuala Lumpur, Malaysia, 2022, pp. 1-6, doi: 10.1109/ICECIE55199.2022.10000324.
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23. Kimsrornn KHON, Vannak VAI, Marie-Cecile ALVAREZ-HERAULT, Long BUN, Bertrand RAISON. 2021., Planning Of Low Voltage Ac/Dc Microgrid For Un-Electrified Areas. <https://ieeexplore.ieee.org/abstract/document/9692581>
24. Kanika Yon, Marie-Cécile Alvarez-Hérault, Bertrand Raison, Kimsrornn Khon, Vannak Vai, Long Bun., 2021. Microgrids planning for rural electrification. <https://ieeexplore.ieee.org/abstract/document/9494966>
25. V. Vai, «Design of AC Microgrid Topology with Photovoltaic Uncertainties in a Rural Village,» *Makara Journal of Technology*, 2021, <https://doi.org/10.7454/mst.v25i1.3759>
26. S. Suk, V. Vai, R. Lorm, C. Chhlonh, S. Eng and L. Bun, «Modifying Switch Opening and Exchange Method for Distribution Network Reconfiguration with Distributed Generations,» 2021 9th International Electrical Engineering Congress (iEECON), 2021, pp. 85-88, doi: 10.1109/iEECON51072.2021.9440343. (International peer review).
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28. V. Vai et al., «Optimal Design of LVAC Distribution System Topology for a Rural Village,» 2021 9th International Electrical Engineering Congress (iEECON), 2021, pp. 93-96, doi: 10.1109/iEECON51072.2021.9440289. (International peer review)

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35. Chhlonh, C., Riawan, D. C., & Suryoatmojo, H. (2019, April). Simulation of independent speed steering control of four in-wheel BLDC motors direct drive for electric vehicle using hybrid fuzzy-PI controller in Matlab GUI. In *Proceedings of the 2019 2nd International Conference on Electronics, Communications and Control Engineering* (pp. 67-71).
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37. T. Nozaki, T. Nagase, Y. Takaya, et al., « Subseafloor sulphide deposit formed by pumice replacement mineralisation, » *Scientific Report* 11, 8809 (2021). <https://doi.org/10.1038/s41598-021-87050-z>. IF: 5.134
38. Kimsrornn KHON, Vannak VAI, Marie-Cecile ALVAREZ-HERAULT, Long BUN, Bertrand RAISON., 2021. Factors affecting the breakdown voltage along the insulator surface of a busbar for power modules
39. K. KHON, S. FICHTNER, M. ALVAREZ-HERAULT, V. VAI, L. BUN, B. RAISON, ‘‘Optimal design of low voltage AC/DC microgrid’’ SYMPOSIUM DE GENIE ELECTRIQUE (SGE 2020), 30 JUIN – 2 JUILLET 2020, NANTES, France
40. B. Kim, E. Boulaud, E. Boisaubert, S. Am, P. Chrin, “Study of the control of an AC voltage stabilizer using lqr and anti-windup”. 22<sup>nd</sup> European Conference on Power Electronics and Applications 7-11 September 2020, Lyon (France). Doi:10.3390/en13102410
41. Cravioto, J.; Ohgaki, H.; Che, H.S.; Tan, C.; Kobayashi, S.; Toe, H.; Long, B.; Oudaya, E.; Rahim, N.A.; Farzeneh, H. The Effects of Rural Electrification on Quality of Life: A Southeast Asian Perspective. *Energies* 2020, 13, 2410. <https://doi.org/10.3390/en13102410>
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43. M. Pietrzak-David, B. Kim, P. Maussion, C. Phok “Frugal Innovation for Sustainable Rural Electrification.” 22<sup>nd</sup> European Conference on Power Electronics and Applications 7-11 September 2020, Lyon (France).
44. Sok Chea AM, Phok CHRIN, Bunthern KIM, Menghorng BUN, Phing LIM, “High Isolated Transformer for a Serie Connected IGBTs Power Supply”.iEECON 2020, The international Electrical Engineering Congress, Thailand.
45. Vannak Vai and Long Bun, “Study on the Impact of Integrated PV Uncertainties into an Optimal LVAC Topology in a Rural Village”, ASEAN Engineering Journal, Vol. 10, No. 1, pp.79-92, March 2020.
46. Vannak Vai, Long Bun and Hideaki Ohgaki, “Integrated Battery Energy Storage into an Optimal Low Voltage Distribution System with PV Production for an Urban Village”, International Journal on Advanced Science, Engineering and Information Technology, Vol. 10, No. 6, pp.2458-2464, December 2020
47. Vannak Vai, Marie-Cécile Alvarez-Hérault, Bertrand Raison and Long Bun, “Optimal Low-Voltage Distribution Topology with Integration of PV and Storage for Rural Electrification in Developing Countries: A Case Study of Cambodia”, Journal of Modern Power Systems and Clean Energy, Vol. 8, No. 3, pp.531-539, May 2020

#### **List of Non-index publications for the last 5 years**

1. K. Thieng, V. Vai, O. Eth, “A Study of Decentralized Battery Energy Storage Integration into an Optimal Grid-Connected PV System with Zero Power Injection Considerations”, Techno-Science Research Journal, Institute of Technology of Cambodia, Cambodia, 2023.
2. Y. Neov, K. Khon, O. Eth, “Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid”, Techno-Science Research Journal, Institute of Technology of Cambodia, Cambodia, 2023.
3. Latin Heang, Porchaing Choeng, Kinnalesh Vongchanh, Sarin Chan. Experimental Investigation on Sawdust and Tree Leaf Briquette Using Fish Residues Oil as a Binder. Techno-Science Research Journal 8 (2020)
4. Porchaing Choeng, Latin Heang, Kinnalesh Vongchanh, Sarin Chan. Experimental Investigation on Rice Husk and Bagasse Briquette Using Fish Oil as Binder. Techno-Science Research Journal 8 (2020)

#### **List of Conferences for the last 5 years**

1. Heang Latin, Kinnalesh Vongchanh. Yang Yang, Chan Sarin, Kor Pheak (2024), Environmental Heat Stress and Labor Productivity: A Case Study of Cambodian Construction Workers During Hot Months, International Conference on National Science and Engineering (ICNSE 2024).
2. Kinnalesh Vongchanh, Sarin Chan, Albert Chan, Yang Yang (2024) Descriptive Analysis on the Impact of Thermal Environment on Construction Labor Productivity in Cambodia, International Conference on National Science and Engineering (ICNSE 2024).
3. Kakda Pov, Kakda Kret, Kimtho Po, Sirisokha Seang, Christophe Révillion, Thibault Catry, Renaud Hostache, Vincent Herbreteau, Vannak Ann (2024). Land Surface Temperature and Green Health Vegetation Variability across Lithology and Land Use and Land Cover in the Chrey Bak catchment. KHEOBS Day.
4. Chan Virak, Sirisokha Seang, Kakda Kret, Kotaro Yonezu, Koichiro Watanabe. 2024. Preliminary study on Petrography and Geochemistry of Basaltic rock in Ratanakiri province, Northeast Cambodia. The 13th Scientific day conference, Institute of Technology of Cambodia, Cambodia.
5. Jolsa Heng, Sirisokha Seang, Kakda Kret, Kotaro Yonezu, Koichiro Watanabe. 2024. The Quart veins, hydrothermal alteration, and ore mineralization of epithermal prospect, Phnom Sro Ngam, Chhouk district, Kampot province. The 13th Scientific day conference, Institute of Technology of Cambodia, Cambodia.



6. Yoklin Neov, Oudaya Eth, Kimsrornn Khon, "Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid", 12th Scientific day conference, Institute of Technology of Cambodia, Cambodia, 2023.
7. Kimtheng Thieng, Vannak Vai, Oudaya Eth, Samphors Eng "Study of the Technical Impact of Battery Energy Storage on PV Hosting Capacity in LVAC Distribution System: A Case Study in Cambodia" 12th Scientific day conference, Institute of Technology of Cambodia, Cambodia, 2023.
8. Kakda Pov, Kakda Kret, Sirisokha Seang, Kotaro Yonezu, Koichiro Watanabe, Chanmoly Or. Kimhak Neak, Chanmaly Chhun, Seangleng Hoeun. (2023). Remote sensing techniques using advanced space-borne thermal emission and reflection (ASTER) and Landsat-8 in the detection of alterations in Preah Vihear, North Cambodia. International Symposium on Earth Science and Technology, Japan.
9. Vannak Por, Seang Sirisokha, Kakda Kret, Kimhouy Oy, Jaydee Ammugauan, 2023. Lithology, Ore Mineralization, and Hydrothermal Alteration of Canada Wall Porphyry Cu-Mo-Au at Andongmeas, Ratanakiri, Cambodia. The 12th Scientific Day Institute of Technology of Cambodia.
10. Rorn Khanin, Seang Sirisokha, Kret Kakda, Kimhouy Oy. Lithology, 2023. Alteration Minerals, and Ore Mineralization in Memot, Tbong Khmum Province, Cambodia. The 12th Scientific Day Institute of Technology of Cambodia.
11. Soy Makara, Sath Sithea, Muon Ratha, Seang Sirisokha, Kret Kakda, Ann Vannak, Pascal Jouquet, Rainer Zaiss, 2023. Use of historical aerial photographs for land use mapping in Stung Chrey Back catchment between 1952-1972. The 12th Scientific Day Institute of Technology of Cambodia.
12. Pottheanaram Nhim, Sirisokha Seang, Kakda Kret, Kimhouy Oy, Jaydee Ammugauan Lithology, Ore mineralization, and Hydrothermal Alteration of Drill hole ZK\_40 in Chhouk District, Kampot Province, Cambodia, 2023. The 12th Scientific Day Institute of Technology of Cambodia.
13. Chandara Seng, Sirisokha Seang, Kakda Kret, Jolsa Heng, Yana Chhoeun, Ravey Chan, Mithona Horn, Vireak Chan, Muhammad Irman Khalif Ahmad Aminuddin, 2023. Preliminary Study on Petrography and Geochemistry of Basaltic Rock in Mondulkiri, and Ratanakiri Province, Northeast Cambodia, The 12th Scientific Day Institute of Technology of Cambodia.
14. Kheng Rothana, Sirisokha Seang, Kakda Kret, Oy Kimhouy, Hang Bunna, Jaydee Ammugauan, Samnang Kong, 2023. Lithology, Hydrothermal Alteration, and Ore Mineralization of Area 5 in Koh Sla, Chhouk District, Kampot Province, Southern Cambodia. The 12th Scientific Day Institute of Technology of Cambodia.
15. Kimhak Neak, Kakda Kret, Tola Sreu, Kakda Pov, Chanmoly Or, Sokunthea Khoun. (2023) Integrated Petrophysical and Petrographical Studies for Reservoir Characterization: A Case Study of the Khmer Basin in Cambodian Water, Gulf of Thailand. COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES IN EAST AND SOUTHEAST ASIA (CCOP), Thailand.
16. Latin Heang, Kinnalesh Vongchanh, Pheak Kor, Sarin Chan, Yang Yang, A CASE STUDY OF HEAT STRESS AND CONSTRUCTION LABOR PRODUCTIVITY IN PHNOM PENH, CAMBODIA, Heat on Human Health Symposium 2023, 15-16 Nov 2023, Bangkok, Thailand.
17. Kinnalesh Vongchanh, Heat stress investigation in industrial/workplace environment to prevent the productivity loses for Cambodia, 4th Asia Pacific Conference on Industrial Engineering and Operations Management in HCMC, 11-14 Sep 2023, Vietnam.
18. Pheak Kor, Kinnalesh Vongchanh, Latin Heang, Jackie Yang Yang , Sarin Chan, Investigation on the Impact of Heat Stress on Construction Labor Productivity during the Cool Season in Cambodia, the 12 Scientific Day, 08-09 June 2023, Phnom Penh, Cambodia.
19. Sophal Pey, Sarin Chan, Kinnalesh Vongchanh, Simulation of an indirect evaporative cooling system using the 2-D model cross flow for Cambodia's climates, the 12 Scientific Day, 08-09 June 2023, Phnom Penh, Cambodia.
20. C. Chhlonh, M. -C. Alvarez-Herault, V. Vai and B. Raison, "Low-Voltage Microgrid Planning Strategies for an Isolated Village — A Case Study in Cambodia," IECON 2023- 49th Annual Conference of the

- IEEE Industrial Electronics Society, Singapore, Singapore, 2023, pp. 1-6, doi: 10.1109/IECON51785.2023.10312050.
21. Eng, S., Chou, K., Thourn, K., Vai, V., Kim, B., Thiriet, J. M., & Yahoui, H. (2023, March). "A Survey on Industrial Sector Status for Curricula Improvement Linked to Industry 4.0 in Electrical Engineering Program at ITC". In 2023 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON) (pp. 330-334), Phuket, Thailand, DOI: 10.1109/ECTIDAMTNCON57770.2023.10139750
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  23. Neov, Y., Khon, K., Eth, O., & Vai, V. Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid: Hierarchical Vs K-M, Malaysia, 2023 8th IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE)-ICRAIE 2023.
  24. Thieng, K., Eth, O., Samphors, E., Vai, V. A Study of Decentralized Battery Energy Storage Integration into an Optimal Grid-Connected PV System with Zero Power Injection Considerations, *Techno-Science Research Journal* 2023.
  25. Heang, L., Vongchanh, K., Chan, S., Kor, P., & Yang, Y. 2023. Effects of Heat Stress on Cambodian Construction Productivity. The CCCA3 Knowledge Sharing Event 2023.
  26. Oeun Sothea, Eng Samphors, Vai Vannak, Chim Charkya, So Phanit, Sary Monychot, LV System Modelling Considers Reverse Power Flow Analysis using Relay Vs Battery, the 12th scientific day of ITC, 8-9 June 2023, Phnom Penh, Cambodia.
  27. SARY Monychot, VAI Vannak, ENG Samphors, SO Phanit, OEUN Sothea, CHIM Chakrya, Optimize Phase Balancing and Sizing DGs at the Rural Village in Cambodia, the 12th scientific day of ITC, 8-9 June 2023, Phnom Penh, Cambodia.
  28. Chim Chakrya, Oeun Sothea, Eng Samphors, Vai Vannak, So Phanit, Sary Monychot, Rural Electrification with Off-Grid system, the 12th scientific day of ITC, 8-9 June 2023, Phnom Penh, Cambodia.
  29. Thyra Thon, Vannak Vai, Darong Sorn, Samphors Eng, Techno-Economic Analysis of Feeder Routing for MV Distribution Systems, the 12th scientific day of ITC, 8-9 June 2023, Phnom Penh, Cambodia.
  30. Kimtheng Thieng, Vannak Vai, Oudaya Eth, Samphors Eng, Study of the Technical Impact of Battery Energy Storage on PV Hosting Capacity in LVAC Distribution System: A Case Study in Cambodia, the 12th scientific day of ITC, 8-9 June 2023, Phnom Penh, Cambodia.
  31. Rorn, K., Seang, S., Kret, K., Oy, K. and Ammugauan, J. (2023) Lithology, Alteration Minerals, and Ore Mineralization in Memot, Tbong Khmum Province, Cambodia. *Proceedings of the ITC's 12th Scientific Day*, 8-9 May 2023
  32. Por, V., Seang, S., Kret, K., and Oy, K. (2023) Lithology, Ore mineralization, and Hydrothermal Alteration of Canada Wall Porphyry Cu-Mo-Au at Andongmeas, Ratanakiri, Cambodia. *Proceedings of the ITC's 12th Scientific Day*, 8-9 May 2023
  33. Neov Yoklin, Oudaya Eth, Kimsornn KHON, Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid, *Proceedings of the ITC's 12th Scientific Day*, 8-9 May 2023
  34. Pheak Kor, Latin Heang, Jackie Yang Yang, Kinnalesh Vongchanh, Sarin Chan, Assessing on the Impact of Heat Stress on Construction Labor Productivity during Cool Season in Cambodia, *Proceedings of the ITC's 12th Scientific Day*, 8-9 May 2023.
  35. Sophal Pey, Sarin Chan, Kinnalesh Vongchanh, Simulation of an indirect evaporative cooling system using the 2-D model cross flow for Cambodia's climates, *Proceedings of the ITC's 12th Scientific Day*, 8-9 May 2023.

36. K Vongchanh and S Chan, Testing the hydraulic press machine for densification of biomass briquette for household use, International postgraduate conference for energy research, December 19, 2022, Kuala Lumpur, Malaysia.
37. Pheakdey Choun, Viza Heang, Sarin Chan, Kinnalesh Vongchanh, Simulation of Energy consumption for Flat using EnergyPlus, the 11th scientific day of ITC, 5-6 May 2022, Phnom Penh, Cambodia.
38. V. Chea, L. Heang, K. Vongchanh, S. Chan, A Descriptive Results on Environment Affecting Pupils in Cambodia – Case Study Primary Schools in Phnom Penh, 2nd ASEAN International Conference on Energy and Environment, 14-15 September 2022, Phnom Penh, Cambodia.
39. Morn Mengly, Kinnalesh VONGCHANH, CHAN Sarin, Latin HEANG, A Descriptive Results on Environment Affecting Pupils in Cambodia – Case Study Primary Schools in Phnom Penh, 2nd ASEAN International Conference on Energy and Environment, 14-15 September 2022, Phnom Penh, Cambodia.
40. Samoeurn Cheng, Kinnalesh Vongchanh, Sarin Chan, Latin Heang, Pisal Ken, Exergy Analysis of Biomass Briquette System, The 15th Regional Conference on Energy Engineering And The 13th International Conference on Thermofluids 2022, 25-26, October, 2022, Yogyakarta, Indonesia.
41. Pisal Ken, Kinnalesh Vongchanh, Sarin Chan, Latin Heang, Samoeurn Cheng, Thermal Properties of Biomass Briquettes made from Waste Materials. (2022). The 15th Regional Conference on Energy Engineering and The 13th International Conference on Thermofluids 2022, 25-26, October, 2022, Yogyakarta, Indonesia.
42. Kinnalesh Vongchanh, Sarin Chan, Testing the hydrulic press machine for densification of biomas briquettes for household use, The International postgraduate confrence for energy research 2022, 19 December 2022, Kuala Lumpur, Malaysia.
43. Ly, P., Seang, S., Kret, K., Oy, K., Yonezu, K., Watanabe, K., Sreu, T. (2022) Lithology, hydrothermal alteration, and ore characteristics of Area-1 in Koh Sla, Chhouk district, Kampot Province, southern Cambodia. Proceedings of the International Symposium on Earth Science and Technology, Japan.
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48. M. Morn, K. Vongchanh, S. Chan, L. Heang (2022), A Descriptive Results on Environmental Affecting Pupils in Cambodia – Case Study Primary Schools in Phnom Penh, The 2nd ASEAN International Conference on Energy and Environment.
49. V. Chea, L. Heang, K. Vongchanh, S. Chan (2022), Workers' Perceptions of Occupational Heat Stress- a survey among garment workers in Phnom Penh, The 2nd ASEAN International Conference on Energy and Environment.
50. P. Ken, K. Vongchanh, S. Chan, L. Heang, S. Cheng (2022), Investigation of Briquette Thermophysical Properties and Gas Emissions, Seminar Thermofluid UGM
51. S. Cheng, S. Chan, K. Vongchanh, L. Heang, P. Ken (2022), Investigation of Briquette Thermophysical Properties and Gas Emissions, The 11<sup>th</sup> Scientific Day

52. P. Ken, K. Vongchanh, S. Chan, L. Heang, S. Cheng (2022), Exergy Analysis of Biomass Briquette System, The 11<sup>th</sup> Scientific Day.
53. Muoy Y. H., Chungyeun L., Saranyu H., Chandoeun E., Frederic N., 2022. Quality assurance of Concrete pile using Cross-hole Sonic Logging and Soil Profile. International Symposium on Earth Science and Technology 2022.
54. KEO T., HENG. M. Y., CHORK S., LANG R., HENG H., 2022., The Primary Geochemistry Evaluation on the Geothermal source in Te Teuk Pus Hot Spring in Oral district, Kompong Speu province, Cambodia., International Symposium On Earth Resources And Geo-Environmental Technology 2022.
55. Chungyeun L., Chandoeun E., Muoy Y. H., Phanny Y., 2022., Concrete Pile Defect Identification: Insights from Cross-Hole Sonic Logging and High Strain Dynamic Pile Test., The 4th ICCEE Proceedings.
56. Chungyeun L., Chandoeun E., Muoy Y. H., Phanny Y., 2022., Cross-Hole Sonic Logging and Dynamic Load Test for Concrete Pile Integrity Analysis., THE 11TH SCIENTIFIC DAY, Phnom Penh.
57. Sreymean Sio, Chandoeun Eng, Chanmoly Or. (2022). Seismic Interpretation and Tectonic Evolution of Tonle Sap Basin, Onshore Cambodia, the 11<sup>th</sup> Scientific Day of ITC
58. Sreymean Sio Chanmoly Or, Chandoeun Eng (2022). Review of Sedimentary Basin Formation and Petroleum System of Khmer Basin, Offshore Cambodia, the International Symposium on Earth Science and Technology 2022.
59. Sopheap PECH, Chandoeun ENG, Chanmoly OR, Sreymean SIO, Ratha HENG, Chitra BUTH (2022). Geochemistry of Shales and Limestones in Battambang Province: Implications for Depositional Environment, the 1<sup>st</sup> International Conference on Earth Resources and Geo-Environment Technology 2022.
60. Sreyleap Koem, Chandoeun Eng, Sopheap Pech, Kimhouy Oy, Sreymean Sio (2022). Sedimentary Facies and Sandstone Characteristics of Outcrop at Phnom Thippadei, Battambang Province, Cambodia, the 1<sup>st</sup> International Conference on Earth Resources and Geo-Environment Technology 2022.
61. They Chhun, Chandoeun Eng, Kimhouy Oy, Sopheap Pech, Sreymean Sio, Chaimongkhon Proeung. (2022). Petrography and geochemistry properties of limestone at Sampov Mountain in Battambang province, Cambodia, the 1<sup>st</sup> International Conference on Earth Resources and Geo-Environment Technology 2022.
62. Vechheka OEUR, Chandoeun ENG, Sopheap PECH, Kimhouy OY, Sreymean SIO. (2022). Lithofacies identification of outcrop in Takream mountain at Pouy Svay village, Takream Commune, Banan District, Battambang Province, Western Tonle Sap Basin, Onshore Cambodia, he 1<sup>st</sup> International Conference on Earth Resources and Geo-Environment Technology 2022.
63. Sreymean Sio, Chanmoly Or, Chandoeun Eng. (2021). Review of Petroleum Systems Around Cambodia, the 10<sup>th</sup> Scientific Day of ITC.
64. Reach S. L., Muoy. Y. H. (2021). Preliminary Investigation of Geothermal Reservoir in Oral District Kampong Speu Province, Cambodia. Virtual GEOSEA 2021.
65. Sokheng C., Muoy Y. H., Ichhuy N., and Phanny Y. (2021). The Preliminary Investigation on Geothermal Hot Spring, Te Tek Pus in Oral District, Kampong Speu Province, Cambodia., International Symposium on Earth Science and Technology 2021., p172-176., ( best paper award ).
66. Menghor LEAP., Muoyyi HENG., Nallis KRY., Ichhuy NGO. (2020). Investigation on lithology and mineral alteration of geothermal resources in Te Teuk Pus hot spring, Kampong Speu province, Cambodia., 12th AUN/SEED-Net Regional Conference on Geological and Geo-Resources Engineering.
67. Menghor LEAP., Muoyyi HENG., Nallis KRY., Ichhuy NGO. 2020. Primary Investigation on Lithology and Alteration for Geothermal Resource in Te Tekpos, Oral District, Kompong Speu Province, Cambodia., Proceedings of International Symposium on Earth Science and Technology, 2020.p 450-456.

68. Sokvireak Say., Chanmoly Or., Muoyyi Heng. (2020). Hydrocarbon Reservoir Characterization Using Well Logs Data Analysis, Offshore Cambodia. Proceedings of International Symposium on Earth Science and Technology, 2020, p216-221.
69. K. Vongchanh (2021), Alternative of biomass waste to energy sources as biomass briquettes in Cambodia, 11th Annual International Conference on Industrial Engineering and Operations Management.
70. K. Vongchanh (2021), Development of home solar dryer for drying of fish in Cambodia, International Symposium on Environment/Eco-technology and Policy (EETP) in East Asian
71. L. Heang, K. Vongchanh, S. Chan. (2020). Investigation on Application of Fish Oil as Binding Material in Biomass Briquetting Process, The 10th RC MEManuE 2020.

## Annex 42. List of publication from FTN Research Unit.

### List of Index publications for the last 5 year

1. Bunthan, M., Pov, L., Kong, S., Say, M., Nat, Y., Tan, C. P., & Tan, R. (2024). Study of kinetic model for the adsorption of  $\beta$ -carotene on activated bleaching earth in the bleaching of Cambodian soybean oil. *Journal of Food Science and Nutrition Research*, 7, 37-43.
2. Say, M., Kong, S., Nat, Y., Tan, C. P., & Tan, R. (2024, February). A study on the physicochemical characteristics of popular cooking oils in Cambodia. In IOP Conference Series: Earth and Environmental Science (Vol. 1297, No. 1, p. 012002). IOP Publishing.
3. Oeum, K., Suong, M., Uon, K., Jobert, L., Bellafiore, S., Comte, A., ... & Moulin, L. (2024). Comparison of plant microbiota in diseased and healthy rice reveals methylobacteria as health signatures with biocontrol capabilities. *Frontiers in Plant Science*, 15, 1468192.
4. Peng, C., Moniroth, S., Khy, P., Chea, S., Thanh, C., Heng, O., ... & Caruso, D. (2024). Antibiotic resistance profiles of sentinel bacteria isolated from aquaculture in Cambodia. *Journal of Water and Health*, 22(6), 1033-1043.
5. Thanh, C., Mith, H., Peng, C., Servent, A., Poss, C., Laillou, A., ... & Avallone, S. (2024). Assessment of the nutritional profiles and potentially toxic elements of wild and farmed freshwater fish in Cambodia. *Journal of Food Composition and Analysis*, 133, 106357.
6. Lay, S., & Houng, P. (2024). Maximizing Yield of Phenolic Compounds Extracted from White Turmeric Through Extraction Process Design. In *Journal of Physics: Conference Series* (Vol. 2671, No. 1, p. 012018). IOP Publishing.
7. Say, M., Heng, P., Kong, S., & Tan, C. P. (2024). Sivchheng Phal, Yukleav Nat, Reasmey Tan. Characterization of Physicochemical Properties of Cooking Oils Sold in Phnom Penh, Cambodia. *Journal of Food Science and Nutrition Research*, 7, 28-36.
8. Rodriguez, C., Mith, H., Taminiau, B., Korsak, N., Garcia-Fuentes, E., & Daube, G. (2023). Microbial Food Safety Assessment of Organic Food and Feed: Notifications in the EU RASFF during 2020–2022. A Systematic Review. *Transboundary and Emerging Diseases*, 2023.
9. Kong, S., Keang, T., Bunthan, M., Say, M., Nat, Y., Tan, C. P., & Tan, R. (2023). Hydraulic Cold-Pressed Extraction of Sacha Inchi Seeds: Oil Yield and Its Physicochemical Properties. *ChemEngineering*, 7(4), 69.
10. Say, M., Kong, S., Nat, Y., Tan, C. P., & Tan, R. (2023). Oil extraction through hydraulic pressing from Cambodian soybean seeds and analysis of its physicochemical quality. *Journal of Food Technology*, 10(4), 93-102.
11. Mich, M., Kong, S., Say, M., Nat, Y., Tan, C. P., & Tan, R. (2023). Optimization of solvent extraction conditions of Cambodian soybean oil using response surface methodology. *Journal of Food Technology Research*, 10(1), 1-10.
12. Uon, K., Sorn, S., Stéphane, B., & Suong, M. (2023, November). The Effects of Soil Microbiomes on Preventing Nematode Damage to Rice Plants. In *Biology and Life Sciences Forum* (Vol. 27, No. 1, p. 49). MDPI.
13. Lay, S., Sen, S., & Houng, P. (2023). Assessment of Bioactive Compounds in Red Peppercorns (*Piper nigrum* L.) for the Development of Red Peppercorns Powder. *ChemEngineering*, 7(5), 83.
14. Chrun, R., Mith, H., Meng, S., Long, S., Born, P., & Inatsu, Y. (2023). Assessing Prevalence and Antibiotic Resistance of *Escherichia coli* and Other Enterobacteriaceae Isolated from Cambodian Fermented Fish and Vegetables. *Japan Agricultural Research Quarterly: JARQ*, 57(4), 311-320.
15. Nguyen, H. T., Vang, S., Phan, N. T., Czernic, P., Trinh, P. Q., Ha, C. V., ... & Bellafiore, S. (2023). Identification and characterization of a virulent population of *Meloidogyne graminicola*. *Australasian Plant Pathology*, 1-15.

16. Ly, L., Te, C., Chanto, M. T., & Tan, R. (2023). Impact of Different Raw Materials on Changes in Volatile Compounds during Moromi Fermentation. In *Biology and Life Sciences Forum* (Vol. 26, No. 1, p. 103). MDPI.
17. Bunthan, M. ., Say, M. ., Kong, S. ., Nat, Y. ., Tan, C. P. ., & Tan, R. (2023). Oil extraction through hydraulic pressing from Cambodian soybean seeds and analysis of its physicochemical quality. *Journal of Food Technology Research*, 10(4), 93–102. <https://doi.org/10.18488/jftr.v10i4.3545>
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19. Chor, L., Sroy, S., Peng, C., Doeurn, S. (2023). Process Optimization and Quality Assessment of Nem, a Traditional Cambodian Lactic Acid Fermented Fish Product. *Journal of Food Science and Nutrition Research*, 6 (4)
20. Nget, S., Mith, H., Boué, G., Curet, S., & Boillereaux, L. (2023). The Development of a Digital Twin to Improve the Quality and Safety Issues of Cambodian Pâté: The Application of 915 MHz Microwave Cooking. *Foods*, 12(6), 1187.
21. Houn, P., Ly, K., & Lay, S. (2023). Valorization of kaffir lime peel through extraction of essential oil and process optimization for phenolic compounds. *Journal of Chemical Technology & Biotechnology*. DOI 10.1002/jctb.7354
22. Yin, M., Bohuon, P., Avallone, S., In, S., & Weil, M. (2022). Postharvest treatments of turmeric (*Curcuma longa* L.) in Cambodia-Impact on quality. *Fruits*, 77 (6) : pp. 1-13. <https://doi.org/10.17660/th2022/026>
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24. Chin, L, N. Therdthai and W. Ratphitagsanti. (2022). Effect of conventional and microwave cooking conditions on quality and antioxidant activity of Chinese kale (*Brassica alboglabra*). *Applied Food Research*. 2 (1). Article ID 100079. <https://doi.org/10.1016/j.afres.2022.100079>
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26. Chea, C. , Ket, P. , Taing, L. , Kong, S. , Um, D. , Taing, C. , Or, C. , Aun, S. and Hang, L. (2022) Life-Cycle Impact Assessment of Air Emissions from a Cement Production Plant in Cambodia. *Open Journal of Air Pollution*, 11, 85-99. doi: 10.4236/ojap.2022.114007.
27. Hor S., Lechaudel M., Lebrun M., Avallone S., Bugaud C.. (2022). How cold storage influences physicochemical properties of mango cv. 'Kent' according to the density. *Fruits*, 77 (3) : p. 1-11.
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DOI: <https://doi.org/10.48048/tis.2021.10>
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42. Rodriguez, C., Mith, H., Taminiau, B., Bouchafa, L., Van Broeck, J., Soumillion, K., ... & Daube, G. (2021). First isolation of *Clostridioides difficile* from smoked and dried freshwater fish in Cambodia. *Food Control*, 124, 107895.
43. Sroy, S., Arnaud, E., Servent, A., In, S., & Avallone, S. (2021). Nutritional benefits and heavy metal contents of freshwater fish species from Tonle Sap Lake with SAIN and LIM nutritional score. *Journal of Food Composition and Analysis*, 96, 103731.
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45. Dey, D., Richter, J.K., Ek, P., Gu, B.-J., & Ganjyal, G.M. (2020). A review of food processing by-products utilization in extrusion processing. *Frontiers (Sustainable Food Systems)*. Vol. 4. Article: 603751. <https://doi.org/10.3389/fsufs.2020.603751>
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1. Soeum, S., Phuong, H., Mom, V., Yong, P., Hor, S., Chin, L., Mith, H (2024). Assessment of proximate chemical composition of Cambodia rice varieties. *Techno-Science Research Journal* Vol 12, 53-60.
2. Ly, H., Phoung, H., Sovann, R., Ek, P., Theng, S., Puth, S., Mith, H (2024). Investigation of the influence of extrusion conditions on Cambodian extruded rice vermicelli. *Techno-Science Research Journal* Vol 12, 19-26.
3. Sovann, R., Mith, H., Ek, P., Ly, H., Phoung, H., Theng, S (2024). Physico-chemical characteristics of rice-based cereal processed by twin-screw extrusion and microwave cooking. *Techno-Science Research Journal* Vol 12, 10-18.
4. Peng, C., Choeng, L., Yoeun, S., Doeurn, S (2023). Evaluation of Histamine Content in Lactic Fermented Fish Product, Nem, by Enzymatic Test Kit. *STI Focus: Science, Technology and Innovation*, 2 (2), 27-31
5. S. Som, M. Buthan, S. Kong, Y. Nat, R. Tan (2023). Oil extraction from soybean seeds through hydraulic pressing and valorization of its by-product. *STI Focus: Science, Technology and Innovation*, 2 (2), 04-17
6. P. Yong, S. Soem, V. Mom, S. Theng, H. Mith (2023). Characterization of physicochemical properties and microbiological quality of Khmer Rice Vermicelli (Num Banhchok) collected in Phnom Penh Capital, Cambodia. *Techno-Science Research Journal* Vol 11, 66-73.
7. S. Khut, O. Heng, C. Peng, D. Caruso. Preliminary study on physicochemical quality and antibiotic-resistant *E. coli* and *Aeromonas* spp. in aquaculture of *Pangasius* in Kampong Thom Province. *Techno-Science Research Journal* Vol 11, 46-52A. Chung, S. Yoeun, S. Chek, C. Chey, T. Sriv, V. Soav, K. Phon (2022). Assessment of pesticide contamination in water sources in the vegetable farms in S'ang Kandal province. *The Bulletin of Cambodian Chemical Society* Vol 13.
8. L. Set, S. Sroy, L. Chor, H. Mith, S. Yoeun, S. Doeurn, C. Thanh, C. Peng\* (2022). Chemical and Microbiological Analysis of Traditional Fermented Fish and Meat Products Collected from Battambang, Cambodia. *Techno-Science Research Journal* Vol 10.
9. L. Thourn, C. Phat, M. Suong, S. Sieng, S. Heng, S. Yoeun (2022). Identification of Pesticide Contamination in Water Sources Surrounding Agrochemical-Free Rice Farming in Battambang Province. *Techno-Science Research Journal* Vol 10.
10. P. Chhay, P. Houn, and S. Lay, 2022. Effect of pretreatment on extraction of essential oil from kaffir lime leaves. *Techno-Science Research Journal* Vol 10.
11. S. Song, P. Houn, and S. Lay, 2022. Optimization of extraction conditions for phenolic compounds extracted from Cassumunar ginger (*Zingiber montanum*). *Techno-Science Research Journal* Vol 10.
12. S. Met, P. Houn, P. Ek, P. Yun, and S. Lay, 2022. Drying kinetic and the changes of physicochemical properties and bioactive content of dried tomatoes during hot air drying. *Techno-Science Research Journal* Vol 10.
13. Y. Nat, P. Houn, S. Lay, 2021. Effect of Ultrasound-Assisted Extraction Condition on Extraction of Bioactive Compounds from Khmer White Turmeric (*Curcuma Zedoaria*). *The Bulletin of Cambodian Chemical Society* 12.
14. S. Yoeun, S. Ly, F. Kuok, 2021. Alcohol-Based Hand Rub Analysis by High Performance Liquid Chromatography. *The Bulletin of Cambodian Chemical Society* 12.
15. S. Hoeun, S. Lay, P. Houn, S. In, 2021. Impact of Blanching and Drying on Bioactive Compounds of Black Turmeric. *The Bulletin of Cambodian Chemical Society* 12.

16. S. Lay, P. Houn, S. In, 2021. Effects of Solvent and Time on Extraction of Bioactive Compounds from Cambodia Black Turmeric Using Ultrasound-Assisted Extraction. *Techno-Science Research Journal* 9.
17. M. Yin, S. Heng, S. Rem, L. Chin, 2021. Development of Spicy Sweet Chili Sauce. *Techno-Science Research Journal* 9.
18. M. Yin, W. Ratphitsanti, N. Therdthai, 2021. Changes on Qualities of Gluten-free Chalky Rice Breadstick during Storage. *Techno-Science Research Journal* 9.
19. S. Chuon, M. T. Chanto, R. Tan, C. Peng, 2021. Isolation and Characterization of Lactic Acid Bacteria from Soy-based Products. *Techno-Science Research Journal* 9.
20. Ek, P. & Ganjyal, G.M. (2020). Basics of extrusion processing. In *Extrusion Cooking: Cereal Grains Processing*. Wood Publishing, an imprint of Elsevier, Inc. and Cereals and Grains Association.
21. Ek, P., Kowalski, R.J., & Ganjyal, G.M. (2020). Raw materials behaviors in extrusion processing I. In *Extrusion Cooking: Cereal Grains Processing*. Wood Publishing, an imprint of Elsevier, Inc. and Cereals and Grains Association.
22. Ek, P., Baner, J.M., & Ganjyal, G.M. (2020). Extrusion processing of cereal grains and seeds. In *Extrusion Cooking: Cereal grains processing*, an imprint of Elsevier, Inc. and Cereal and Grains Association.
23. Morantes, G., Ek, P., & Ganjyal, G.M. (2020). Food safety in extrusion processing. In *Extrusion Cooking: Cereal grains processing*, edited by Ganjyal GM, an imprint of Elsevier, Inc. and Cereal and Grains Association.
24. L. Ly, M. T. Chanto, C. Peng, R. Tan, 2020. Market study of soy sauces in Cambodia. *Techno-Science Research Journal*, 2020, Volume 8, 64–68.
25. S. Kai, S. Yeoun, C. Phat, 2020. Analysis of pesticide residues in sediment from Chhnok Tru, Kampong Chhnang using different extraction methods. *Techno-Science Research Journal* 8.
26. D. Vantha, C. Peng, H. Mith, 2020. Detection and susceptibility of antibiotic-resistant *Enterococcus* spp. in fermented and pickled vegetables. *Techno-Science Research Journal* 8.
27. C. Phat, S. Rann, P. Teav, S. Soeung, F. Kuok, E. G. Mariquit, W. Kuriniawan, H. Hinode, 2020. Assessment of pesticide residues in surface water, sediment, and fish from Chhnok Tru, Kampong Chhnang. *Techno-Science Research Journal* 8.
28. S. Hoeun, E. Mom, S. In, 2020. Optimization of white pepper (*Piper nigrum* L.) processing by enzymatic activity. *Techno-Science Research Journal* 8.
29. Kuoch, Th., Khoern, K., (2020). Distribution and Ecological Risk of Heavy Metals from Mining Areas: A Case Study in Chong Phlah Village, Chong Phlah Commune, Kaev Seima District, Monduliri Province, Northeast of Cambodia. *Techno-Science Research Journal* 8.
30. V. Phoem, S. Ly, H. Mith, 2020. Cambodian Rice Liquor Development using *Rhizopus oryzae*, *Saccharomyces cerevisiae* and alpha-amylase. *Techno-Science Research Journal* 8.
31. S. Yoeun, 2020. High Performance Liquid Chromatography: Principle and Basic Application. *The Bulletin of Cambodian Chemical Society* 11.
32. P. Ek, F. Kuok, W. Kuriniawan, E. G. Mariquit, H. Hinode, C. Phat, 2020. Preliminary study on chemical pollutants in Tonle Sap Lake, Cambodia. *The Bulletin of Cambodian Chemical Society* 11.
33. R. Kong, S. Lun, P. Kang, C. Soeng, L. Blanchot, S. Kim, M. Leti, B. Fabre, H. Mith, 2020. Optimization of extraction and analysis of physico-chemical properties and chemical compositions of fatty oils extracted from kernel seed of different mango (*Mangifera indica* L.) varieties. *The Bulletin of Cambodian Chemical Society* 11.

### List of Conferences for the last 5 year

1. S. Kiv, S. Sroy, P. Ek. Enhancement of nutritional quality and shelf life of dried fish powder made from Thai river sprat fish (*Clupeoides borneensis*) and striped snakehead fish (*Channa Striata*). The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.

2. M. Phang, Y. Nat, M. Hun, M. Say. Effect of screw press speed on peanuts oil extraction. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
3. P. Chamreoun, P. Ek, P. Houg. Comparison of drying rates and quality of dried fish (Giant snake head and Snake head fish) using different drying technologies. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
4. S. Hoeun, M. Khit, S. Then, S. Chhorng, S. In. The study on fermented pangasius fish processing. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
5. S. Svay, M. Net, S. Kong, M. Mich, M. Say, A. K. Anal, R. Tan. Development and quality analysis of instant fish Broheu soup formulated from Khmer traditional recipe. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
6. K. Khun, S. Hoeun, C. Lor, C. Heng, S. Y, S. In. Quality change of koh kong green mussels (*Perna viridis*) at different cooking times. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
7. M. Bunthan, M. Net, M. Say, V. Chan, N. Tangsuphoom, R. Tan. Market survey and online survey of commercial oyster sauces sold in Cambodia. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
8. L. Yuok, R. Tan, L. Ly, M. T. Chanto, P. Pramuk. Preliminary study of physicochemical characteristics of black soy sauce by fermentation. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
9. S. Lay, H. Mith, V. Mom, M-L. Scippo, C. Douny, C. Phat. Proximate compositions of farmed and wild *Channa* spp. (*Channa striata* and *Channa micropeltes*). The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
10. E. Chan, V. Chan, M. Net, S. Kong, M. Mich, M. Say, A. K. Anal, R. Tan. Studying of three different forms and drying times on fish for making instant fish soup. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
11. P. Ourk, M. Net, S. Kong, M. Mich, M. Say, A. K. Anal, R. Tan. Development of Instant Khor Trey (Instant Caramelized Snakehead) formulated from Khmer traditional recipe. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
12. K. Souk, C. Lor, S. Hoeun, S. In. Observe the effect of blanching durations and drying temperatures on the color and physicochemical properties of dried fish (Trey Riel). The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
13. M. Hun, M. Say, M. Phang, Y. Nat. Extraction sesame seed oil through screw press technique. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
14. M. Phang, Y. Nat, M. Hun, M. Say. Effect of screw press speed on peanuts oil extraction. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
15. P. Chhan, M. Mich, K. Theng, Y. Nat. Effect of brine solution period on refined salt quality using hydro-extraction technique. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
16. V. Mom, S. Lay, C. Douny, C. Phat, M-L. Scippo, H. Mith. Observation on smoked fish processing and assessment of Polycyclic Aromatic Hydrocarbon contaminants in Kampong Chhnang province. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
17. K. Nou, V. Mom, C. Douny, C. Phat, S. Yoeun, S. Lay, M-L. Scippo, H. Mith. Assessment of Polycyclic Aromatic Hydrocarbons (PAHs) contamination in smoked fish collected from Orussey Market in Phnom Penh. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
18. P. Peuv, M. Suong, S. Meakh, S. Yoeun, C. Phat, S. Sieng, K. Uon. Application of Bandol Pech (*Tinospora crispa*) stem extract as biopesticide against Golden Apple Snail (*Pomacea canaliculata*). The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.

19. S. Meakh, M. Suong, P. Peuv, S. Yoeun, C. Phat, S. Sieng, K. Uon. Application of neem (*Azadirachta indica*) leaves crude extract as biopesticide against Golden Apple Snails (*Pomacea canaliculate*). The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
20. S. Sea, M. Pey, S. Sim, C. Say, D. Sang, S. Phal, R. Tan. Comparative study of activated carbon made from fresh and dried cassava peels for diclofenac removal. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
21. V. Roschhuk, M. Suong, L. Bun, S. Yoeun, C. Phat, S. Sieng, K. Uon, S. Srey. Assessment of pesticide contaminants in vegetables from cooperative farms in Kampong Chhnang and Battambang provinces. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
22. L. Bun, M. Suong, V. Roschhuk, S. Yoeun, C. Phat, S. Sieng, K. Uon, S. Srey. Assessment of pesticide contaminants in leafy vegetables from different markets in Phnom Penh. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
23. S. Chhin, P. Ek, P. Houg. Comparison of drying rates and quality of dried fish Catfish (Trey Andeng) using different drying technologies. The 13th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 6-7 June 2024.
24. K. Oeum, M. Suong, L. Moulin. Exploration and exploitation of rice microbiome as sustainable agriculture in Cambodia. Transitioning Towards Agroecology and Regenerative Agriculture: A Contribution to Food Systems Transformation (TARASA23), 24 - 27 OCTOBER 2023, Borei Angkor Resort & Spa, SIEM REAP, CAMBODIA.
25. M. Barbier, C. Perrollaz, J. Aribi, K. Uon, M. Suong, S. Bellafore. Identification of suppressive soils against the plant-parasitic nematode, *Meloidogyne graminicola*: an alternative to the use of pesticides. Transitioning Towards Agroecology and Regenerative Agriculture: A Contribution to Food Systems Transformation (TARASA23), 24 - 27 OCTOBER 2023, Borei Angkor Resort & Spa, SIEM REAP, CAMBODIA
26. K. Oeum, M. Suong, L. Moulin. Exploring and exploiting the rice-associated microbiome for Sustainable Rice Farming in Cambodia. 16th plant bacteria meeting, Aussois, March 20 - 24, 2023.
27. S. Curet, S. Nget, Boug, M. Eshiett, L. Boillereaux. Modelling bacteria inactivation during the steaming process: application to Cambodian pate pasteurization. Internation Congress on Engineering and Food (ICEF 14), Nantes, France, 20-23 June 2023.
28. S. Nget, H. Mith, S. Curet, Boillereaux, L. Improvement of Microwave Heating Uniformity by Moving Sliding Short Circuit: Application to 915 MHz Single-Mode Microwave Pasteurization of Solid Food. The 9th International Conference on Microwave and High Frequency Application: AMPERE 2023, Cardiff, UK, 11-14 September 2023.
29. K. Ly, P. Houg. Extration of bioactive compound from Kaffir lime peel using subcritical water. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
30. S. Sen, P. Houg. Determination of yield and bioactive compounds of oleoresin extracted from red pepper and its residues. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
31. H. Ly, R. Sovann, H. Mith, H. Phuong. Determination of the composition of different rice varieties collected from local markets in four provinces. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
32. D. Pheap, E. Morm, S. In. Study on physicochemical properties, nutritional values, and sensory evaluation of spicy sour seasoning developed from 8 different spices. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
33. S. Chhunry, P. Houg. Evaluation of the development of physicochemical properties from fresh key lime (*citrus aurantifolia*) to pickled lime. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.

34. S. Chhoeung, S. Doeurn, C. Penh. Optimization of fish sausage processing methods based on physicochemical quality assessment and consumer acceptability. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
35. M. Vong, P. Cheng, S. Mao, R. Tan. Production of bacteriocin by Lactic Acid Bacteria for its potential use as natural preservative for fermented cucumbers. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
36. C. Vireak, S. Kong, M. Say, Y. Nat, R. Tan. Influence of activated bleaching earth on the physicochemical quality of soybean oil. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
37. S. Toch, S. Mao, L. Ly, R. Tan, M. T. Chanto. Isolation for the desired yeasts from different types of food to improve soy sauce fermentation process and quality. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
38. S. Hoeun, S. Tin, S. In. Determination of curcuminoids in different types of Freeze-dried Turmeric varieties by HPLC. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
39. S. Kin, M. Suong, S. Yoeun, C. Phat, K. Uon, P. Sreng, V. Sreng, S. Sieng. Heavy metals analysis in rice grain collected from agrochemical-free paddy fields, Battambang province. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023.
40. P. Sreng, M. Suong, S. Yoeun, C. Phat, K. Uon, S. Kin, V. Sreng, S. Sieng. Analysis of heavy metals in soil collected from agrochemical-free paddy fields: a case study at Sangkae district, Battambang Province. The 12th Scientific day Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia, 8-9 June 2023. MA Chiva, Tep Channeath, PENG Chanthol, HENG Oudom, (2023). Identification and Characterization of Lactic acid bacteria isolated from fermented products (Nem Sbak Chrouk) in Battambang province. The 14th International Conference on Environmental and Rural Development at Siem Reap, Cambodia, 3-5 March 2023.
41. Lengheang CHOENG, Chanthol PENG, Leangey SET, and Seyha DOEUN (2023). Determination of Histamine Level and Its Correlation with Viable Bacterial Count in Cambodian Fermented Fish. In The 14th International Conference on Environmental and Rural Development at Siem Reap, Cambodia, 3-5 March 2023.
42. Set LeangEy, Tep Channeath, Peng Chanthol, (2022). Traditional fermented products from Battambang, Cambodia: Their lactic acid bacteria and physicochemical characteristics. In the FOODI International Conference 2022, Nov. 2022.
43. Seyha Doeurn, Channeath Tep, Chanthol Peng, Oudom Heng, LeangEy Set, (2022). Diversity of Lactic Acid Bacteria Isolated from Nem Trey, A Traditional Fermented Fish Product of Cambodia. In the FOODI International Conference 2022, Nov. 2022.
44. Y. Nat, L. Vorleak, K. Tongor, S. Kong, S. Manit, C.P. Tan, R. Tan (2022). Effect Of Different Extraction Techniques On Yield And Physicochemical Properties Of Sacha Inchi Oil. Foodi International Conference 2022 (FOODI 2022), Universiti Teknologi Malaysai, Kuala Lumpur, Malaysia, 07-09 November, 2022.
45. S. Kong, V. Chanthy, P. Heng, M. Say, Y. Nat, C.P. Tan, R. Tan (2022). Evaluating Shelf-Life Of Commercial Soybean Oil Using An Empirical Modelling: A Case Study In Phnom Penh, Cambodia. Foodi International Conference 2022 (FOODI 2022), Universiti Teknologi Malaysai, Kuala Lumpur, Malaysia, 07-09 November, 2022.
46. M. Bunthan, S. Kong, T. Keang, M. Say, Y. Nat, T. Chin Ping, R. Tan (2022). Soybean oil extraction by hydraulic pressing. 6th International Conference of Chemical Engineering & Industrial Biotechnology (ICCEIB 2022), Universiti Malaysia Pahang, Malaysia, 15-16 August 2022.
47. Y. Nat, V. Leng, M. Say, S. Kong, T.C. Ping, R. Tan. Application of Response Surface Methodology on Extraction of Sacha Inchi Oil Using Conventional Solvent Extraction. 6th International Conference of

- Chemical Engineering & Industrial Biotechnology (ICCEIB 2022), Universiti Malaysia Pahang, Malaysia, 15-16 August 2022.
48. S. Kong, T. Keang, M. Bunthana, M. Say, Y. Nat, T. Chin Ping, R. Tan (2022). Effect of pressure and pressing time on oil yields of sacha inchi using hydraulic cold-pressed extraction. 6th International Conference of Chemical Engineering & Industrial Biotechnology (ICCEIB 2022), Universiti Malaysia Pahang, Malaysia, 15-16 August 2022.
  49. S. Lay and P. Houn, 2022. Effect of pickling on bioactive compounds variation of lime. Foodi International Conference 2022, Kuala Lumpur, Malaysia 07-09 November, 2022.
  50. K. Ly, P. Houn and S. Lay, 2022. Determination of essential oils content for development of herb and spice powders. Foodi International Conference 2022, Kuala Lumpur, Malaysia 07-09 November, 2022.
  51. S. Sen, P. Houn and S. Lay, 2022. Effect of extraction of essential oil on aromatic compounds of red pepper powder. Foodi International Conference 2022, Kuala Lumpur, Malaysia 07-09 November, 2022.
  52. S. Lay, and P. Houn, 2022. Maximizing yield of phenolic compounds extracted from white turmeric through extraction process design. 2022 International Conference on Functional Material and Chemical Engineering (ICFMCE, 2022), Nanjin, China 23-25 September, 2022.
  53. K. Ly, S. Lay, and P. Houn, 2022. Valorization of kaffir lime peel waste through extraction of phenolic compounds and process optimization. 6th International Conference of Chemical Engineering and Industrial Biotechnology (ICCEIB 2022), Pahang Darul Makmur, Malaysia 15-16 August 2022.
  54. S. Sen, S. Lay, and P. Houn, 2022. Effects of solvent extraction condition on yield of phenolic compounds from red pepper (*piper nigrum* l.). 6th International Conference of Chemical Engineering and Industrial Biotechnology (ICCEIB 2022), Pahang Darul Makmur, Malaysia 15-16 August 2022.
  55. Thourn, L., Yoeun, S. Phat, C. Suong, M., 2022. Analytical Methods For Pesticide Residues in Paddy Rice and Soil Using Gas Chromatography Mass Spectrometry (GC-MS): A Review. The 11th Scientific Day, Institute of Technology of Cambodia, Phnom Penh, Cambodia.
  56. L. Thourn, C. Phat., M. Suong (2021). Assessment of Extraction Technique of Natural Compounds of Plant Origin for Nematicidal Properties: A Review. The 10th Scientific Day of ITC, Institute of Technology of Cambodia, Phnom Penh, Cambodia.
  57. Yusoff, A. H., Azmi, M. S. W., Chang, C. S., Sulaiman, A. F., Nor, A. N. M., Tan, R., & Ahmed, M. F. (2021, August). Vertical distribution of heavy metals in core sediments from Kelantan River off Tanah Merah, Kelantan, Malaysia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 842, No. 1, p. 012037). IOP Publishing.
  58. S. Lay, P. Houn, 2021. Optimization of Ultrasound-Assisted Extraction of Phenolic Compounds from Cambodia Black Turmeric. 14<sup>th</sup> AUN/SEED-Net Regional Conference on Chemical Engineering 2021 (RCCHE2021), In Conjunction with 1<sup>st</sup> International Conference on Innovation in Chemical Engineering & Technology (ICICET 2021), Selangor, Malaysia.
  59. S. Sieng, L. Thourn, S. Sorn, T. Va, K. Tho, S. Bellafore, M. SUONG, 2021. Current status of the Rice Root-Knot Nematode in Cambodian rice fields and management approaches. *The 3<sup>rd</sup> National Research Forum*, Phnom Penh, Cambodia.
  60. T. Or, M. Lim, D. Sang, M. T. Chanto, R. Tan, 2021. Improving Removal Efficiency of Natural Organic Matter from Drinking Water Treatment Plant by Powder Activated Carbon Injection in Coagulation Process. *The 6th International Symposium on Conservation and Management of Tropical Lakes, In Conjunction with The 3rd International Conference on Tropical Limnology (TROPLIMNO III)*, Phnom Penh, Cambodia.
  61. L. Meak, S. Khoun, T. Mao, C. Phat, 2021. Assessment of Pesticides Residue in Groundwater in Kampong Thom, Cambodia. *The 6th International Symposium on Conservation and Management of Tropical Lakes, In Conjunction with The 3rd International Conference on Tropical Limnology (TROPLIMNO III)*, Phnom Penh, Cambodia.
  62. S. Yoeurm, S. Khuon, C. Phat, S. Yeoun, 2021. Assessment of Pesticides Residues in the Farm Soils and Sediment from Chhnok Tru, Kampong Chhnang. *The 6th International Symposium on Conservation*

- and Management of Tropical Lakes, In Conjunction with The 3rd International Conference on Tropical Limnology (TROPLIMNO III), Phnom Penh, Cambodia.
63. V-D. Pham, S. In, S. Sroy, M. Soeung, M. Nishiyama, S. Heng, H. Mith, S. Nget, T. Watanabe, 2021. Assessment of Heavy Metal(loid) Accumulation and Sources in Six Edible Fish Species of Tonle Sap Lake, Cambodia. *The 6th International Symposium on Conservation and Management of Tropical Lakes, In Conjunction with The 3rd International Conference on Tropical Limnology (TROPLIMNO III)*, Phnom Penh, Cambodia.
  64. C. Phat, S. Yoeun, M. Ouk, K. Kun, F. Kuok, B. Ty, W. Kurniawan, E. G. Mariquit, H. Hinode, 2021. Assessment of pesticide contamination in vegetable and water from Chhnok Tru floating communities of Tonle Sap Lake. *The 35th Congress of the International Society of Limnology (SIL2021)*, Gwangju, Republic of Korea.
  65. R. Tan, C. Be, C. Peng, P. Ung, K. Miyanaga, Y. Tanji, 2021. Investigation of Multidrug-Resistant Bacteria in Tonle Sap Lake, Tonle Sap River, Mekong River, and Wastewater. *The 35th Congress of the International Society of Limnology (SIL2021)*, Gwangju, Republic of Korea.
  66. P. Ung, K. Seang, S. Keo, R. Tan, K. Miyanaga, Y. Tanji, 2021. Assessment of Microbiological Water Quality in Tonle Sap River and Kob Srov Lake in Phnom Penh, Cambodia. *The 35th Congress of the International Society of Limnology (SIL2021)*, Gwangju, Republic of Korea.
  67. S. Sok, P. Thach, K. Miyanaga, R. Tan, 2020. Development of a Package Containing PAC and  $\text{Ca}(\text{OCl})_2$  for Drinking Water Treatment of Lake Water. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  68. S. In, S. Nget, S. Heng, D. V. Pham, M. Nishiyama, H. Mith, T. Watanabe, 2020. Bioaccumulation of heavy metals and trace elements in six fish species from Tonle Sap Lake, Cambodia. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  69. T. Yann, K. Miyanaga, R. Tan, 2020. The effectiveness of different types of polyaluminum chloride (PAC) and aluminum sulfate (alum) with  $\text{Ca}(\text{OCl})_2$  dosing for treatment surface water of Tonle Sap River. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  70. C. Phat, K. Kun, V. Pheap, S. Yoeun, E. G. Mariquit, W. Kuriniawan, H. Hinode, 2020. Assessment of Pesticide Residues in Surface Water and Fish from Chhnok Tru, Kampong Chhnang. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  71. K. Ngoun, G. Chhun, R. Tan, 2020. Optimization of Young Mango Fermentation and Effect of Different Preservation Methods on its Shelf-life. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  72. C. Nong and S. In, 2020. The effect of blanching on curcumin content and chemical composition of essential oils of dried Turmeric (*Curcuma longa*). *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
  73. S. Hoeun, S. Meas, E. Morm, S. In, 2020. Production of White Pepper from Ripe Pepper Berries (*Piper nigrum* L.). *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.

74. M. Net, D. Dim, R. Tan, 2020. Development of Fermented Small Cucumbers with Different Tastes Using Isolated Lactic Acid Bacteria. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
75. T. Kong, S. Hean, R. Tan, 2020. Development of Fermented Young Melon using Isolated Lactic Acid Bacteria. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
76. C. Sam, S. Nget, S. Heng, S. In, M. Nishiyama, T. Watanabe, H. Mith, 2020. Determination of Antibiotic Resistance of Enterococcus spp. Isolated from Drinking Water Collected from Stoung District. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
77. B. Bun, S. Nget, S. Heng, S. In, N. Maseteru, T. Watanabe, H. MitH, 2020. Investigation on Antibiotic Resistance of Escherichia coli Isolated from Drinking Water Collected in Stoung District. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
78. S. Sat, S. Nget, S. Heng, S. In, M. Nishiyama, T. Watanabe, H. Mith, 2020. Study on Antibiotic Resistance of Pseudomonas aeruginosa Isolated from Drinking Water Collected from Three communes in Kampong Thom Province. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
79. S. Phuong, M. T. Chanto, C. Peng, K. Miyanaga, R. Tan, 2020. Detection of Antibiotic-Resistant Bacteria in Water Environment of Tonle Sap Area and Wastewater. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.
80. L. Ly, M. T. Chanto, C. Peng, R. Tan, 2020. Price Evaluation and Quality Control of Different Soy Sauces Sold in the Markets. *The 13th AUN/SEED-Net Regional Conference on Chemical Engineering 2020 (RCChE-2020), Jointly held with The 5th International Symposium on Conservation and Management of Tropical Lakes*, Phnom Penh, Cambodia.



### **Annex 43. List of publication for the last 5 years from MIT Research Unit.**

#### **List of indexed publications from 2020**

1. Pliaodee, C., Madsahi, P., Songsan, K., Inthasuth, T., Boonsong, W., & Hel, C. (2024). Internet of Things sensor placement: Impacts on energy management system data integrity. 2024 International Technical Conference on Circuits/Systems, Computers, and Communications (ITC-CSCC), Okinawa, Japan, 1-5. <https://doi.org/10.1109/ITC-CSCC62988.2024.10628169>
2. Bun, M., Chrin, P., Kim, B., Azzaro-Pantel, C., & Maussion, P. (2024). Life cycle assessment of e-tuk-tuk using second life components and renewable energy. SDEWES 2024, Rome, Italy.
3. Kuy, M., Schumacher, L., & Sreng, S. (2024). Managing and orchestrating cross-cloud VNFs with deployable sidecar VNF coordinators. NetSoft 2024.
4. Nhim, C. S., Chek, N., Hel, C., & Pec, R. (2023). Experiment on smart mushroom cultivation using an environmental control system. Environmental and Rural Development, 144.
5. Kean, J., Raveu, N., Kaouach, H., Sreng, S., & Thourn, K. (2023). Analysis and characterization of electromagnetic reverberation chamber with metamaterial walls. 3rd IEEE International Conference on Signal, Control and Communication (SCC 2023).
6. Kumar, K. D., Srang, S., & Valy, D. (2023). Visual storytelling: A generative adversarial networks (GANs) and graph embedding framework. International Journal on Recent and Innovation Trends in Computing and Communication, 11(9), 1899–1906. (Scopus Indexed).
7. Keo, C., Srang, S., & Seng, R. (2023). Performance investigation of low-cost dual-axis solar tracker using light dependent resistor. International Journal of Robotics & Control Systems, 3(4).
8. Kumar, K. D., Srang, S., & Valy, D. (2023). Evaluating text-to-image GANs performance: A comparative analysis of evaluation metrics. International Journal on Recent and Innovation Trends in Computing and Communication, 11(8s), 618–627. (Scopus Indexed).
9. Kuy, M., Schumacher, L., & Sreng, S. (2023). Experimental demonstration of NFV deployment with RPi and MAAS. NetSoft 2023. IEEE.
10. Nhim, C. S., Chek, N., Hel, C., & Pec, R. (2023). Experiment on smart mushroom cultivation using the environmental control system. 14th International Conference on Environmental and Rural Development, Siem Reap, Cambodia.
11. Chhorn, S., Tep, S., Hel, C., & Pec, R. (2022). Development of ESP32-based smart greenhouse controller. IEEE IoT World Forum.
12. Born, S., Valy, D., & Kong, P. (2022). Encoder-decoder language model for Khmer handwritten text recognition in historical documents. 14th International Conference on Software, Knowledge, Information Management and Applications (SKIMA), IEEE, 234-238.
13. Kumar, K. D., Srang, S., & Valy, D. (2022). A review of generative adversarial networks (GANs) for technology-assisted learning: Solving teaching and learning challenges. International Conference on Automation, Computing and Renewable Systems (ICACRS), IEEE, 820-826.
14. Siv, R., Mancas, M., Gosselin, B., Valy, D., & Sreng, S. (2022). People tracking and re-identifying in distributed contexts: Extension study of PoseTReID. 9th International

- Conference on Electrical Engineering, Computer Science and Informatics (EECSI), IEEE, 337-342.
15. Kong, P., Mancas, M., Gosselin, B., & Po, K. (2022). DeepRare: Generic unsupervised visual attention models. *Electronics*, 11(11), 1696. <https://doi.org/10.3390/electronics11111696>
  16. Nhim, C. S., Hel, C., Chhorn, S., Tep, S., & Pec, R. (2022). Development of multi-parameter tester for agricultural application. 9th International Conference on Information Technology, Computer, and Electrical Engineering.
  17. Sok, K., Colin, J. N., & Po, K. (2022). Multi-authority decentralized attribute-based authorization framework. In Horkoff, J., Serral, E., & Zdravkovic, J. (Eds.), *Advanced Information Systems Engineering Workshops (CAiSE 2022)*, Lecture Notes in Business Information Processing (Vol. 451). Springer, Cham. [https://doi.org/10.1007/978-3-031-07478-3\\_2](https://doi.org/10.1007/978-3-031-07478-3_2)
  18. Chea, R., Thourn, K., & Chhorn, S. (2022). Improving V-I trajectory load signature in NILM approach. IEECON 2022, Thailand.
  19. Kean, J., Raveu, N., Kaouach, H., Thourn, K., & Sreng, S. (2021). Analysis of metamaterial walls reverberation chamber by using modal expansion theory. *Asia-Pacific International Symposium on Electromagnetic Compatibility (APEMC)*, IEEE, 1-4.
  20. Chin, C. D., Hel, C., & Pec, R. (2021). Fab Lab initiative in higher education: Digital solutions diverted to traditional farming in Cambodia context. 6th International STEM Education Conference (iSTEM-Ed), IEEE.
  21. Peuo, T., Yean, S., Sathy, B., & Srang, S. (2021). PD controller and dynamic compensation design for a DC motor based on estimated parameters. *International Conference on Advanced Mechatronics, Intelligent Manufacture and Industrial Automation (ICAMIA)*, Indonesia.
  22. Srey, S., Chhour, V., & Srang, S. (2021). Lumped parameter estimation of a low-cost DC motor for position controller design. *International Conference on Advanced Mechatronics, Intelligent Manufacture and Industrial Automation (ICAMIA)*, Indonesia.
  23. Ban, S., Dan, A., Guinet, F., Portanguen, J., Srang, S., & Lauras, M. (2021). Assessing the potentialities of physical internet for developing countries' last-mile deliveries. 8th International Physical Internet Conference (IPIC 2021), Germany.
  24. Thavath, S., Proeung, B., Tep, S., Chhorn, S., Pec, R., Nall, V., Ket, P., Oeurng, C., & Hel, C. (2021). Prototyping of smart irrigation system using IoT technology. 7th International Conference on Electrical, Electronics and Information Engineering (ICEEIE), IEEE.
  25. Mancas, M., Kong, P., & Gosselin, B. (2020). Visual attention: Deep rare features. 9th International Conference on Informatics, Electronics & Vision (ICIEV) and 4th International Conference on Imaging, Vision & Pattern Recognition.
  26. Ban, S., Lauras, M., & Srang, S. (2020). Toward physical internet-enabled supply chain and logistics networks in developing countries. 21st IFIP/SOCOLNET Working Conference on Virtual Enterprises (PRO-VE), Spain.
  27. Berthet, M., et al. (2020). Student-led policy and technical capacity building program: The road to Cambodia's first CubeSat. 71st International Astronautical Congress (IAC).
  28. Srang, S., Ath, S., & Yamkita, M. (2020). Newton-Euler based dynamic modeling and control simulation for dual-axis parallel mechanism solar tracker. *Advances in Science, Technology and Engineering Systems Journal*, 5(5), 709-716.

29. Vai, V., Chhorn, S., Chhim, R., Tep, S., & Long, B. (2020). Modeling and simulation of PV module for estimating energy production under uncertainties. 8th International Electrical Engineering Congress (iEECON), IEEE.
30. Valy, D., Verleysen, M., & Chhun, S. (2020). Data augmentation and text recognition on Khmer historical manuscripts. 17th International Conference on Frontiers in Handwriting Recognition (ICFHR), IEEE, 73-78.

#### **List of non-indexed publications from 2020**

1. Pork, C., Valy, D., & Phauk, S. (2024). Text image reconstruction and reparation for Khmer historical document. Techno SRJ.
2. Nom, V., Valy, D., Phauk, S., & Leng, S. H. (2024). Word spotting on Khmer palm leaf manuscript documents. Techno SRJ.
3. Korn, V., Sok, K., & Valy, D. (2024). Enhancing the accuracy and reliability of Docker image vulnerability scanning technology. Techno SRJ.
4. Srey, S., & Srang, S. (2024). Comparison of control performance for a low-cost DC motor with single-loop and cascade control architectures. Techno SRJ.
5. Chun, D., Thourn, K., & Sreng, S. (2024). Design of multi-layer planar electromagnetic wave absorber using 1D-FDTD integrated with ASA and gradient descent optimization method. Techno SRJ.
6. Ny, S., Valy, D., & Kong, P. (2023). Lock and unlock door with face detection using OpenCV, Python, and Arduino board. Techno SRJ.
7. Than, S., Valy, D., & Kong, P. (2023). Crop disease dataset and recognition using convolutional neural networks. Techno SRJ.
8. Chheang, V. R., Valy, D., & Tith, D. (2023). Decentralized blockchain-based PKI for patient identification in the blockchain network. Techno SRJ.
9. Samrit, C., Srang, S., & Yonrith, P. (2023). Study on mechanical structure design for plug-and-play wheel mobile robot. Techno SRJ.
10. Gnhiok, P., Srang, S., & Yonrith, P. (2023). PI controller for velocity controller design based on Luraped parameter estimation: Simulation and experiment. Techno SRJ.
11. Yi, V., Srang, S., & Keo, C. (2023). Attitude estimation by using unscented Kalman filter with constraint state. Techno SRJ.
12. Leng, S. H., Phauk, S., & Has, S. (2023). An empirical investigation of gold price forecasting using ARIMA compared with LSTM model. Techno SRJ.
13. Chou, M., & Thourn, K. (2023). Non-intrusive load monitoring classification based on multi-scale electrical appliance load signature. Techno SRJ.
14. Eang, K., Phauk, S., Has, S., & Din, S. (2023). The study of cereals price prediction in terms of trade flows for anticipated price fluctuations in Cambodia by using ARIMA model. Techno SRJ.
15. Seng, R., & Srang, S. (2023). Development of control framework based on ROS platform for a 3-axis gimbal. Techno SRJ.
16. Oum, S., Srang, S., & Yonrith, P. (2022). Integration of RRT\* path planning with trajectory tracking for wheeled mobile robot. Techno-Science Research Journal.
17. Srean, P., Sakal, M., Berthet, M., & Srang, S. (2022). Development of orbital simulator for Cambodian CubeSat mission in LEO. Techno-Science Research Journal.
18. Siek, S. A., & Srang, S. (2021). Design and prototyping of solar hybrid switch controller and monitoring system. Techno-Science Research Journal.
19. Yonrith, P., Srang, S., Sakal, M., & Sethy, B. (2021). Mobile robot localization using extended Kalman filter with kinematic model. Techno-Science Research Journal.
20. Tim, H., Srang, S., & Sakal, M. (2021). Simulation and numerical characterization of gaseous oxygen injector for ABS/GOX hybrid rocket motor. Techno-Science Research Journal.

21. Chao, V., Srang, S., Sakal, M., & Keo, C. (2021). Helipad detection for UAV based on YOLOv4 transfer learning model. *Techno-Science Research Journal*.
22. Srang, S., Taing, N., & Kuok, F. (2021). Policy brief: Minimum pre-requisite for creating high-tech and deep-tech startup ecosystem in Cambodia. *Asian Vision Institute*.
23. Soun, D., Sakal, M., Sor, H., & Srang, S. (2021). Design and implementation of the commercial-off-the-shelf electrical power system for the satellite training kit – DemoSat. *Techno-Science Research Journal*.
24. Keo, C., Srang, S., & Van, D. (2020). Modeling and simulation at the equilibrium of fixed-wing unmanned aerial vehicle. *Techno-Science Research Journal*.
25. Sethy, B., Srang, S., & Van, D. (2020). Pose estimation for differential drive mobile robot using multi-sensor data fusion. *Techno-Science Research Journal*.
26. Mork, T., Srang, S., & Van, D. (2020). Simultaneous localization and mapping using Intel RealSense camera. *Techno-Science Research Journal*.
27. Ly, L., Srang, S., & Van, D. (2020). Modeling, control, and simulation on 3DOF robot manipulator. *Techno-Science Research Journal*.
28. Lim, B., Srang, S., & Van, D. (2020). Development of IoT smart controller: Case study for the gravity irrigation system. *Techno-Science Research Journal*.
29. Tem, L., & Srang, S. (2020). CNC-mill construction and automatic control to shape the specimen by CAD/CAM. *Techno-Science Research Journal*.

### **List of Conferences from 2020**

1. Rey, E., Ngin, K., & Phauk, S. (2024). Web application using deep learning approaches for automated prediction of tomato leaf disease. *Life Mechatronics Symposium (LMS2024)*.
2. Sou, S., & Valy, D. (2024). Conversational chatbot in Khmer. *Life Mechatronics Symposium (LMS2024)*.
3. Songeam, S., & Valy, D. (2024). Analysis of online job recruitments to identify industry's trending skills for designing market-aligned curriculum. *Life Mechatronics Symposium (LMS2024)*.
4. Yann, S., & Valy, D. (2024). Audio2Video: Advancing generative AI for realistic virtual person creation. *Life Mechatronics Symposium (LMS2024)*.
5. Soeng, P., & Valy, D. (2024). Khmer speech recognition and text-to-speech. *Life Mechatronics Symposium (LMS2024)*.
6. Ngin, K., Valy, D., & Oeng, S. (2024). Handwriter identification from Khmer script using multiple features with deep learning approach. *Life Mechatronics Symposium (LMS2024)*.
7. Ly, K., Leang, P. I. N., & Ngeth, R. (2024). Continuously uploading data to Google Sheet using linear network coding. *Life Mechatronics Symposium (LMS2024)*.
8. Phoeurn, C. A., Degré, A., Oeurng, C., & Ket, P. (2024). Assessing the effects of climate change on the yield and water use efficiency of various dry-season rice varieties grown under traditional and alternate wetting and drying (AWD) methods. *Life Mechatronics Symposium (LMS2024)*.
9. Ngin, K., Valy, D., & Phauk, S. (2024). Online identification of individuals from Khmer handwriting using a deep learning approach. *ACET2024*.
10. Ngin, K. (2024). A deep learning approach for identifying individuals based on their handwriting. *The 13th Scientific Day*.
11. Heng, H. (2024). Utilizing online Khmer handwritten text recognition for educational assistance. *The 13th Scientific Day*.
12. Chan, B. (2024). CNN-based reinforcement learning with policy gradient for Khmer chess. *The 13th Scientific Day*.
13. Ly, K. (2024). Exploring deep learning techniques for Khmer language: Fine-tuning models for chatbot tasks. *The 13th Scientific Day*.
14. Sakal, K. Y. (2024). Khmer large language model. *The 13th Scientific Day*.

15. Phannet, P. (2024). Bus arrival time prediction using machine learning approaches. The 13th Scientific Day.
16. Lyheng, S. (2024). A comparative study between machine learning and deep learning approaches for predicting student dropouts. The 13th Scientific Day.
17. Chhunheng, S. (2024). Utilizing data mining and AI to enhance Cambodian high school student performance and stakeholder success. The 13th Scientific Day.
18. Hengly, E. (2024). Enhancing word spotting accuracy for Khmer printed documents. The 13th Scientific Day.
19. Chun, D. (2024). Design of inverted planar F-shape antenna with dual-band frequency for WiFi application. The 13th Scientific Day.
20. Hakeng, H. (2024). State machine development of a takeoff and landing process of a hybrid unmanned aerial vehicle. The 13th Scientific Day.
21. Hang, H. (2024). Temporal graph learning with application to large-scale flight traffic prediction. The 13th Scientific Day.
22. Kosal, S. (2024). Examining passenger loyalty in Phnom Penh public bus system: A structural equation modelling approach. The 13th Scientific Day.
23. Vannuth, V. (2024). Human detection with WiFi CSI. The 13th Scientific Day.
24. Oudom, Y. (2024). Adapting an access control model to enhance security for distributed ledger access. The 13th Scientific Day.
25. Selasak, S. (2024). Security management of reputation records in the self-sovereign identity network for the trust enhancement. The 13th Scientific Day.
26. Monyvann, C. (2024). Enhanced robot navigation through reinforcement learning with Khmer direction recognition. The 13th Scientific Day.
27. Pechmunivann, S. (2024). Fine-tuning pretrained models using Siamese networks on a Cambodian face dataset. The 13th Scientific Day.
28. Roatny, N. (2024). Predictive analysis of stock closing prices: A comparative study of SVM, XGBoost, and LSTM. The 13th Scientific Day.
29. Nita, L. (2024). Unlocking agricultural potential with machine learning approach: A soil-centric approach to crop selection in Cambodia. The 13th Scientific Day.
30. Chandeth, H. (2024). Rubber prices forecasting: Comparative study of ARIMA, 1D CNN, ensemble, and hybrid model. The 13th Scientific Day.
31. Heng, S. (2024). Comparative study of clustering analysis: On KIVA-enhancing microfinance impact through cluster-driven loan strategies in Cambodia. The 13th Scientific Day.
32. Seng, V. (2024). Testing quadcopter with adaptive controller based on estimated random parameters for quadcopter trajectory tracking control. The 13th Scientific Day.
33. Bun, R. (2024). Automatic recognition of Cambodian license plates. The 13th Scientific Day.
34. Hoem, R. (2024). Flight simulation and control of a fixed-wing UAV using LQR controller. The 13th Scientific Day.
35. Phon, L. (2024). Machine learning-based battery state-of-health estimation for railway applications. The 13th Scientific Day.
36. Him, V. (2024). Designing a self-stabilized thrust vector control system for small-scale rockets. The 13th Scientific Day.
37. Tang, S. B. (2024). Smart motor driver for DC motor. The 13th Scientific Day.
38. Chek, N., Harispe, S., Pec, R., & Sreng, S. (2023). Tuning hyperparameters on Gym environment inverted pendulum. LMSDec2023.
39. Ham, H., & Valy, D. (2023). Online Khmer handwritten text recognition for teaching and learning assistance. LMSDec2023.
40. Em, H., & Valy, D. (2023). Word spotting on Khmer printed document. LMSDec2023.
41. Ly, K., & Valy, D. (2023). Khmer chatbot using deep learning technique. LMSDec2023.

42. Longkim, H., Mok, L., Neang, S., Chou, P., Pov, P., Keo, P., Keo, C., & Srang, S. (2023). Structural design and aero-dynamics simulation of fixed-wing UAV. LMSDec2023.
43. Pich, M., Prim, R., Keo, C., & Srang, S. (2023). Design and fabricate low-cost 4-axis CNC foam cutting. LMSDec2023.
44. Chan, B., & Valy, D. (2023). Khmer chess using reinforcement learning. LMSDec2023.
45. Hort, S., Him, V., & Srang, S. (2023). Detection of apogee with Kalman filter for flight avionics of solid rocket. LMSDec2023.
46. Hor, H., Hoem, R., Keo, C., & Srang, S. (2023). Case study on low-cost adaptive light intensity sensor for solar tracker by using light dependent resistor. LMSDec2023.
47. Ouk, L., Pec, R., & Chhorn, S. (2023). Development of cell identification technique for 5G new radio terrestrial cellular system. LMSDec2023.
48. Ham, H., & Valy, D. (2023). Online Khmer handwritten text recognition dataset. ACET 2023.
49. Huon, S., & Valy, D. (2023). Khmer text semantic similarity: Developing a deep learning model for sentence vectorization and comparison. ACET 2023.
50. Nom, V., Valy, D., & Phauk, S. (2023). Word spotting on Khmer palm leaf manuscript documents. The 12th Scientific Day of ITC.
51. Pork, C., Valy, D., & Phauk, S. (2023). Text-image reconstruction and reparation for Khmer historical documents. The 12th Scientific Day of ITC.
52. Huon, S., & Valy, D. (2023). Plagiarism detection system for Khmer language. The 12th Scientific Day of ITC.
53. Visal, K., Valy, D., Vanda, Y., Hongsin, A., Monit, K., Ham, H., Soknara, Y., Kimheng, P., Chhordaphea, S., Kakada, C., Sopheak, S., & Sonimith, H. (2023). Air handwriting recognition for Khmer characters. The 12th Scientific Day of ITC.
54. Sek, S., & Valy, D. (2023). Masked language modeling for Khmer palm leaf manuscript. The 12th Scientific Day of ITC.
55. Oeng, M. T., Thu, Y. K., Soeum, Z., & Sam, S. (2023). Two SignWriting keyboard layouts for Cambodian fingerspelling. The 12th Scientific Day of ITC.
56. Khun, D., Tith, D., Colin, J. N., & Valy, D. (2023). Reputation model for trust-based policy in self-sovereign identity systems. The 12th Scientific Day of ITC.
57. Chhoem, S., Tith, D., Colin, J. N., & Valy, D. (2023). The trust model in self-sovereign identity systems. The 12th Scientific Day of ITC.
58. Liv, B., Tith, D., Colin, J. N., & Valy, D. (2023). Security enhancement of digital wallet in self-sovereign identity of healthcare system. The 12th Scientific Day of ITC.
59. Korn, V., Sok, K., & Heng, R. (2023). Enhancing the accuracy and reliability of docker image vulnerability scanning technology. The 12th Scientific Day of ITC.
60. Heng, N., Sok, K., & Heng, R. (2023). Case study of organization-task-based access control (OTBAC). The 12th Scientific Day of ITC.
61. Srey, S., & Srang, S. (2023). Comparison of control performance for a low-cost DC motor with single-loop and cascade control architecture. The 12th Scientific Day of ITC.
62. Moeurn, D., & Srang, S. (2023). Performance comparison of ball image detection using deep learning models, UNet, Unet Crop, and FCNN. The 12th Scientific Day of ITC.
63. Seng, R., & Srang, S. (2023). Development of control framework based on ROS platform for a 3-axis gimbal. The 12th Scientific Day of ITC.
64. Virak, A., Virak, S., & Srang, S. (2023). Hardware development of 6 degree-of-freedom robot manipulator. The 12th Scientific Day of ITC.
65. Hort, S., Him, V., & Srang, S. (2023). Investigation of rocket motor performance with syrup-mixture propellant. The 12th Scientific Day of ITC.
66. Nuon, P., & Thourn, K. (2023). Development of a low-cost air leak testing system to analyze pipes quality based on Raspberry Pi and OpenPLC. The 12th Scientific Day of ITC.

67. Un, S. O., Po, K., Thourn, K., & Pec, R. (2023). Communication back-up for natural disaster by emergency amateur radio operator implemented using APRS as location tracker in Cambodia. The 12th Scientific Day of ITC.
68. Sai, T., Tep, S., Hel, C., & Pec, R. (2023). Development of smart greenhouse controller using IoT. The 12th Scientific Day of ITC.
69. Sok, S., Thourn, K., & Po, K. (2023). Development model of non-intrusive appliance load monitoring for household energy improvement basing on VI trajectory. The 12th Scientific Day of ITC.
70. Chun, D., & Thourn, K. (2023). Design of an electromagnetic wave absorber using time-domain techniques. The 12th Scientific Day of ITC.
71. Khe, P., Em, T., Keng, M., Chhorn, S., Kot, T., & Ngeth, R. (2023). Indoor location tracking using UWB. The 12th Scientific Day of ITC.
72. Ouk, L., Pec, R., & Chhorn, S. (2023). Design efficient cell identification technique for 5G terrestrial cellular system. The 12th Scientific Day of ITC.
73. Din, S., & Phauk, S. (2023). Anomaly detection of time series data based on deep learning for feature learning. The 12th Scientific Day of ITC.
74. Eng, K., Phauk, S., Has, S., & Din, S. (2023). The study of Cambodia's commodity price flow trade: The cereal price prediction for anticipated price fluctuation by using the ARIMA model. The 12th Scientific Day of ITC.
75. Leng, S. H., Phauk, S., & Has, S. (2023). An empirical investigation of gold price prediction using LSTM model. The 12th Scientific Day of ITC.
76. Oeun, S., Meng, S., Nhim, C. S., Hel, C., Chhorn, S., Tep, S., & Ket, P. (2023). Development of lab-scale composter for mushroom substrate residual. LMS 2023.
77. Sophanarith, B., Bunthern, K., & Vai, V. (2023). Optimal placement of electric vehicle charging stations using mixed-integer linear programming: A case study in Cambodia. LMS 2023.
78. Chhorn, S., Tep, S., Hel, C., & Pec, R. (2022). Development of ESP32-based smart greenhouse controller. IEEE IoT World Forum.
79. Oum, S., Srang, S., & Yonrith, P. (2022). Integration of RRT\* path planning with trajectory tracking for wheeled mobile robot. 2022 Annual Conference on Electronics, Information and Systems, Japan.
80. Huon, S., & Valy, D. (2022). Handwritten Khmer digit recognition using artificial neural network. The 11th Scientific Day of ITC, Cambodia.
81. Born, S., Valy, D., & Kong, P. (2022). Encoder-decoder language model for Khmer handwritten text recognition on historical documents (Sleuk-Rith). The 11th Scientific Day of ITC, Cambodia.
82. Chheang, V. R., Tith, D., & Valy, D. (2022). Distributed authentication infrastructure using public key infrastructure and blockchain. The 11th Scientific Day of ITC, Cambodia.
83. Oum, S., Srang, S., & Yonrith, P. (2022). Integration of RRT\* path planning with trajectory tracking for wheeled mobile robot. The 11th Scientific Day of ITC, Cambodia.
84. Gnhiak, P., Srang, S., & Yonrith, P. (2022). PI controller for velocity controller design based on lumped parameter estimation of a low-cost PMDC motor. The 11th Scientific Day of ITC, Cambodia.
85. Samrit, C., Srang, S., & Yonrith, P. (2022). Design structure for plug and play wheel mobile robot. The 11th Scientific Day of ITC, Cambodia.
86. Yi, V., Srang, S., & Keo, C. (2022). Roll and pitch angle estimation by using unscented Kalman filter. The 11th Scientific Day of ITC, Cambodia.
87. Seng, R., Srang, S., & Keo, C. (2022). Flight transition state machine design for vertical takeoff landing for fixed-wing unmanned aerial vehicle. The 11th Scientific Day of ITC, Cambodia.
88. Oeun, S., Meng, S., Nhim, C. S., Chhorn, S., Tep, S., Hel, C., & Ket, P. (2022). The prototype of smart compost bin (S-Mush Bin). The 11th Scientific Day of ITC, Cambodia.
89. Ros, S., & Valy, D. (2022). Face mask recognition using ResNet and DenseNet. The 11th Scientific Day of ITC, Cambodia.

90. Sea, H., Valy, D., & Kong, P. (2022). Insects and abnormalities detection using convolutional neural network. The 11th Scientific Day of ITC, Cambodia.
91. Than, S., Valy, D., & Kong, P. (2022). Crop disease data & detection using convolutional neural network. The 11th Scientific Day of ITC, Cambodia.
92. Ny, S., Valy, D., & Kong, P. (2022). Lock and unlock door with face detection using OpenCV, Python, and Arduino board. The 11th Scientific Day of ITC, Cambodia.
93. Un, L., & Valy, D. (2022). Isolated Khmer character recognition. The 11th Scientific Day of ITC, Cambodia.
94. Koun, R., Ly, P., Vong, T., Bun, S., Tim, H., & Keo, C. (2022). Concept study of dual axes camera tracker and rocket detection by using color-based detection. The 11th Scientific Day of ITC, Cambodia.
95. Chhorn, S., Tep, S., Hel, C., & Pec, R. (2022). Development of ESP32-based smart greenhouse controller. IEEE IoT World Forum.
96. Oum, S., Srang, S., & Yonrith, P. (2022). Integration of RRT\* path planning with trajectory tracking for wheeled mobile robot. 2022 Annual Conference on Electronics, Information and Systems, Japan.
97. Huon, S., & Valy, D. (2022). Handwritten Khmer digit recognition using artificial neural network. The 11th Scientific Day of ITC, Cambodia.
98. Born, S., Valy, D., & Kong, P. (2022). Encoder-decoder language model for Khmer handwritten text recognition on historical documents (Sleuk-Rith). The 11th Scientific Day of ITC, Cambodia.
99. Chheang, V. R., Tith, D., & Valy, D. (2022). Distributed authentication infrastructure using public key infrastructure and blockchain. The 11th Scientific Day of ITC, Cambodia.
100. Oum, S., Srang, S., & Yonrith, P. (2022). Integration of RRT\* path planning with trajectory tracking for wheeled mobile robot. The 11th Scientific Day of ITC, Cambodia.
101. Gnhiok, P., Srang, S., & Yonrith, P. (2022). PI controller for velocity controller design based on lumped parameter estimation of a low-cost PMDC motor. The 11th Scientific Day of ITC, Cambodia.
102. Samrit, C., Srang, S., & Yonrith, P. (2022). Design structure for plug and play wheel mobile robot. The 11th Scientific Day of ITC, Cambodia.
103. Yi, V., Srang, S., & Keo, C. (2022). Roll and pitch angle estimation by using unscented Kalman filter. The 11th Scientific Day of ITC, Cambodia.
104. Seng, R., Srang, S., & Keo, C. (2022). Flight transition state machine design for vertical takeoff landing for fixed-wing unmanned aerial vehicle. The 11th Scientific Day of ITC, Cambodia.
105. Oeun, S., Meng, S., Nhim, C. S., Chhorn, S., Tep, S., Hel, C., & Ket, P. (2022). The prototype of smart compost bin (S-Mush Bin). The 11th Scientific Day of ITC, Cambodia.
106. Ros, S., & Valy, D. (2022). Face mask recognition using ResNet and DenseNet. The 11th Scientific Day of ITC, Cambodia.
107. Sea, H., Valy, D., & Kong, P. (2022). Insects and abnormalities detection using convolutional neural network. The 11th Scientific Day of ITC, Cambodia.
108. Chin, C. D., Hel, C., & Pec, R. (2021). Initiation of the creation of Fab Lab for advanced studies: Digital solutions focusing on traditional agriculture in the context of Cambodia. 2021 3rd National Research Forum.



#### Annex 44. List of publication for the last 5 years from MSS Research Unit.

##### List of Index publications from 2020

1. Long, M., Han, V., Leclercq, P., & Reiter, S. (2024). Integration of Affordable Housing and Green Residential Building Design in the Construction Sector in Cambodia. In WIT Transactions on Ecology and the Environment. Volume 262 (pp. 215-227). doi:10.2495/sdp240181
2. Pisey Keo, Thaileng Oeng, Mohammed Hjiatj. (2024) Mixed-formulation with non-penetration constraint for planar composite beams in partial interaction. Journal of Computational Mechanics. <https://doi.org/10.1007/s00466-024-02476-2> (IF = 4.1)
3. Sreng, L., Yos, P., Seang, S. and A.A, Rashid (2024) Effect of pottery clay on mechanical and impact absorption properties of natural rubber floor mat. J Rubber Res. <https://doi.org/10.1007/s42464-024-00264-4>
4. Chea, L., Doung, P., Leelataviwat, S. (2023) Relation Between Input Energy and Equivalent Monotonic Response Curve, IWEBSE 2023, Lecture Notes in Civil Engineering, vol. 236. Springer Nature. [https://doi.org/10.1007/978-3-031-36562-1\\_7](https://doi.org/10.1007/978-3-031-36562-1_7)
5. Lin, C., Chhin, R., Han, V., Doung, P. (2023) Determination of Basic Wind Speed for the Design of Buildings in Cambodia, IOP Conference Series: Earth and Environmental Science, Vol. 1205 (1), 012044. <https://doi.org/10.1088/1755-1315/1205/1/012044>
6. Taing, K., Andre, P., & Leclercq, P. (2023). Analysis of Thermal Performance of Naturally Ventilated Residential Building in Tropical Climate: Case Study of Phnom Penh, Cambodia. IOP Conference Series: Earth and Environmental Science, 1199(1), 012038. <https://doi.org/10.1088/1755-1315/1199/1/012038>
7. Keth, K., Ben Rajeb, S., & Han, V. (2023). Identification of Workflow in Construction Projects in Cambodia: With and Without Building Information Modeling/ Models/Management Approaches. International journal on advances in intelligent systems, 16(1942-2679), 3-4, 74-88.
8. Kan, K., & François, B. (2023). Triaxial tension and compression tests on saturated lime-treated plastic clay upon consolidated undrained conditions. Journal of Rock Mechanics and Geotechnical Engineering. <https://doi.org/10.1016/j.jrmge.2023.03.017> (IF = 5.915)
9. Mao, P., Hashikawa, H., Sasaoka, T., Shimada, H., Wan, Z., Hamanaka, A., Oya, J. (2022) Numerical Investigation of Roof Stability in Longwall Face Developed in Shallow Depth under Weak Geological Conditions. Journal of Sustainability. 14(3). <https://doi.org/10.3390/su14031036> (IF = 3.889)
10. Bun, P., Cyr, M., Laniessse, P., Bun, K. N., Idir, R. (2022) Concrete made of 100% recycled materials - Feasibility study. 180 (2022). 106199. <https://doi.org/10.1016/j.resconrec.2022.106199> (IF = 13.716)
11. Mom, A., Hoeun, S., Bernard, F., Kamali-Bernard, S., Han, V. (2022) The Effect of Thermal Contact Conductance (TCC) between Aggregate Inclusion and Matrix on Thermal Conductivity of Cement-based Material. International Journal of Integrated Engineering. 14(5). pp. 99-106.
12. Chea, C., Ket, P., Taing, L., Kong, S., Um, D., Taing, C., Or, C., Aun, S. and Hang, L. (2022) Life-Cycle Impact Assessment of Air Emissions from a Cement Production Plant in Cambodia. *Open Journal of Air Pollution*, 11, 85-99. doi: 10.4236/ojap.2022.114007. (IF = 0.79)
13. Lorn, S., Ket, P., Or, C., Kong, S., Um, D., Aun, S., Taing, C., Hang, L. (2022) Health Impact Assessment from Rice Straw Production in Cambodia. *Appl. Sci*, 12, 10276. <https://doi.org/10.3390/app122010276> (IF = 2.838)
14. Leelataviwat, S., Doung, P., Naiyana, N. (2021) A review on performance-based plastic design method: concept and recent developments. 155. [https://doi.org/10.1007/978-3-030-73932-4\\_8](https://doi.org/10.1007/978-3-030-73932-4_8) (Book chapter)
15. Piseth, D., Sutath, L., Eiichi, S. (2021) Tensile strength and failure mechanism of internal diaphragms in wide flange beam-to-box column connections with concrete filling. Elsevier, <https://doi.org/10.1016/j.jobbe.2020.102037> (IF: 5.138)
16. Sophea, B., Yoshaiki, F., Jun-ichi, K., Daisuke, F., Anjula, D., A.K.M. Badrul A. (2020) Laboratory Investigation on the Permeability Variation of Fractured Inada Granite by Multiple Transient Axial Stress

- Disturbances. *Pure and Applied Geophysics*. 177(11). 5385-5396 (2020). DOI: 10.1007/s00024-020-02565-2
17. Amirthan, T., Lahiru, D., Tharaka, D., Anjula, D., Chulantha, J., Maheshwari, W., Yoshiaki, F., Sophea, B. (2020) Stability Analysis of Slopes in Aruwakkalu Limestone Mine During Rain: A Finite Element Approach. *IEEE*. DOI: 10.1109/MERCon50084.2020.9185268
  18. Takashi, S., Pisith, M., Hideki, S., Akihiro, H., and Jiro, O. (2020) Numerical Analysis of Longwall Gate-Entry Stability under Weak Geological Condition: A Case Study of an Indonesian Coal Mine. *Energies* 13, no. 18: 4710

### **List of Non-index publications from 2020**

1. R. Thai, P. Doung. (2024). An Investigation of External Pressure Coefficient for Low-Rise Building: A Comparison between CFD and ASCE7-22 Models for Cambodia Wind, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
2. Manuth Ny, Muoy Yi Heng, Phanny Yos, Tithya Keo, Than Heng, Vitharong Chan. (2024). Characterization of Plaster from Sambor Prei Kuk Temples, Kompong Thom, Cambodia, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
3. David Tung, Keangse Pouy, Sambath Ky. (2024). Numerical Analysis of Bearing Capacity of Defected Bored Piles, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
4. Mengsean Heng, Muoy Yi Heng, Phanny Yos, Tithya Keo, Than Heng, Vitharong Chan. (2024). Laterization Origin of Heritage Rampart of Sambor Prei Kuk Area, Kompong Thom Province, Cambodia, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
5. Lymeng Ty, Narith Prok, Sovann Sathya Rath, Sovanvichet Lim, Wee Keong Ong. (2024). Experimental and Numerical Study of Tyfo® FibrAnchors Inserting to Concrete Cylinder Confined by Glass Fiber Reinforcing Polymer, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
6. Mengla An, Narith Prok, Sovann Sathya Rath, Sovanvichet Lim, Wee Keong Ong. (2024). Experimental and Numerical Study of Tyfo® FibrAnchors Embedded in Low Compressive Strength Concrete Cylinder, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
7. Ya Phall, Mouy Yi Heng, Phanny Yos, Than Heng, Vitharong Chan. (2024), Mineral and Chemical Characteristics of Ancient brick of Sambor Prei Kuk Temple, Kompong Thom, Cambodia, *Techno-Science Research Journal* 12 (Special Issue), <https://techno-srj.itc.edu.kh/>
8. Chann, S., Hin, R., Sangleboeuf, J.-C., (2024) Experimental study on the improvement of bolted connection of glass structure by using ion-exchange. *Techno Science Research Journal*. 12 (1)
9. Doung, P., Lin, C., Vong, S., Sion, R., Chhin, R., Han, V. (2023) Basic Wind Speed Prediction for the Design of Building in Siem Reap, *Cambodian Journal of STEM and Education Research*, 1(1). (in Khmer)
10. Seang, S., Kan, K., & Okamoto, M. (2022). Feasibility Study of Using Recycled Waste Plastic in Bituminous Concrete Application. *Techno Science Research Journal*. 10(2).
11. Oeung, K., Doung, P., Leelataviwat, S., Han, V. (2022) Analytical Assessment of Earthquake Energy Demand in Single Degree of Freedom Systems, *Techno Science Research Journal*. 10(1).
12. Doung, P., Leelataviwat, S. (2022) Direct Seismic Design Methods for Buckling-Retrained Knee-Braced Frames with Single Plate Shear Connections. *Techno Science Research Journal*. 10(1).
13. Sreng, L., Azura, A. R., Yos, P. (2021) Effects of Cambodian Clay on the Physical and Mechanical Properties of Natural Rubber Latex Foams. *Techno Science Research Journal*, In Press
14. Chea, L., Prok, N., Rath, S.S. (2020) Effect on Capacity of RC Beam and Column Strengthened with Fibrwrap® System by Cyclic Exposure to Water and Salt Water *Techno Science Research Journal*, Vol. 9.
15. Chab, H., Rath, S.S., Prok, N. (2020). “Mechanical Properties of Reinforced Concrete Beam and Column Strengthened by Fibrwrap® System after being Submerged to Different Exposure Solutions”. *Techno Science Research Journal*, Vol. 9.

## List of Conferences from 2020

1. Taing, K., Reiter, S., Leclercq, P., & Han, V. (2024). Integration of BIM and BES in sustainable architecture design process: case study of a developing country, PLEA 2024 Conference, 25-28 June 2024, Wrocław, Poland. <https://hdl.handle.net/2268/324356>
2. Taing, . (2024). Processus de conception d'un bâtiment bioclimatique dans environnement pédagogique, Conference SCAN'24, 06-09 November 2024, Tunis, Tunisia. <https://hdl.handle.net/2268/324354>
3. Taing, K., Jeunejean, A., Han, V. (2024) VIRELI : Visualisation de processus de design à travers les ressources, les moyens de conception et les livrables, ModACT 2024 Conference, Paris, France
4. Sreyya YIV, Srean AUN , Yukleav NAT, Chanbormey MIEN, Siekheng RAKSMEY, Sreynith KOU, Sovannleakhena HAK, Bunhav HUN. (2024) Development of Native Cassava Starch/Poly(lactic acid) for film sheet fabrication, The ITC's 13th Scientific Day, 6-7 June 2024
5. Siekheng RAKSMEY, Srean AUN, Yukleav NAT, Bunhav HUN, Sreyya YIV, Chanbormey MIEN, Sovannleakhena HAK, Sreynit KOU. (2024) Cassava Starch Extraction for Film Fabrication, The ITC's 13th Scientific Day, 6-7 June 2024
6. Raksa Ren , Worraddon Phairuang, Mitsuhiko Hata, Masami Furuuchi, Muhammed Amin, Chhaytong Meng, Chanmoly Or, Koemlang Theng, Srean Aun. (2024) Preliminary study of the diurnal and nocturnal size-segregated particulate mass concentration in atmospheric air quality, The ITC's 13th Scientific Day, 6-7 June 2024
7. Chhaytong MENG, Srean AUN, Worraddon Phairuang, Mitsuhiko Hata, Masami Furuuchi, Muhammed Amin, Raksa REN, Chanmoly OR, Koemlang THENG. (2024) Difference of Particulate Matter in Ambient Environment during Daytime and Nighttime in Phnom Penh City, The ITC's 13th Scientific Day, 6-7 June 2024
8. Chanseyha But, Kuchvichea Kan, Bertrand François. (2024) Various Pavement Management Systems (PMS), already applied or to be applied, for road management in Cambodia, The ITC's 13th Scientific Day, Phnom Penh, 6-7 June 2024
9. But, C., **Doung, P.** (2023) Updating Basic Wind Speed for Wind Load Design in Sihanoukville, International Conference on Earth Resources and Geo-Environmental Technology 2023, 23-25 September 2023, Phnom Penh, Cambodia
10. Thai, R., **Doung, P.** (2023) An Investigation of External Pressure Coefficient for Low-Rise Building: A Comparison between CFD and ASCE7-22 Models for Cambodia Wind, International Conference on Earth Resources and Geo-Environmental Technology 2023, 23-25 September 2023, Phnom Penh, Cambodia
11. Vong, S., Chin, R., **Doung, P.** (2023) Evaluation of Gust Loading Effects on Tall RC Building in Cambodia: A Comparison between International Load Standards. Extended Abstract of The ITC's 12th Scientific day, 8-9 June 2023, Cambodia
12. Thai, R., Chhin, R., Han, V., **Doung, P.** (2023) A comparative evaluation of directionality factor between international load codes for low-rise steel building and their conformity to Cambodia wind. Extended Abstract of The ITC's 12th Scientific day, 8-9 June 2023, Cambodia
13. Sovann, D., Heng, S., **Doung, P.** (2023) Evaluation of strength and failure of post-installed bundled rebar in concrete using finite element analysis. Extended Abstract of The ITC's 12th Scientific day, 8-9 June 2023, Cambodia
14. Mengla A., Narith P., Sovann Sathya R., Sovanvichet L., Wee Keong O. (2023) Experimental and Numerical Study of Tyfo(R)FibrAnchors Embedded in Low Compressive Strength Concrete Cylinder. The 14th AUN/SEED-NET Regional Conference on Geological and Geo-Resources Engineering, Phnom Penh, Cambodia.
15. Lymeng T., Narith P., Sovann Sathya R., Sovanvichet L., Wee Keong O. (2023) Experimental and Numerical Study of Tyfo(R)FibrAnchors Inserting to Concrete Cylinder Confined by Glass Fiber

- Reinforcing Polymer. The 14th AUN/SEED-NET Regional Conference on Geological and Geo-Resources Engineering, Phnom Penh, Cambodia.
16. S. Chann, R. Hin, J. C. Sangleboeuf, 2023, Experimental study on the improvement of bolted connection of glass structure by using ion-exchange. The 2nd International Conference on Earth Resources and Geo-Environment Technology 2023 (EraGET2023), Phnom Penh, Cambodia
  17. Ngoun, P., **Srean, A.**, Muhammad A., Hang, L., Hata, M., Taing, C., Kong, S., Or, C., Um, D., Furuuchi, M. (2023). "Monitoring Particulate Matters and Total Suspended Particles Along the Roadside and Public Area in Phnom Penh" *2nd ASEAN International Conference on Energy and Environment*. [doi:10.1088/1755-1315/1199/1/012020](https://doi.org/10.1088/1755-1315/1199/1/012020)
  18. Chy, S., **Srean, A.**, Hang, L., Hata, M., Mitsuhiro, H., Or, C., Kong, S., Taing, C., Um, D., Furuuchi, M. (2023) "Determination of Particulate Matters and Total Suspended Particles emitted from Incense Burning" *2nd ASEAN International Conference on Energy and Environment*. [doi:10.1088/1755-1315/1199/1/012019](https://doi.org/10.1088/1755-1315/1199/1/012019)
  19. Phairuang, W., Hata, M., Takao, M., Taing, C., Ho, S., **Aun, S.**, ... & Furuuchi, M. (2023, July). Ten Years Behavior of Carbonaceous Ultrafine Particulate Matter (PM<sub>0.1</sub>) in Phnom Penh, Cambodia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1199, No. 1, p. 012024). IOP Publishing
  20. Taing, K., Leclercq, P., Han, V. (2023) Visualisation d'une design timeline et des outils mobilisés en conception architecturale bioclimatique, ModACT Conference, Paris, France
  21. Taing, K., Han, V., Leclercq, P. (2023) BIM Model and BES Model Approach in Designing a Bioclimatic Building, The 12<sup>th</sup> Scientific Day 8-9 June 2023, Phnom Penh, Cambodia
  22. Keth, K., Han, V., Rajeb, B-S. (2023) Guideline/Protocols for Collaborative Design and Build Process in Cambodia, ITC's 12<sup>th</sup> Scientific day, 8-9 June 2023, Cambodia
  23. Long, M., Han, V., Leclercq, P., Reiter, S. (2023) Sustainable Building Design Strategy from Life Cycle Thinking Perspective Case Study: A Townhouse in Phnom Penh, Cambodia, ITC's 12<sup>th</sup> Scientific day, 8-9 June 2023, Cambodia
  24. Raksa, S., S, Aun., Worrador, P., Mitsuhiro, H., Leakhena, H., Muhammad, A., Chanmoly, O., Masami, F. (2023) Seasonal Variation of Carbon Composition in Total Suspended Particles in Phnom Penh, Cambodia. Extended Abstract of The ITC's 12<sup>th</sup> Scientific day, 8-9 June 2023.
  25. Muhammad, A., S, Aun., Leakhena, H., Chanmoly, O., Mitsuhiro, H., Masami, F. (2023) Preliminary assessment of personal exposure to ultrafine particle (UFP) in Phnom Penh, Cambodia. Extended Abstract of The ITC's 12<sup>th</sup> Scientific day, 8-9 June 2023.
  26. E, Torabi., S, Aun., M, Hata., M, Amin., Leakhena, H., M, Furuuchi. (2023) Development of a Small Nano-Particle Sensor Using Light Scattering and its Application to On-line Ambient Monitoring. Extended Abstract of The ITC's 12<sup>th</sup> Scientific day, 8-9 June 2023.
  27. Keth, K., Ben Rajeb, S., Han, V. (2023) Collaborative Works in Construction Project in Cambodia: Toward a Workflow Scenario Identification. COLLA 2023: The Thirteenth International Conference on Advanced Collaborative Networks, Systems and Applications 13-17 March, 2023 - Barcelona, Spain.
  28. Rorn, K., Seang, S., Kret, K., Oy, K. and Ammugauan, J. (2023) Lithology, Alteration Minerals, and Ore Mineralization in Memot, Tbong Khmum Province, Cambodia. Proceedings of the ITC's 12th Scientific Day, 8-9 June 2023
  29. Por, V., Seang, S., Kret, K., and Oy, K. (2023) Lithology, Ore mineralization, and Hydrothermal Alteration of Canada Wall Porphyry Cu-Mo-Au at Andongmeas, Ratanakiri, Cambodia. Proceedings of the ITC's 12th Scientific Day, 8-9 June 2023
  30. Rothana Kheng, Sirisokha Seang, Kotaro Yonezu, Kimhouy Oy, Kakda Kret, Koichiro Watanabe, Seangleng Hoen, Panhavong Ly, Bunna Hang (2023) Hydrothermal Alteration, Mineralization and Geochemistry of Igneous rocks of Area-5 in Koh Sla, Kampot province, Southwestern Cambodia. Proceedings of the International Symposium on Earth Science and Technology, Japan.
  31. Kouleam, S., Prok, N., Rath, S. S. (2022) Experimental Study on Performance of Fiber Anchor Under Axial Tension, NPIC Conference Proceeding. 12<sup>th</sup> December 2022, Cambodia

32. Chan, R., Prok, N., Rath, S. S. (2022) Experimental Study of the Effectiveness of Anchor Fibers Inserting into Concrete Cylinder Confined by Glass Fiber Reinforcing Polymer, NPIC Conference Proceeding. 12<sup>th</sup> December 2022, Cambodia
33. Sreng, L., Seang, S., Azura, A.R., Yos, P. (2022) Characterization of Cambodian natural rubber/common clay composites for shock absorption applications: Primary results. *Materials Today: Proceedings*. 66(5). pp. 3112-3115, <https://doi.org/10.1016/j.matpr.2022.08.013>.
34. Taing, K., Leclecrq, P. (2022) Adoption contextuelle des pratiques pédagogiques: entre écosystèmes physique et logiciel, le cas de l'architecture bioclimatique en Asie du sud-est. *SHS Web of Conferences*. 147(2022). <https://doi.org/10.1051/shsconf/202214707002> (open access)
35. Doung, P., Leelataviwat, S., Chea, L., Sorn, C. (2022) Experimental Assessment of Strength and Failure Modes of Post-Installed Bundled Rebar in Concrete. Second International Conference on Construction Materials and Structures (ICCMS-2022). 13-20 December 2022, National Institute of Technology Calicut (NITC), India (online)
36. Ly, P., Seang, S., Kret, K., Oy, K., Yonezu, K., Watanabe, K., Sreu, T. (2022) Lithology, hydrothermal alteration, and ore characteristics of Area-1 in Koh Sla, Chhouk district, Kampot Province, southern Cambodia. *Proceedings of the International Symposium on Earth Science and Technology, Japan*
37. Chheuy, P., Kret, K., Seang, S., Or, C., Kong, S., Kry, R., Oy, K., Chan, C., Sreu, T., Hoeun, S., Hoeun, S., Chhun, C., Neak, K. (2022) Hydrothermal Alteration Mineral Mapping by Integrating of ASTER and Landsat-8: A case study in Phnom Peam Louk, Kompong Chhang Province, Southwest Cambodia. *Proceedings of the International Symposium on Earth Science and Technology, Japan 2022*
38. Neak, K., Kret, K., Sreu, T., Or, C., Seang, S. (2022) Hydrothermal Alteration Mineral Mapping by Integrating of ASTER and Landsat-8: A case study in Phnom Peam Louk, Kompong Chhang Province, Southwest Cambodia. *Proceedings of the International Symposium on Earth Science and Technology, Japan 2022*
39. Boeurn, C., Seang, S., Kret, K., Yonezu, K., Watanabe, Z., Zaw, K. (2022) Geology and Hydrothermal Alteration of Skarn Deposit in Area 4, Phnom So Ngam Tenement, Chhouk District, Kampot Province, Cambodia. *Proceedings of the International Symposium on Earth Science and Technology, Japan 2022*
40. Kim, C., Kret, K., Seang, S., Kong, K., Or, C., Oy, K., Ammuguan, J., Heoun, S., Chhun, C., and Neak, K. (2022) Lithological Analysis of Koh Nheak, Mondoukiri Province Using Landsat-8 OLI and ASTER. *Proceedings of the International Symposium on Earth Science and Technology, Japan 2022*
41. Seang, S., Kan K., & Okamoto, M. (2022). Feasibility Study of Using Recycled Waste Plastic in Bituminous Concrete. *Proceedings of Conference on Business, Social Sciences and Technology (CoNeScINTech)*, 2(1), 59-66.
42. Lin, L., Chhin, R., Han, V., Doung, P. (2022) Prediction of Basic Wind Speed for Battambang Province. *Conference on Business, Proceedings of Social Sciences and Technology (CoNeScINTech)*. 2(1), pp. 67-72. ISSN 2808-5485
43. Lin, L., Chhin, R., Han, V., Doung, P. (2022) Determination of Basic Wind Speed for the Design of Buildings in Cambodia. *The 4th International Symposium on Civil and Environmental Engineering (ISCEE 2022)*. Universiti Tun Hussein Onn Malaysia, 3-4 October 2022. (online)
44. Lin, L., Chhin, R., Han, V., Doung, P. (2022) Beginning Step of the Development of Basic Wind Speed for Structural Design in Cambodia. *AUN/SEED-NET Joint Graduate Research Seminar in Civil Engineering*. Institute of Technology of Cambodia, 21 December 2022
45. Keth, K. (2022) Understanding the Collaborative Works in Construction Projects in Phnom Penh, Cambodia. *AUN/SEED-NET Joint Graduate Research Seminar in Civil Engineering*. Institute of Technology of Cambodia, 21 December 2022
46. Keth, K., Ben Rajeb, S., Han, V. (2022) Multidisciplinary Collaboration in Construction projects in the Cambodian Context. *Séminaire inaugural de l'école doctorale thématique (Architecture, Urbanisme, Ingénierie Architecturale et Urbaine – EDT 62, Brussels, 4 March 2022*

47. Long, M., Leclercq, P., Han, V., Reiter, S. (2022) Life Cycle Assessment Approach for the Future Green Affordable Housing in Phnom Penh, Cambodia. AUN/SEED-NET Joint Graduate Research Seminar in Civil Engineering. Institute of Technology of Cambodia, 21 December 2022
48. Long, M., Leclercq, P., Han, V., Reiter, S. (2022) Green Building Design Strategy for a House in Phnom Penh from Life Cycle Assessment. Young Researchers Overseas Day, 12 December 2022
49. Khim, R., Han, V., Doung, P. (2022) Performance-Based Plastic Design and Evaluation of Tall Knee-Braced Frames with Simple Connections. AUN/SEED-NET Joint Graduate Research Seminar in Civil Engineering. Institute of Technology of Cambodia, 21 December 2022
50. Vong, S., Chhin, R., Doung, P. (2022) Basic wind speed analysis and serviceability evaluation of tall reinforced concrete building subjected to wind and earthquake: a case study in Phnom Penh. NPIC Conference Proceeding. 12<sup>th</sup> December 2022, Cambodia
51. Sorn, C., Heng, S., Doung, P. (2022) Assessment of Bond Behavior of Post-Installed Bundled Reinforcement using Finite Element Method. NPIC Conference Proceeding. 12<sup>th</sup> December 2022, Cambodia
52. But, R., Heng, S., Doung, P. (2022) Bond Strength Assessment of Post-Installed Single Reinforcement using Finite Element Analysis. NPIC Conference Proceeding. 12<sup>th</sup> December 2022, Cambodia
53. Taing, K., Andre, P., Leclercq, P. (2022) Analysis of thermal performance of naturally ventilated residential building in tropical climate: case study of Phnom Penh, Cambodia, 2nd ASEAN International Conference on Energy and Environment (AICEE), Phnom Penh, Cambodia
54. Karagianni, C., Schwede, D., Taing, K., Han, V., (2022) Smart technology supporting traditional and bioclimatic building functions in reducing cooling energy demand in Cambodia, Digital Insights
55. Taing, K., (2022) Bio-climatic design as a solution for residential building thermal comfort in tropical climate, 2nd Biennial of Tropical Architecture of Reunion Island, Reunion Island
56. Hun, P., Chung, C., Doung, P. (2022) A Comprehensively Comparative Review of Wind Load Codes for the Conformity to Cambodia Wind. 4th National Research Forum. 20-21 October 2022, Phnom Penh, Cambodia
57. Lim, M., Seang, S., Kret, K., Oy, K., Ammugauan, J. (2022) Ore Mineralization, Hydrothermal Alteration of China Wall Porphyry Cu-Mo-Au at Adongmeas, Ratanakiri, Cambodia. Proceedings of the ITC's 11th Scientific Day, 5-6 May 2022
58. Boeurn, C., Seang, S., Kret, K., Oy, K., Kong, S., Kong, S. (2022) Petrography and Hydrothermal alteration of Skarn prospect in Area 4, Phnom Sro Ngam Tenement, Chhouk District, Kompot province, Cambodia. Proceedings of the ITC's 11th Scientific Day, 5-6 May 2022
59. Ly, P., Seang, S., Kret, K., Oy, K., Kong, S., Ammugauan, J., Kong, S. (2022) Hydrothermal Alteration and Ore Mineralization of Area-1 in Koh Sla, Chhouk district, Kampot Province, Southern Cambodia. Proceedings of the ITC's 11th Scientific Day, 5-6 May 2022
60. Kim, C., Kret, K., Seang, S., Kong, S., Or, C., Kry, R., Oy, R., Ammugauan, R., Keat, L., Neak, K., Chhun, C., Hoeun, S., Hoeun, S., Sreu, T. (2022) Lithological Mapping using Landsat-8 Oli and Aster Multispectral Data in Koh Nheak, Monduliri Province, Northeast Cambodia. Proceedings of the 1st International Conference on Earth Resources and Geo-Environmental Technology 2022
61. Boeurn, C., Seang, S., Oy, K., Kret, K., Kong, S., Ammugauan, J. (2022) Lithology and Skarn Mineralogy in Area 4, Phnom So Ngam Tenement, Chhouk District, Kampot Province, Cambodia. Proceedings of the 1st International Conference on Earth Resources and Geo-Environmental Technology 2022
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65. Ly, P., Seang, S., Hlaing, K.M., Oy, K., Kret, K. (2022) Initial investigations on the alteration mineralogy and ore characteristics of Area-1 in Koh Sla, Chhouk district, Kampot province, southern Cambodia. Proceedings of the 1st International Conference on Earth Resources and Geo-Environmental Technology 2022
66. Lin, L., Chhin, R., Han, V., Doung, P. (2022) Prediction of Basic Wind Speed for Design of Building in Sihanoukville. the ITC's 11th Scientific Day, 5-6 May 2022
67. Soung, R., Doung, P. (2022) Numerical Performance Evaluation of Steel Ring Damper Under Uni-axial Cyclic Loading. Proceedings of the ITC's 11th Scientific Day, 5-6 May 2022
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72. Sreng, L., Seang, S., Azura, A.R., Yos, P. (2021) Characterization of Cambodian Natural Rubber/Common Clay Composites. Proceeding of the 14th AUN/SEED-Net Regional Conference on Materials 2021 & 4th International Postgraduate Conference on Materials
73. Seang, S., Kakda, K., Jaydee, A., Kov, R., Hang, B., Ly, S. C. S., Chan, C., Oy, K., Sitha, K. (2021) Initial Study on Lithological, Hydrothermal Alteration, and Geochemistry for Mineral Exploration in Chhouk District, Kampot Province, Southwest Cambodia. Regional Conference on Natural Disaster, Yangon University Research Center, Yangon, Myanmar
74. Kret, K., Chan, C., Seang, S., Kuoch, T., Kong, S., Kry, R., Boeut, S., Hoeun, S. (2021) Hydrothermal alteration mineral mapping by integrating ASTER and Landsat-8 OLI: A case study in Ratanakiri province, northeast Cambodia. Regional Conference on Natural Disaster, Yangon University Research Center, Yangon, Myanmar
75. Ly, S., Sirisokha, S., Oy, K., Kakda, K., Kov, R., Hang, B., Chorn, S., Jaydee, A., Kong, S., Sitha, K., Kotaro, Y., Koichiro, W., Sophea, B., Tola, S., Seangleng, H. (2021) Preliminary study on lithology, hydrothermal alteration, and soil and rock geochemistry for gold and copper at Area 6, Phnom Sro Ngam Tenement, Chhouk District, Kampot Province, Cambodia. International Symposium on Earth Science and Technology, Japan
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77. Leakhena, H., Phalla, T., Srean, A., Dalin, U., Taing, C. (2021) Air Emission Inventory of Factory Boiler and impact to human health. Case Study in Phnom Penh, Cambodia The 6th International Symposium on Conservation and Management of Tropical Lakes” In Conjunction with
78. Leakhena, H., Phalla, T., Srean, A., Dalin, U., Taing, C. (2021-A) Assessment of human health impact of particulate matter formation from industry textile boiler in Cambodia. 15th Regional Conference in Environmental Engineering

79. Leakhena, H., Phalla, T., Srean, A., Dalin, U., Taing, C. (2021-B) Feasibility of air quality standard compliance link with perception of people : case study Phnom Penh Cambodia. Asean young scientist conference
80. Menghor, L., Mouyyi, H., Nallis, K., Sirisokha, S., and Ichhuy, N. (2020) Primary Investigation on lithology and alteration minerals for geothermal resource in Te Teuk Pus, Oral district Kampot Speu province, Cambodia. International of Symposium on Earth Science and Technology. 420-425.
81. Hin, R., Cheng, K., Han, V., Bernard, F., Seang, C., Keryvin, V., Sangleboeuf, J.-C. Flexural strength improvement for structural glass: a numerical study. IOP Conf. Series: Materials Science and Engineering, 849 (2020) 012083. doi:10.1088/1757-899X/849/1/012083



## Annex 45. List of publication from WAE Research Unit.

### List of Index publications from 2020

1. Song, L., Ribolzi, O., Boithias, L., Xayyathip, K., Valentin, C., Soullileuth, B., Robain, H., de Rouw, A., Sounyafong, P., Silvera, N., Sisouvanh, P., Janeau, J. L., Saveng, I., Oeurng, C., Pierret A. (2025). Soil erosion control in tree plantations on steep slopes: Runoff water and sediment trapping efficiency of riparian grass buffer in mountainous humid tropics. *Ecological Engineering*. <https://doi.org/10.1016/j.ecoleng.2025.107537>. (IF : 3.9)
2. Peng, C., Moniroth, S., Khy, P., Chea, S., Thanh, C., Heng, O., Sarter, S., Cheng, S., Caruso, D.(2024). Antibiotic resistance profiles of sentinel bacteria isolated from aquaculture in Cambodia. *Journal of Water and Health*. doi: <https://doi.org/10.2166/wh.2024.101>. (IF : 2.5)
3. Sao, S., Praise, S., Nishiyama, M. et al. Response of bacterial communities and soil chemistry to flood durations and recovery phases. *Environ Sci Pollut Res* (2024). <https://doi.org/10.1007/s11356-024-35001-2>. (IF : 5.8)
4. Phung, L., Sao, S., Afriani, S., Kumar, A., Watanabe, T. ZnO Nanoparticles in Composted Sewage Sludge Enhance Soil Fertility and Rice Nutrition but Elevate As and Pb Accumulation *Journal of Environmental Chemical Engineering* <https://doi.org/10.1016/j.jece.2024.113606>. (IF : 7.4)
5. Chhoung, Y., Tian, Z., Ma, W., Eang, K.E., Pen, S., Chhuon, K. (2024). Modeling the Underwater Operation Robot Shape and Area of Thrust Surface in Agricultural Ponds Based on CFD Simulation. *Semarak Ilmu CFD Letters*. <https://doi.org/10.37934/cfdl.17.6.151170>. (IF : 1.2)
6. Phoeurn, CA., Orn, C., Tho, T., Degré, A., Ket, P. (2024). Assessing the Feasibility of Alternative Wetting and Drying (AWD) Technique for Improving Water Use Efficiency in Dry-Season Rice Production. *Paddy and Water Environment*. <https://link.springer.com/article/10.1007/s10333-024-01012-5>. (IF : 1.9)
7. Muon, R., Zaiss, R., Lao, C., Ann, V., & Jouquet, P. (2024). Utilization of IGN historical aerial photographs and Google earth for measuring changes in land use and evolution of termite lenticular mound abundance in paddy fields in Cambodia. *Soil Use and Management*. <https://doi.org/10.1111/SUM.13128>. (IF : 5)
8. Ly, S., Uk, S., Theng, V., Kaing, V., & Yoshimura, C. (2024). Integration of life cycle and habitat conditions in modeling fish biomass in the floodplain of the Lower Mekong Basin. *Ecological Modelling*. (IF: 3.1)
9. Sao, S., Ann, V., Nishiyama, M., Praise, S., Watanabe, T. Tracing pathways by which flood duration impacts soil bacteria through soil properties and water-extractable dissolved organic matter: A soil column experiment *Science of The Total Environment* <https://doi.org/10.1016/j.scitotenv.2023.166524>. (IF : 8.2)
10. Sao, S., Praise, S., Watanabe, T. Effect of flood duration on water extractable dissolved organic matter in flood plain soils: A laboratory investigation *Geoderma* <https://doi.org/10.1016/j.geoderma.2023.116392>. (IF : 5.6)
11. Theng V., Sith T., Uk S., Yoshimura C. (2023). Phytoplankton productivity in a tropical lake floodplain system revealed by a process-based primary production model. *Ecological Modelling*. (IF: 3.1)
12. van Emmerik TH, Schreyers LJ, Mellink YA, Sok T, Arias ME. Large variation in Mekong river plastic transport between wet and dry season. *Frontiers in Environmental Science*. 2023 May 9;11:539. (IF: 4.6)
13. Mohamed CA., An, S., Pradit S., Loh, PS., Nitiratsuan, T., Kobkeattawin, T., Noppradit, P., Le, TP., Oeurng, C., Sok, T., Lee, CW. (2023). Depth Profiles of Microplastic in Sediment Cores in the Mangrove Area of Kuala Gula Mangrove, Malaysia. *Journal of Marine Science and Engineering*. 2023 Jun 14;11(6):1223. (IF: 2.9)

14. Hu, J., Siriporn P., Pei SL., Zengxuan C., Chuanyi G., Thi P., Oeurng, C. et al. (2023). Storage and dynamics of soil organic carbon in allochthonous-dominated and nitrogen-limited natural and planted mangrove forests in southern Thailand. *Marine Pollution Bulletin* 200: 116064. **(IF: 10.1)**
15. Kaing, V., Zhongyu, G., Sok, T., Dilini, K., Florian, B., Yoshimura, C. (2023). Photodegradation of biodegradable plastics in aquatic environments: Current understanding and challenges. *Science of The Total Environment* (2023): 168539. **(IF: 10.75)**
16. Try, S., Takahiro, S., Sophea, RP., Sok, T., Ly, S., Oeurng, C. (2023). Assessing the impacts of climate change and dam development on potential flood hazard and damages in the Cambodian floodplain of the lower mekong basin. *Journal of Hydrology: Regional Studies* 49 (2023): 101508. **(IF: 4.7)**
17. Lai, C., Muon, R., Touch, V., Hin, S., Podwojewski, P., Ket, P., Jouquet, P., Degré, A., Ann. V. (2023). Impact of Biochar from Rice Husk on Nutrient Distribution and Rice Growth and Yield. A Soil Column Experiment. *Soil and plant nutrition*, 2023. **(IF: 3.9)**
18. Phoeurn, CA., Orn, C., Tho, T., Degré, A., Ket, P. (2023). Assessing the Feasibility of Alternative Wetting and Drying (AWD) Technique for Improving Water Use Efficiency in Dry-Season Rice Production. *Paddy and Water Environment*, submitted, 2023.
19. Tha, S., Sot, C., Phol, S., Yan, S., Lai, C., Ket, P. (2023). Estimating Irrigation requirement and scheduling for major crops: Case Study in Kampong Thom, Cambodia. *IOP Conference Series: Earth and Environmental Science*, submitted, 2023
20. Pang, B., Sou, K., Kit, K., Huor, S., Chhim, S., Khorn, S., ... & Bun, S. (2023). Performance evaluation of anaerobic baffled reactor and filter for treating medium-strength wastewater using natural sludge growth and different hydraulic retention times. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1199, No. 1, p. 012040). IOP Publishing. **(IF: 2.25)**
21. Bou, K., Poev, S., Chan, R., Ham, P., & Bun, S. (2023). Destabilization of Emulsion Oil Separation by using Chemical Coagulation Process: Preliminary Investigation for Effective Analysis. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1199, No. 1, p. 012041). IOP Publishing. **(IF: 2.25)**
22. Choun, C., Bun, S., Ham, P., & Chan, R. (2023). Removal of Turbidity, Color, and Oil using Aerated Electrocoagulation-Flotation Reactor. *AIP Proceeding*, 2785 (1), 030044.
23. Ham, P., Bun, S., Wongwailikhit, K., & Painmanakul, P. (2023). Effect of Catalyst and Irradiation Characteristics on Volatile Organic Compounds Degradation in Aqueous Phase using TiO<sub>2</sub> Photocatalyst. *AIP Proceeding*, 2785 (1), 030032. **(IF: 0.41)**
24. Heang, B., Bun, S., Chan, R., & Ham, P. (2023). Comparative Study of Septic Tank, Anaerobic Filter, and Anaerobic Baffled Reactor for Treating Domestic Wastewater. *AIP Proceeding*, 2785 (1), 030030. **(IF: 0.41)**
25. Seng, P., Bun, S., Chan, R., & Ham, P. (2023). Optimize System Configuration and Operation Condition of Anaerobic Baffled Reactor (ABR) and Anaerobic Filter (AF) for Treating Domestic Wastewater. *AIP Proceeding*, 2785 (1), 030042. **(IF: 0.41)**
26. Pen, B., Bun, S., Fagkaew, P., & Painmanakul, P. (2023). Effect of Solid Media Addition on Mass Transfer and Bubble Dynamics in Bubble Column Reactor. *AIP Proceeding*, 2785 (1), 060006. **(IF: 0.41)**
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28. Eng, K., Chan, R., Bun, S., Chan, R., Ham, P., & Sok, T. (2023). Optimization of Nitrate Production from Aquaculture Wastewater in a High-Rate Aerobic Reactor for a Hydroponic Spinach Growth. *AIP Proceeding*, 2785 (1), 030041. **(IF: 0.41)**
29. Muon, R., Ket, P., Sebag, D., Boukbidia, H.A., Podwojewski, P., Hervé, V., Ann, V., Jouquet, P., 2023. Termite constructions as patches of soil fertility in Cambodian paddy fields. *Geoderma Reg.* e00640. <https://doi.org/https://doi.org/10.1016/j.geodrs.2023.e00640> **(IF = 4.2)**

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31. Jouquet, P., Muon, R., Traoré, S., Harit, A. (2023). From Thai to Zai : Insects as Example of Threatened Nature-Based Solutions for Sustainable Food Production. *Biodivers. Online J.* 3(4), 1–4. <https://doi.org/BOJ.000566>. 2023. (IF: NA)
32. Wai, M.P., Chem, V., Ean, K.E., Chhin, R., Siev, S., Heu, R. (2022). Accessing the Impact of Floating Houses on Water Quality in Tonle Sap Lake, Cambodia. *Sustainability*, 14, 247. <https://doi.org/10.3390/su14052747> (IF: 3.25)
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34. Chan, R., Chan, R., Sok, T., Bun, S., Kaing, V., Mong, M., Oeurng, C. (2022). Relative Distribution of Pollutants from Urban Canal and Aquaculture Farm onto Natural Wetland of Phnom Penh, Cambodia. *Pollution Research*. (IF: 0.516)
35. Sang, D., Cimetiere, N., Giraudet, S., Tan, R., Wolbert, D., & Le Cloirec, P. (2022). Online SPE-UPLC-MS/MS for herbicides and pharmaceuticals compounds' determination in water environment: A case study in France and Cambodia. *Environmental Advances*, 8, 100212. <https://doi.org/10.1016/j.envadv.2022.100212> (Citescore 1.2)
36. Yang, H., Siev, S., Uk, S. et al. (2022). Relationship between water levels and flood pulse induced by river-lake interaction in the Tonle Sap basin, Cambodia. *Environ Earth Sci* 81, 226. <https://doi.org/10.1007/s12665-022-10353-5> (IF: 2.784)
37. Sok, T., Oeurng, C., Kaing, V., Sauvage, S., Lu, x., Pérez, J. (2022). Nutrient transport and exchange between the Mekong River and Tonle Sap Lake in Cambodia, *Ecological Engineering*, Volume 176, <https://doi.org/10.1016/j.ecoleng.2021.106527> (IF: 4.05)
38. Try, S., Sayama, T., Oeurng, C. et al. (2022). Identification of the spatio-temporal and fluvial-pluvial sources of flood inundation in the Lower Mekong Basin. *Geosci. Lett.* 9, 5 (2022). <https://doi.org/10.1186/s40562-022-00215-0> (IF: 3.543)
39. Chua, S. D. X., Lu, X. X., Oeurng, C., Sok, T., and Grundy-Warr, C. (2022). Drastic decline of flood pulse in the Cambodian floodplains (Mekong River and Tonle Sap system), *Hydrol. Earth Syst. Sci.*, 26, 609–625, <https://doi.org/10.5194/hess-26-609-2022>, (IF: 6.450)
40. Sok, T., Ich, I., Tes, D., Chan, R., Try, S., Song, L., Ket, P., et al. (2022). Change in Hydrological Regimes and Extremes from the Impact of Climate Change in the Largest Tributary of the Tonle Sap Lake Basin. *Water*, 14(9), 1426. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/w14091426> (IF: 3.17)
41. Phy, S. Try, S., Sok, T., Ich, I. Chan, R., Oeurng, C., (2022). Integration of hydrological and flood inundation models for assessing flood events in the lower Prek Thnot River Basin under climate change . *Journal of Hydrologic Engineering* (IF: 2.017)
42. Uk, S., Yang, H., Vouchlay, T., Sok T., Siev, S., Try, S., Oeurng, C., Chihiro, Y., (2022) Dynamics of phosphorus fractions and bioavailability in a large shallow tropical lake characterized by monotonal flood pulse in Southeast Asia. *Journal of Great Lakes Research* (In Press) <https://doi.org/10.1016/j.jglr.2022.04.005> (IF: 2.55)
43. Orieschnig, C., Venot, J.P, Massuel, S., Eang, K., Chhuon, K., Lun, S., Siev, S., Belaud, G. (2022). A multi-method approach to flood mapping: Reconstructing inundation changes in the Cambodian upper mekong delta. *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2022.127902> (IF: 5.72)
44. Sang, D., Chiemchaisri, W., Chiemchaisri, C. (2022). Purification of polluted surface water by sponge moving bed membrane bioreactor with short hydraulic retention time operation. *Water and Environment Journal*. <http://doi.org/10.1111/wej.12803> (IF: 2.07)

45. Bun, Saret, Penghour Hong, Nattawin Chawaloeshosiya, Sreynich Pang, Sreylla Vet, Phaly Ham, Rathborey Chan, and Pisut Painmanakul. (2022). Development of Integrated Electrocoagulation-Sedimentation (IECS) in Continuous Mode for Turbidity and Color Removal." *ChemEngineering* 6, no. 1: 3 **(IF: 3.18)**
46. Mao, Theara, Davin Sang, Rathborey Chan, and Saret Bun. (2022). Experimental and empirical investigation of commercial and local biocarriers in moving bed bioreactor for treating low-strength domestic wastewater. **(IF: 0.675)**
47. Eng Khun, Rathborey Chan, Saret Bun, Rathborey Chan, Phaly Ham, Ty Sok. (2022). The Optimization of Nitrate Production from Aquaculture Wastewater in a High-Rate Aerobic Reactor for a Hydroponic Spinach Growth **(IF: 0.402)**
48. Borin Heang, Saret Bun, Rathborey Chan, Phaly Ham. (2022). Comparative Study of Septic Tank, Anaerobic Filter, and Anaerobic Baffled Reactor for Treating Domestic Wastewater **(IF: 0.403)**
49. Chakriya Choun, Saret Bun, Phaly Ham, Rathborey Chan. (2022). Removal of Turbidity, Color, and Oil using Aerated Electrocoagulation-Flotation Reactor **(IF: 0.404)**
50. Phaya Seng, Saret Bun, Rathborey Chan, Phaly Ham. (2022). Optimize System Configuration and Operation Condition of Anaerobic Baffled Reactor (ABR) and Anaerobic Filter (AF) for Treating Domestic Wastewater **(IF: 0.405)**
51. Ich, I., Sok, T., Kaing, V., Try, S., Chan, R., & Oeurng, C. (2022). Climate change impact on water balance and hydrological extremes in the Lower Mekong Basin: a case study of Prek Thnot River Basin, Cambodia. *Journal of Water and Climate Change*. **(IF: 2.67)**
52. Ka, K., Sok, T., Lim, S., Ich, I., Chan, R., Song, L., ... & Oeurng, C. (2022). Watershed Health Assessment Using GIS and AHP Methods: Application in Stung Sen River Basin, Cambodia. *Indonesian Journal of Limnology*, 3(1), 18-33. **(IF: 0.41)**
53. Ann, V., A. M. Román, A. Butturini, (2022). Estimating the hydraulic conductivity in river unconsolidated sediments. A critical analysis of several grain-size empirical approaches. *Serie Correlación Geológica*, 38 (1): 15-25. **(IF: 0.50)**
54. Heu, R., M.P. Wai, S. Siev, V. Chem, K. E. Eang, V. Ann, M. Ateia, C. Yoshimura, (2022). Dissolved Silicon in Lake-floodplain System: Dynamics and Role in Primary Production. *Science of The Total Environment*, 861:160696. <https://doi.org/10.1016/j.scitotenv.2022.160696> **(IF: 10.753)**
55. Teck, V., A. Poortinga, C. Riano, K. Dahal, R. M. B. Legaspi, V. Ann, R. Chea, (2022). Land use and land cover change implications on agriculture and natural resource management of Koah Nheak, Mondulkiri province, Cambodia. *Remote Sensing Applications: Society and Environment*. In Press. <https://doi.org/10.1016/j.rsase.2022.100895>. **(IF: 3.371)**
56. Sokles Lorn ,Pinnara Ket,Chanmoly Or ,Sela Kong,Dalin Um ,Srean Aun , (2022). Chanreaksmey Taing, Leakhena Hang .Health Impact Assessment from Rice Straw Production in Cambodia.Sci. 2022, 12(20). <https://doi.org/10.3390/app122010276>. **(IF: 2.838)**
57. Chanto Chea, Pinnara Ket, Long Taing, Sela Kong, Dalin Um, Chanreaksmey Taing, Chanmoly Or, Srean Aun4, Leakhena Hang. (2022). Life-Cycle Impact Assessment of Air Emissions from a Cement Production Plant in Cambodia. Vol 11(14). DOI: 10.4236/ojap.2022.114007 **(IF: 0.79)**
58. Chan, R., Chart, C., Wilai, C., Alongkot, B., & Phitsanu, T. (2022). Occurrence of antibiotics in typical pig farming and its wastewater treatment in Thailand. 8 21-29. <https://doi.org/10.1016/j.emcon.2021.12.003> (CiteScore: 9.7)
59. Chhin, R., Siev, S., & Yoden, S. (2021). Time-lagged correlations of pre-monsoon precipitation in the Indochina Peninsula confirmed in a large ensemble simulation dataset. *International Journal of Climatology*, 1–18. Doi: 10.1002/joc.7292. **(IF:4)**
60. Chan, R., Chan, R., Chiemchaisri, W., & Chiemchaisri, C. (2021). Treatment of aquaculture farm effluent containing antibiotics in high-rate membrane bioreactor. *Desalination and water treatment*, 221, 56-63. **(IF:1.2)**
61. Charlotte, J.H., Mauricio, E.A., Zhewen Y., Ty, S., & Michael, C. W. (2021). Plastic transport in a complex confluence of the Mekong River in Cambodia. *Environmental Research Letter*. **(IF:6.7)**
62. Chan, R., Chiemchaisri, C., & Chiemchaisri, W. (2021). Application of Membrane Bioreactor with Sponge Media in Aquaculture Wastewater Treatment. *Journal of Fisheries and Environment*, 45(2), 106-118. **(IF:0.42)**

63. Dai, J., Rad, S., Xu, J., Pen, S., Gan, L., Chen, X., Yu, C., & Zhang, S. (2021). Impacts of climate change versus land use change on recent Lijiang River flood regime, South China. <https://doi.org/10.24850/j-tyca-2021-03-07>. (IF:0.29)
64. Rajendra, K., Uk, S. Dilini, K., Siev, S., & Chihiro, Y. (2021). Impact of Water Level Fluctuation on Sediment and Phosphorous Dynamics in Tonle Sap Lake, Cambodia. *Water Air Soil Pollut* 232, 139 (2021). <https://doi.org/10.1007/s11270-021-05084-5>. (IF:2.5)
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### **List of Non-index publications from 2020**

1. Pov, K., Heng, C., Soy, M.,Herbretau, V., Ann, V. Land Use and Land Cover Distribution across Litho-Mineral Alteration of an Irrigated Catchment of the Tonle Sap Lake, Cambodia. (2024). *Techno-Science Research Journal*.
2. Theam, A., Bun, S., Ham, P., Chan, R. Oxidative Precipitation of Arsenic (III) with Iron (II) in Synthetic Groundwater using Diffused Aerator. (2024). *Techno-Science Research Journal*
3. Ngorn, K., Bun, S., Ham, P., Chan, R. (2024). Groundwater Quality Assessment Towards Sand Filter Modification for a Rural Community of Cambodia *Techno-Science Research Journal*.
4. Chork, V., Chhuon, K., Eang, K.E., Lun, S., Doung, R., & Massuel, S. (2024). Investigating Surface Water and Groundwater Interactions Using Ground Electrical Conductivity Measurement in the Bassac River Floodplain *Techno-Science Research Journal*
5. Sath S., MuonR., Zaiss R., Meersmans J., Ann V., Jouquet P. (2024). Environmental Variables Determining Soil Physical Properties and Carbon Content at the Catchment Scale, Stung Chrey Bak Observatory, Cambodia. *Techno-Science Research Journal*.
6. Oeurng, C., Sok, T., Chan, R., Hour, H.M., Koun, P. (2023). Report on Community Fish Refuge (CFR) Pond Monitoring: Surface and Groundwater Study at Sras Ang CFR, Prey Veng Province. *Techno-Science Research Journal*. (2023).
7. Theam, A., Bun, S., Ham, P., Chan, R (2024). Oxidative Precipitation of Arsenic (III) with Iron (II) in Synthetic Groundwater using Diffused Aerator. *Techno-Science Research Journal*. (2024) [In Press]
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10. Khut, S., Heng., O., Peng, C., & Domenico, C. (2022). Preliminary Study on Physicochemical Quality and Antibiotic-Resistant *E. coli* and *Aeromonas* spp. in Aquaculture of *Pangasius* in Kampong Thom Province. *Techno-Science Research Journal* Vol 10.
11. Khen, C., Ich, I., Sok, T., Try, S., & Oeurng, C. (2022). Hydrological Components and Catchment Scale Sediment Delivery in Prek Thnot River Basin, Cambodia. *Techno-Science Research Journal*.
12. Huong, O., Samrith, C., Sok, T., Ich, I., Try, S., Chan, R., & Oeurng C. (2022). Trend and Stationarity Analysis of Streamflow in Prek Thnot River Basin. *Techno-Science Research Journal*.
13. Ket, D., Sok, T., Ich, I., Chum, K., Lim, S., Chan, R., Pech, P., & Oeurng, C. (2022). Flow Alteration under Land use Impact in Sen River Basin of The Tonle Sap Lake. *Techno-Science Research Journal*.
14. Yos, C., Ich, I., Sok, T., Chan, R., Kaing, V., Khen, C., & Oeurng, C. (2022). Impact of Climate Change on Sediment and Nitrate load in Prek Thnot River basin of the Lower Mekong River. *Techno-Science Research Journal*.
15. Harn, N., Pen, S., & Heng, S. (2022). Twin Bridge Hydraulics Analysis Using HEC-RAS Model. *Techno-Science Research Journal*
16. Sang, D., Chhun, M., & LUN, S. (2022). Formulizing the design criteria for piped water supply in Cambodia: A case study in Anlong romiet Province. *Techno Science Research Journal*.
17. Khen, C., Ich, I., Sok, T., Try, S., & Oeurng, C. (2021). Hydrological Components and Catchment Scale Sediment Delivery in Prek Thnot River Basin, Cambodia. *Techno Science Journal*.

18. Heng, D., Ty, B., Hul, S. (2021). Study on Nutrients and Heavy Metals in Bottom Sediment of Tonle Sap Lake. *Techno Science Journal*.
19. Heng, S., Kheav, K., Hok, P., Chhuon, K., Ly, S., Kinouchi, T. (2021). Urban Flood Modeling in Phnom Penh Using Flo-2D: Consideration of Climate Change Effect. *Techno Science Journal*.
20. Kol, P., & Doung, R. (2021). Application of SWMM to Explore Possible Climate Change Impact on Urban Stormwater Drainage. *Techno Science Journal*.
21. Lai, C., Vorn, T., Eang, K.E., Ty, B. (2021). Evaluation of Wastewater Treatment Efficiency Utilizing Coconut Fiber as Filter Media. *Techno Science Journal*
22. Neang, P., Hul, S.H., Endo, G., Miyauchi, K. (2021). Groundwater Arsenic Contamination and Social Needs of Economical Arsenic Removal Technology in Rural Areas of Cambodian Mekong Delta. *Techno Science Journal*

### **List of Conferences from 2020**

1. Guerra, R., Lenczewski, M., Eang, K.E., Lafser, J., Tucker, K. (2025). GC-MS/MS Pesticide Analysis of Cambodian Waters. ASMS 2025 Baltimore
2. Vorng, C., Doeurn, S., Sok, S., Sieng, S., Ngoun, P., Ikemori, F., Hata, M., Sao, S., Peng, C., Or, C., Furuuchi, M. Daily Variations of Particulate Matter Mass Concentration: A Preliminary Observation at Institute of Technology of Cambodia GSGES International Symposium 2024
3. Sorn, S., Doeurn, S., Sok, S., Sieng, S., Ngoun, P., Ikemori, F., Hata, M., Sao, S., Peng, C., Or, C., Furuuchi, M. Comparison of PM<sub>2.5</sub> Mass Concentration from Two Filter Types in Low-Volume Air Samplers: One-Month Observation at Institute of Technology of Cambodia GSGES International Symposium 2024. Poster presentation
4. You, T., Sao, S., Doeurn, S., Peng, C., Sambath, S., Ikemori, F., Amin, M., Hata, M., Or, C., Furuuchi, M. Air Quality Monitoring in Phnom Penh City: A Focus on Gas Concentrations GSGES International Symposium 2024. Poster presentation
5. Srong, S., Sao, S., Doeurn, S., Peng, C., Sambath, S., Ikemori, F., Amin, M., Hata, M., Or, C., Furuuchi, M. Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>) Variations at Four Locations in Phnom Penh GSGES International Symposium 2024. Poster presentation
6. Phuong, S., Sao, S., Doeurn, S., Peng, C., Sambath, S., Ikemori, F., Amin, M., Hata, M., Or, C., Furuuchi, M. (2024). Effect of meteorological conditions on particulate matter concentration in Phnom Penh. GSGES International Symposium 2024. Poster presentation
7. Pov, K., Kret, K., Po, K., Seang, S., Révillion, C., Catry, T., Hostache, R., Herbreteau, V., Ann, V. (2024). Land Surface Temperature and Green Health Vegetation Variability across Lithology and Land Use and Land Cover in the Chrey Bak Catchment KHEOBS Day 2024
8. Tha, S., Sot, C., Phol, S., Yan, S., Lai, C., Ket, P. (2024). Estimating Irrigation requirement and scheduling for major crops: Case Study in Kampong Thom, Cambodia IOP Conference Series: Earth and Environmental Science
9. Eang, K.E., Massuel, S., Keo, S., Doung, R., Van Hanja, J., Yeurn, S., Phat, C., Baudron, P., Lenczewski, M. (2024). Pesticide Distribution and Evolution in Prek Systeme in Koh Thum, Kandal Province GOLDSCHMIDT 2024
10. Theng, K., Aun, S., Amin, M., Nat, Y. (2024). Measurement and Evaluation of Particle Number Concentration and Lung Deposited Surface Area Concentration in Open Public Space The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
11. Ren, R., Phairuang, W., Hata, M., Furuuchi, M., Amin, M., Meng, H., Or, C., Theng, K., Aun, S. (2024). Preliminary Study Of Diurnal And Nocturnal Size-Segregated Particulate Mass Concentration In Atmospheric Air Quality The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
12. Meng, C., Aun, S., Phairuang, W., Hata, M., Furuuchi, M., Amin, M., Ren, R., Or, C., Theng, K. (2024). Difference of Particulate Matter in Ambient Environment during Daytime and Nighttime in Phnom

- Penh City The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
13. Khor, S., Nhet, V., Pen, S. Rainfall Trend Anayis in Cambodia. (2024). The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  14. Brang, S., Uk, S., Pen, S., Doung, R., Theng, V., Chork, V., Sok, K. (2024). Shoreline Evolution Over the Past Four Decades in Koh Kong, Cambodia The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  15. Nuth, P., Brang, S., Ban, L., Pen, S. (2024). Extrem Rainfall Event Analysis in Cambodia The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  16. Ban. L., Pen, S. (2024). Assessment of an Ungauged Catchment of Rongea River in Koh Ker Heritage Zone, Cambodia The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  17. Chy, V., Hout, M., Ich, I., Koun, P., Sok, T. (2024). Evaluation of Naïve Bayes and Naïve Bayes Tree of Machine Learning performance for flood model for the Prek Thnot River Basin The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  18. Samai, S., Theng, V. (2024). Predictive Model of Eutrophication in Tonle Sap Lake Using Machine Learning The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  19. Krin, K., Ich, I., Meng, H., Song, L., Sok, T. (2024). Reappraisal of Modelling Streamflow in the Mekong River Basin Using the SWAT Model The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  20. Pen, S., Kuch, S., Min, T. (2024). Assessment of Flow Characteristics in Flate Terrain under Effect of Drainage Physical Property The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  21. Or, S., Hout, M., Song, L., Ich, I., Sok, T. (2024). Water Balance of Catchment Scale in Prek Thnot River of Cambodia and Setting Up for Quantify Nature-Based Solutions Efficiency The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  22. Thai, V., Vat, N., Ma, L., Menh, L., Pa, V., Noem, S., Heu, R. (2024). Assessment of Heavy Metals Pollution in Groundwater at the Rural Area of Cambodia The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  23. Pa, V., Thai, V., Noem, S., Menh, L., Heu, R. (2024). Seasonal Assessment of Groundwater Quality at Tonle Sap Lake Floodplain Area in Cambodia The 13th Scientific Day of ITC Jointly held with International Symposium on Water Supply and Sanitation and the 1st Symposium of Food Technology, Research and Innovation
  24. Chhoeung S., , Lao C., Muon R., Martin A., Sinh S., Rougier J., Sok K., Seng P., Jouquet P. and Bureau-Point E. (2024). Paddy-field multifunctionality in Cambodia. A qualitative study of the ecosystem services provided by termite mounds. The 8th National Conference on Agricultural and Rural Development: Research, Technology and Innovation for Sustainable Agriculture
  25. Khan S., , Sinh S., Muon R., Ly N., Nhean S., Ket P., Repellin A., Pugen Freitas R., Jouquet P. (2024). Growth of Rice Cultivated on Different Types of Growing Media in Water Limitation Condition The 8th National Conference on Agricultural and Rural Development: Research, Technology and Innovation for Sustainable Agriculture



26. Pang, B., Sou, K., Kit, K., Huor, S., Chhim, S., Khorn, S., ... & Bun, S. (2023). Performance evaluation of anaerobic baffled reactor and filter for treating medium-strength wastewater using natural sludge growth and different hydraulic retention times IOP Conference Series: Earth and Environmental Science
27. Bou, K., Poev, S., Chan, R., Ham, P., & Bun, S. (2023). Destabilization of Emulsion Oil Separation by using Chemical Coagulation Process: Preliminary Investigation for Effective Analysis IOP Conference Series: Earth and Environmental Science
28. Choun, C., Bun, S., Ham, P., & Chan, R. (2023). Removal of Turbidity, Color, and Oil using Aerated Electrocoagulation-Flotation Reactor AIP Proceeding
29. Ham, P., Bun, S., Wongwailikhit, K., & Painmanakul, P. (2023). Effect of Catalyst and Irradiation Characteristics on Volatile Organic Compounds Degradation in Aqueous Phase using TiO<sub>2</sub> Photocatalyst AIP Proceeding
30. Heang, B., Bun, S., Chan, R., & Ham, P. (2023). Comparative Study of Septic Tank, Anaerobic Filter, and Anaerobic Baffled Reactor for Treating Domestic Wastewater AIP Proceeding
31. Seng, P., Bun, S., Chan, R., & Ham, P. (2023). Optimize System Configuration and Operation Condition of Anaerobic Baffled Reactor (ABR) and Anaerobic Filter (AF) for Treating Domestic Wastewater AIP Proceeding
32. Pen, B., Bun, S., Fagkaew, P., & Painmanakul, P. (2023). Effect of Solid Media Addition on Mass Transfer and Bubble Dynamics in Bubble Column Reactor AIP Proceeding
33. Eng, K., Chan, R., Bun, S., Chan, R., Ham, P., & Sok, T. (2023). Optimization of Nitrate Production from Aquaculture Wastewater in a High-Rate Aerobic Reactor for a Hydroponic Spinach Growth. AIP Proceeding
34. Doung, R., Koa, Ch., Pao, L., Koun, P., Heng, S., Tha, S., 2023. Urban Flood Modeling in Prek Phnov District, Phnom Penh, Cambodia. The 12th Scientific day of ITC, 08-09 June 2023, Institute of Technology of Cambodia, Phnom Penh, Cambodia
35. Vaythouke, S., Doung, R., Sylvain, M., 2023. Seawater Intrusion Modeling in Coastal Aquifer of the Sihanoukville City by using SEAWAT-GMS Model. The 12th Scientific day of ITC, 08-09 June 2023, Institute of Technology of Cambodia, Phnom Penh, Cambodia
36. Oeurn, S., Sorn, P., Sem, S., Eang, K.E., & Massuel, S. (2023). Hydrogeochemistry and Quality Assessment of Groundwater in Coastal Area, Sihanoukville. The 12th Scientific Day of ITC "Engineering Technology and Innovation toward the Development of Digital Economy and Society", June 08-09, 2023. Institute of Technology of Cambodia.
37. Ly, V., Peng, C., Heng, O., Domenico, C. (2023). Antibiotic-Resistant *Escherichia coli* and *Aeromonas* spp. in Mono Cage Culture of *Channa Micropeltes*. The 14th International Conference on Environmental and Rural Development, at Angkor Paradise Hotel, Siem Reap, Cambodia, 03-05 March, 2023.
38. Samrith, C., Sok, T., Try, S., Ich, I., Chan, R., Oeurng, C. (2022). Assessing flood risk using analytical hierarchy process (AHP) and geographical information system (GIS): application in Prek Thnot river basin, THA 2022 International Conference, January 2022.
39. Huong, O., Try, S., Sok, T., Phy, S.R., Chan, R., Oeurng, C. (2022). Historical flood simulation and evaluation the performance of gridded precipitation dataset in Prek Thnot river basin, THA 2022 International Conference, January 2022.
40. Phy, S.R., Try, S., Sok, T., Ich, I., Oeurng, C. (2022). Assessing Flood Inundation in the Lower Prek Thnot River Basin under Climate Change Using RRI Model Coupled with SWAT, THA 2022 International Conference, January 2022.
41. Tes, D., Sok, T., Ich, I., Song, L., Chan, R., Oeurng, C. (2022). Improving Flood Management through Future Reservoir Development and Operation in the Tonle Sap Largest Tributary, THA 2022 International Conference, January 2022.

42. Try, S., Sayama, T., Sok, T., Phy, S.R., Oeurng, C. (2022). Real-time Flood Forecasting Using Numerical Weather Prediction System Through NICAM-LETKF Data Assimilation in the Prek Thnot River, Cambodia, EGU General Assembly, May 2022.
43. Try, S., Sayama, T., Sok, T., Ly, S., Oeurng, C. (2022). Impact of Climate Change and Dam Construction on Rice Damages in the Cambodian Floodplain of the Mekong River Basin, THA2022 International Conference, January 2022.
44. Khut, S., Peng, C., Heng, O., Domenico, C. (2022). Water Quality and Survey on Knowledge, Attitude, And Practices of Antibiotic Use and Resistance of Farmer in Aquaculture of Pangasius Specie. 1th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
45. Tes, D., Ich, I., Sok, T., Say, V., Chan, R., Try, S., Song, L., Oeurng, C. (2022). Extreme Flow Reduction through the Integration of Hydrological and Reservoir Operation Models: The Case Study of Sen River Basin in Cambodia, the 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
46. Koun, P., Sok, T., Ich, I., Tes, D., Try, S., Oeurng, C. (2022). Spatial distribution of groundwater recharge and trend in Cambodia Mekong Delta, the 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
47. Huong, O., Try, S., Sok, T., Phy, S.R., Chan, R., Oeurng, C. (2022). Flood Modeling and Satellite Precipitation Datasets Evaluation in the Prek Thnot River Basin of the Lower Mekong River, the 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
48. Khoeun, C., Sok, T., Hout, M., Koun, P., Ith, S., Tes, D., Ich, I., Try, S., Oeurng, C. (2022). Extreme Rainfall Indices and Trends in Stung Sen River Basin, the Largest Tributary of Tonle Sap Lake Basin, the 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
49. Chann, K., Sok, T., Oeurng, C., Khoeun, R., Visessri, S., Sor, R., Null, H.S. (2022). Assessment of Hydrological Drought Features Over the Lower Mekong’s Tributaries: A Case Study in Srepok River Basin, the 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth”, May 2022, Phnom Penh.
50. Chhom, N., Chhit, S., Chhum, T., Try, S., Song, L., Chhin, R. (2022). Evaluation of observed gridded rainfall data for climate change study over Cambodia. Proceedings of the 11th Scientific Day of ITC, May, 2022, Phnom Penh
51. Wai, M.P., Chem, V.; Heu, R. (2022). Assessment of Dissolved Silicon in Surface water and sediment in Tonle Sap Lake. Proceedings of the 11th Scientific Day of ITC, May, 2022, Phnom Penh
52. Muon, R., Lai, C., Bureau-Point, E., Chassagne, F., Wieringa, F., Berger, J., Sok, K., Audibert, M., Podwojewski, P., Marchand, S., Ann, V., and Jouquet, P. (2022). Termite mounds in Cambodian paddy fields. Are they always kept for improving soil quality? (No. EGU22-55). Copernicus Meetings. p. 5194 at <https://doi.org/10.5194/egusphere-egu22-55>
53. Chann, K., Sok, T., & Oeurng, C. (2022) Investigation of hydrological alteration in Sekong and Sesan River Basins of the Lower Mekong Basin, The 11th Scientific Day Conference on “Smart Technology for Sustainable Economic Growth” May 2022, oral presentation.
54. Hen, C., Sok, T., Try, S., Chan, R., Ich, I., & Oeurng, C. (2022). Association between extreme precipitation and hydrological extreme in Prek Tnot River Basin of the Lower Mekong River in Cambodia, 4th International Conference on Environment, Resources and Energy Engineering (EREE 2022), June 10-12, 2022 in Bangkok, Thailand.
55. Chan R., Sok, T., Veth, V., Phy, S., Try, S., Ich, I., Oeurng, C. (2022). Assessment of Annual Streamflow Change Under Climate Change Scenarios in Prek Thnot River of the Lower Mekong Basin, Cambodia, 4th International Conference on Environment, Resources and Energy Engineering (EREE 2022), June 10-12, 2022 in Bangkok, Thailand.

56. Lay, V., Doung, R., & Pen, S. (2022). Application of Water Quality Index in GIS Tool to Assess the Quality of Groundwater at Preah Sihanouk Province, Cambodia. Proceedings of the 11th Scientific Day Conference on "Smart Technology for Sustainable Economic Growth", May 2022, Phnom Penh
57. Sang, D., Cimetiere, N., Giraudet, S., Tan, R., Wolbert, D., & Le Cloirec, P. (2022). Effect of simultaneous dosing PAC and Coagulant on Adsorption-Desorption of organic micropollutant during coagulation-flocculation-sedimentation process. JEM-3M, Rennes.
58. Leakhena Hang, Sokles Lorn, Srean Aun, Dalin Um, Chanreasmey Taing. (2022). Assessment of People's Perception of Air Quality in Phnom Penh, the Capital City of Cambodia. Malaysia
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**Annex 46. List of publications in Techno-Science Research Journal in Volume 12.**

| N°                           | Title of papers published in volume 12 (2024)  | Research Unit |
|------------------------------|--|---------------|
| <b>Volume 12 and Issue 1</b> |  |               |
| 1                            | Word Spotting on Khmer Palm Leaf Manuscript Documents<br><i>Vannkinh Nom, Dona Valy, Sokkhey Phauk, Seng Hak Leng</i>  | MIT           |
| 2                            | Text Image Reconstruction and Reparation for Khmer Historical Document<br><i>Chanchen Pork, Dona Valy, Sokkhey Phauk</i>   | MIT           |
| 3                            | Enhancing the Accuracy and Reliability of Docker Image Vulnerability Scanning Technology<br><i>Vannaroeth Korn, Kimheng Sok Dona Valy</i>  | MIT           |
| 4                            | Effect of Organic Acid and Commercial Washing Solutions for Bacteria Removal from Lettuce Collected from Market in Phnom Penh<br><i>Panhavatey Sokhom, Chanthol Peng, Oudam Heng, Monychot Tepy Chantho, Dany Hak, Rath Leng</i> | WAE           |
| 5                            | Comparison of Control Performance for a Low-cost DC Motor with Single-loop and Cascade Control Architectures<br><i>Soksery Srey, Sarot Srang</i>   | MIT           |
| 6                            | Walkability and importance assessment of pedestrian facilities in Phnom Penh City<br><i>Sokhit Plack, Veng Kheang Phun, Panha Yang, Kimnennh Taing</i>   | MSS           |
| 7                            | Design of Multi-Layer Planar Electromagnetic Wave Absorber Using 1D-FDTD Integrated with ASA and Gradient Descent Optimization Method<br><i>Dara Chun, Kosorl Thourn, Sokchenda Sreng</i>  | ETM           |
| 8                            | Assessment of Proximate Chemical Composition of Cambodian Rice Varieties<br><i>Sovanndara Soem, Hengsim Phuong, Vattana Mom, Pisal Yong, Sivmey Hor, Lyda Chin, Hasika Mith</i>  | FTN           |
| 9                            | Comparative Analysis of Different Clustering Techniques in Hybrid AC/DC Microgrid<br><i>Yoklin Neov, Oudaya Eth, Kimsrornn Khon</i>  | ETM           |
| 10                           | Decentralized Battery Energy Storage Integration into an Optimal Grid-Connected PV System with Zero Power Injection Considerations<br><i>Kimtheng Thieng, Vannak Vai, Oudaya Eth, Samphors Eng</i>                               | ETM           |
| <b>Volume 12 and Issue 2</b> |  |               |
| 11                           | Service Restoration in the Distribution System with Voltage Control Devices using Improved Sequential Opening Branches (ISOB)<br><i>Sokleap Heang, Vannak Vai, Samphors Eng</i>  | ETM           |

|                                    |  |   |
|------------------------------------|--|---|
| 12                                 | Physico-chemical Characteristics of Rice-based Cereal Processed by Twin-screw Extrusion and Microwave Cooking<br><i>Rathana Sovann, Hasika Mith, Pichmony Ek, Hassany Ly, Hengsim Phoung, Sokuntheary Theng</i>              | FTN   |
| 13                                 | Investigation of the Influence of Extrusion Conditions on Cambodian Extruded Rice Vermicelli<br><i>Hassany Ly, Hengsim Phoung, Rathana Sovann, Pichmony Ek, Sokuntheary Theng, Sreyroth Puth, Hasika Mith</i>                | FTN   |
| 14                                 | Application of High-Pressure and High-Temperature Reactor for Extraction of Essential Oil from Kaffir Lime Peel<br><i>Keakaknika Ly, Peany Houng</i>   | FTN   |
| 15                                 | Optimal Placement of Electric Vehicle Charging Stations Using Mixed-Integer Linear Programming: A Case Study in Cambodia<br><i>Sophanarith Buntheoun, Bunthern Kim, Vannak Vai, Monyvathna Chheng</i>                        | ETM   |
| 16                                 | Minimum Standard of Traffic Safety Devices at Primary School Zone Black Spot in Phnom Penh<br><i>Keo SOM Oeurn, Veng Kheang Phun, Panha Yang</i>   | MSS   |
| 17                                 | Should water taxi service in Phnom Penh be abandoned or sustained?<br><i>Sothearo Sam, Veng Kheang Phun, Panha Yang</i>  | MSS   |
| 18                                 | Displacement-Based Formulation with Non-Penetration Constraint for Planar Composite Beams in Partial Interaction Using the Coupled Connector Model<br><i>Thaileng Oeng, Pisey Keo, Khandaker M. Anwar Hossain, Virak Han</i> | MSS   |
| 19                                 | Evaluate the Potential Changes in Physico-Chemical and Microbiological Quality of Spicy Sour Seasoning during Storage<br><i>Davin Pheap, Seanghai Hoeun, Elen Morm, Sokneang In</i>  | FTN   |
| 20                                 | Effect of Different Water-Saving Irrigation Methods for Rice Cultivation, Case Study in Cambodia<br><i>Mengheak Phol, Channntola Sot, Sathea Yan, Chenda Lai, Pinnara Ket, Chengxiang Ma, Vannady Lim, Veasna Touch</i>      | WAE   |
| <b>Volume 12 and Special Issue</b> |  |   |
| 21                                 | The 13 <sup>th</sup> Scientific Day (Catalyzing Innovation: Human Capital, Research, and Industry Linkages)  | ETM= 6<br>FTN= 27<br>MIT= 23<br>MSS= 10<br>WAE=16 |
| 22                                 | Earth Resources and Geo-Environment Technology (36 papers)   |   |

**Annex 47. List of Foreign Students at ITC.**

| <b>No</b> | <b>Civilité</b> | <b>Nom et prénom</b>               | <b>Départ.</b> | <b>Date d'arrivé</b> | <b>Date de départ</b> | <b>University d'origine</b>        | <b>Pays</b> | <b>Thème (Quel est le sujet du stage?)</b> | <b>Financement</b> |
|-----------|-----------------|------------------------------------|----------------|----------------------|-----------------------|------------------------------------|-------------|--|--------------------|
| 1         | Mlle            | HORTEMEL Ariane                    | GIC            | 07-10-2024           | 08-02-2025            | INSA Rennes                        | France      | Student Exchange                           | Self-funded        |
| 2         | Mlle            | MILA Gaborieau                     | GIC            | 07-10-2024           | 08-02-2025            | INSA Rennes                        | France      | Student Exchange                           | Self-funded        |
| 3         | M.              | COTILLARD Valentin                 | GIC            | 07-10-2024           | 08-02-2025            | INSA Rennes                        | France      | Student Exchange                           | Self-funded        |
| 4         | Mlle            | AUTAIN Camille                     | GIC            | 07-10-2024           | 08-02-2025            | INSA Rennes                        | France      | Student Exchange                           | Self-funded        |
| 5         | Mlle            | BERGER Claire                      | GIM            | 09-09-2024           | 10-01-2025            | ECAM LaSalle                       | France      | Student Exchange                           | Self-funded        |
| 6         | M.              | DAWUTH Willie                      | GIM            | 09-09-2024           | 10-01-2025            | ECAM LaSalle                       | France      | Student Exchange                           | Self-funded        |
| 7         | M.              | DRUILLETTE Bastien                 | GIM            | 09-09-2024           | 10-01-2025            | ECAM LaSalle                       | France      | Student Exchange                           | Self-funded        |
| 8         | M.              | GARDNER Florian                    | GIM            | 09-09-2024           | 10-01-2025            | ECAM LaSalle                       | France      | Student Exchange                           | Self-funded        |
| 9         | M.              | THEOPHANE, Marc, Yves, Roger DAURY | GS             | 10-02-2025           | 10-08-2025            | Institut polytechnique de Grenoble | France      | Student Exchange                           | EDC-AFD-EU         |
| 10        | M               | YAMADA Ryosuke                     | GGG            | 18-08-2025           | 04-09-2025            | Kyushu University                  | Japan       | Student Exchange                           | JASSO Scholarship  |
| 11        | M               | TETARD Olivier                     | GGG            | 07-10-2024           | 07-02-2025            | INSA de Rennes                     | France      | Student Exchange                           | INSA de Rennes     |
| 12        | M               | JOUBERT Antoine                    | GGG            | 07-10-2024           | 07-02-2025            | INSA de Rennes                     | France      | Student Exchange                           | INSA de Rennes     |
| 13        | M               | BARABE Julien                      | GGG            | 07-10-2024           | 07-02-2025            | INSA de Rennes                     | France      | Student Exchange                           | INSA de Rennes     |

|    |      |                                   |     |            |            |                           |             |                  |                           |
|----|------|-----------------------------------|-----|------------|------------|---------------------------|-------------|------------------|---------------------------|
| 14 | M    | DJEHA Hugo                        | GGG | 07-10-2024 | 07-02-2025 | INSA de Rennes            | France      | Student Exchange | INSA de Rennes            |
| 15 | Mlle | Abdul Kadir Nur Aida Nazira Malim | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 16 | Mlle | Aliyas Nurul Afikah               | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 17 | Mlle | Asward Tihani                     | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 18 | Mlle | Nurul Afiqak binti Alias          | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 19 | Mlle | Mohamad Munir Nur Aisyah          | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 20 | Mlle | Fadhilah Binti Mohd Ismail        | GGG | 10-12-2024 | 22-12-2024 | Universiti Sains Malaysia | Malaysia    | Student Exchange | Universiti Sains Malaysia |
| 21 | Mlle | Casanova Danisse                  | GGG | 10-12-2024 | 22-12-2024 | Caraga State University   | Philippines | Student Exchange | Caraga State University   |
| 22 | M.   | Buyante Terence Joseph            | GGG | 10-12-2024 | 22-12-2024 | Caraga State University   | Philippines | Student Exchange | Caraga State University   |
| 23 | Mlle | Telin Fatima Jane                 | GGG | 10-12-2024 | 22-12-2024 | Caraga State University   | Philippines | Student Exchange | Caraga State University   |
| 24 | M.   | Graban Matt Andrew                | GGG | 10-12-2024 | 22-12-2024 | Caraga State University   | Philippines | Student Exchange | Caraga State University   |
| 25 | M.   | Yu Jasey Jay                      | GGG | 10-12-2024 | 22-12-2024 | Caraga State University   | Philippines | Student Exchange | Caraga State University   |
| 26 | M.   | Polpitak Worathon                 | GGG | 10-12-2024 | 22-12-2024 | Chulalongkorn University  | Thailand    | Student Exchange | Chulalongkorn University  |
| 27 | Mlle | Ninnangkul Anantaya               | GGG | 10-12-2024 | 22-12-2024 | Chulalongkorn University  | Thailand    | Student Exchange | Chulalongkorn University  |



|    |      |                                 |     |            |            |  |            |                  |                                       |
|----|------|---------------------------------|-----|------------|------------|--|------------|------------------|---------------------------------------|
| 28 | M.   | Joé Magnen                      | GTI | 10-07-2024 | 15-07-2024 | Université des Nantes  | France     | Student Exchange | Conseil régional des pays de la Loire |
| 29 | Mlle | Léa DJOUAL                      | GRU | 01-09-2024 | 30-10-2024 | Université de Lorraine, École Nationale Supérieure d'Agronomie et des Industries Alimentaires (ENSAIA), France | France     | Internship       | Self-funded                           |
| 30 | Mlle | Julia Anna Arunreaksmey MEERMAN | GRU | 02-09-2024 | 24-01-2025 | Avans University of Applied Sciences, School of Life Sciences and Technology (ALST)                            | Netherland | Internship       | Self-funded                           |
| 31 | M.   | Oum Ronald                      | GRU | 17-06-2024 | 21-06-2024 | lycée René DESCARTES, Phnom Penh   | Cambodia   | Internship       | Self-funded                           |
| 32 | M.   | Nouphoeung Puthisa              | GRU | 17-06-2024 | 21-06-2024 | lycée René DESCARTES, Phnom Penh   | Cambodia   | Internship       | Self-funded                           |
| 33 | M.   | Arthur DURAND                   | GRU | 03-06-2024 | 29-09-2024 | Centre des Études Supérieures Industrielles (CESI)   | France     | Internship       | Self-funded                           |
| 34 | M.   | Martin KILLIAN                  | GRU | 03-06-2024 | 29-09-2024 | Centre des Études Supérieures Industrielles (CESI)   | France     | Internship       | Self-funded                           |

|    |      |                            |     |            |            |   |          |                     |             |
|----|------|----------------------------|-----|------------|------------|---|----------|---------------------|-------------|
| 35 | Mlle | Soukaina AJRAOUI           | GRU | 05-06-2024 | 01-09-2024 | IMT Nord Europe<br>Engineering Degree<br>in Plastics and<br>Composite materials<br>in Partnership with<br>Polyvia Formation | France   | Internship          | Self-funded |
| 36 | Mlle | ALBERT Juilette            | GRU | 21-01-2025 | 20-03-2025 | Sorbonne University,<br>Paris   | France   | Internship          | Self-funded |
| 37 | Mlle | MAHINA HITTINGER           | GRU | 20-01-2025 | 13-06-2025 | Plant Biology<br>Université Claude<br>Bernard Lyon 1  | France   | Internship          | Self-funded |
| 38 | M.   | SEVENIER-FERRON<br>Colombe | GRU | 16-12-2024 | 20-12-2024 | lycée René<br>DESCARTES   | Cambodia | Internship          | Self-funded |
| 39 | M.   | Germain Debray             | GRU | 15-02-2025 | 20-04-2025 | École normale<br>supérieure Paris-<br>Saclay  | France   | Internship          | Self-funded |
| 40 | M.   | Denus Cedric               | GIM | 09-10-2024 | 09-02-2025 | INSA de Rennes  | France   | Student<br>Exchange | Self-funded |
| 41 | Mlle | Anne-Lise EBERLIN          | GTR | 09-10-2024 | 17-01-2025 | INSA de Rennes  | France   | Student<br>Exchange | Self-funded |

**Annex 48. Organizing Seminars and Workshops for Lecturers and Students.**

| <b>No.</b> | <b>Date<br/>(DD-MM-YY)</b> | <b>Subject</b>  | <b>Organizer<br/>(Faculty/Department)</b> | <b>Co-organizer (Industry)</b>                  | <b>Participants</b>   |
|------------|----------------------------|---|---|---|---|
| 1          | 19-Jun-2024                | Experience Sharing Seminar  | GGG                                       | Renaissance Minerals<br>Cambodia                | GGG-Students  |
| 2          | 31-Jun-2024                | Seminar on internship program of Mega Asset Management  | FGC-GCI                                   | Mega Asset Management                           | GCI-Student   |
| 3          | 5-Jul-2024                 | Landslide Hazard with the Impact of Climate Change  | GGG                                       | National Chung-Hsing University                 | GGG-Lecturers-Students  |
| 4          | 10-Jul-2024                | Seminar on "Business Development" by expert from ARES-CCD (R2)  | UIL                                       | ARES-CCD (R2)                                   | Dr. Sokneang In (Dean of GCA and PI of R2)<br>Dr. Phanny Yos (Deputy-Director of RIC)<br>Dr. Chanvorleak Phat (Head of FTN) |
| 5          | 17-Jul-2024                | PPAP job seminar  | GTI                                       | Phnom Penh Autonomous Port                      | GTI students  |
| 6          | 17-Jul-2024                | CAMEL's Future Engineer Program   | FGC-GCI                                   | CHIP MONG Concrete                              | GCI-Lecturer-Student  |
| 7          | 7-Aug-2024                 | Improvement of Road Safety & Air Quality in Cambodia Through Intelligent Traffic Management (IRSAQ): Invitation to the training workshop on Data Management and Protection and Air Quality Monitoring and Mitigation Measures | FGC-GTI                                   | GIZ, DKT, MPWT                                  | GTI-Lecturer-Student  |
| 8          | 8-Aug-2024                 | The Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City   | FGC-GTI                                   | JICA  | GTI-Lecturer-Student  |
| 9          | 8-Sep-2024                 | ITC-EASTS Special seminar on Transport development in Asia during COVID-19 Pandemic and beyond  | GTI                                       | Eastern Asia Society for Transportation Studies | GTI and EASTS members   |
| 10         | 23-Oct-2024                | Advanced Innovation Technology on Structural Rehabilitation and Strengthening for our modern-Day Structural Challenge since 1985  | FGC-GCI                                   | Fyfe Asia Ltd and ASiD Co., Ltd                 | GCI-Lecturer-Student  |

|    |             |   |               |                           |  |
|----|-------------|---|---------------|---------------------------|--|
| 11 | 22-Nov-2024 | Innovative Urban Tunneling and Deep Excavation Techniques   | GGG           | Geomaple Geotechnics Inc. | GGG, GCI, External Engineers   |
| 12 | 25-Nov-2024 | Workshop on Emerging energy transition technology   | GIM           |                           | Lecturers and students of ITC  |
| 13 | 6-Dec-2024  | Monozukuri workshop 2024  | GIM           |                           | 32 students from I5-GIM  |
| 14 | 17-Dec-2024 | Remote Sensing  | GGG           | Caraga State University   | GGG-Students   |
| 15 | 18-Dec-2024 | BIM: The future of Design and Construction  | FGC-GAR       | Archetype Cambodia        | GAR-Lecturer-Student   |
| 16 | 18-Dec-2024 | GIS   | GGG           | Caraga State University   | GGG-Students   |
| 17 | 26-Dec-2024 | Seminar on water supply study in Cambodia shared by Mr. Shin Kato                                       | GRU           |                           | 40 Students participants from I4-WEE   |
| 18 | 8-Jan-2025  | Sharing session by Vital at ITC   | GIM           |                           | 20 students from I5-GIM  |
| 19 | 8-Jan-2025  | Panasonic training at ITC   | GIM           |                           | 105 students from I5-Meca, I4-Meca and T2MSB   |
| 20 | 15-Jan-2025 | Seminar on Internship Opportunities at Korea EdTech   | GIC           | Korea EdTech              | GIC students   |
| 21 | 15-Jan-2025 | Seminar on Water treatment Technologies & solution  | UIL, GCA, GRU | YCHEM Solution Service    | GCA, GRU students  |
| 22 | 15-Jan-2025 | Training session of water scarcity and water security: definitions, concepts and analytical frameworks. | GRU           |                           | 9 Participants selective from GRU and Cambodia Water Partnership                           |
| 23 | 15-Jan-2025 | Panasonic training at ITC   | GIM           | Panasonic                 | 105 students from I5-Meca, I4-Meca and T2MSB   |
| 24 | 18-Jan-2025 | Recognizing and avoiding data privacy threats   | GIC           | Ministry of Post          | GIC students   |
| 25 | 22-Jan-2025 | Tnot d'or awards 2025 " Technical Innovation of Mango Products for Market Penetration                   | UIL, GCA      | Confirel Co., Ltd         | GCA, GGG, students   |
| 26 | 31-Jan-2025 | International Symposium on Delta Droughts   | GRU           |                           | 42 Participants from ITC, ASEAN, Netherland  |
| 27 | 8-Feb-2025  | Empowering the Future: Water Skills for the Next Generations”   | GRU           | GRU Lab.                  | MISTI, MoWRAM, MoWA, GS, K&K Pipe Cambodia, WaterAid Cambodia, CSW, K-Geo Solutions, GIANT |
| 28 | 8-Feb-2025  | The 4 GRU and MWEE Alumni Meeting and Party   | GRU           | GRU and MWEE Alumni       | 200 participants from GRU and MWEE alumni  |

|    |             |   |     |           |   |
|----|-------------|---|-----|-----------|---|
|    |             |   |     |           | and staffs. Some alumnus come from different organization and company |
| 29 | 14-Feb-2025 | Business Model Training by Ms. Charkry Choeun, BD under ARES-CCD (R2) | RIC |           | RIC and UIL   |
| 30 | 28-Feb-2025 | Panasonic training at ITC   | GIM | Panasonic | 53 students from I5-Meca, I4 Meca and T2MSB                           |
| 31 | 5-Mar-2025  | Panasonic training at ITC   | GIM | Panasonic | 53 students from I5-Meca, I4 Meca and T2MSB                           |
| 32 | 7-Mar-2025  | Daikin Training at ITC  | GIM | Daikin    | 55 I4 Meca and T1MSB  |
| 33 | 12-Mar-2025 | Panasonic training at ITC   | GIM | Panasonic | 53 students from I5-Meca, I4 Meca and T2MSB                           |

**Annex 49. Joining Seminars and Workshops Organized by External Entities.**

| <b>No .</b> | <b>Date (DD-MM-YY)</b> | <b>Subject</b>  | <b>Organizer</b>              | <b>Participate</b>   | <b>Faculty/Department</b>   |
|-------------|------------------------|---|-------------------------------|--|-----------------------------|
| 1           | 17-Jun-2024            | Online Training of IP Registration  | CapFish and AIT by Prof. Anil | Dr. Molika Yin (Head of UIL)<br>Dr. Davin Sang (Deputy-Head of UIL)<br>Dr. Elen Morm (Lecturer of GCA) | UIL, GCA                    |
| 2           | 7-Aug-2024             | Improvement of Road Safety & Air Quality in Cambodia Through Intelligent Traffic Management (IRSAQ): Invitation to the training workshop on Data Management and Protection and Air Quality Monitoring and Mitigation Measures | GIZ, DKT, MPWT                | Ms. YANG Panha and students  | GTI                         |
| 3           | 8-Aug-2024             | The Project for Capacity Development on Comprehensive Traffic Management Planning and Traffic Control Center Operation and Maintenance in Phnom Penh Capital City (PPTMTC).   | JICA                          | Dr. PHUN Veng Kheang<br>Ms. YANG Panha<br>Dr. SAUM Narith and students                                 | GTI                         |
| 4           | 14-Oct-2024            | AI Revolution and Readiness for Cambodia  | Ministry of Land              | GIC I3 students  | GIC                         |
| 5           | 21-Oct-2024            | Road Design Specification: Stakeholder (21-22/10/2024)  | MPWT                          | Dr. KAN Kuchvichea<br>Dr. Chea Savuth<br>Dr. Pov Keangse<br>Mr. Mao Kunthea<br>Dr. Oeung Thaileng      | GCI                         |
| 6           | 8-Nov-2024             | Scholarships to study in Japan  | CJCC                          | Dr. Molika Yin (Head of UIL)   | 30 Foundation Year Students |
| 7           | 9-Dec-2024             | Sharing session on "Preparing for Tech Jobs"  | Ky Vilayvann                  | GIC I5 students  | GIC                         |

|    |             |   |                 |   |                           |
|----|-------------|---|-----------------|---|---------------------------|
| 8  | 14-Jan-2025 | Launching Patent and Industrial Design by MISTI   | MISTI           | Dr. Molika Yin (Head of UIL)  | UIL                       |
| 9  | 21-Feb-2025 | Cambodia IP Education Seminar   | ERIA            | Dr. Davin Sang (Deputy-Head of UIL)   | UIL                       |
| 10 | 25-Feb-2025 | Regional Training seminar on Institutional IP Policies for ASEAN TISCS and TTOs (25-26/02/2025)   | MOC and WIPO    | Dr. Davin Sang (Deputy-Head of UIL)   | UIL                       |
| 11 | 27-Feb-2025 | WIPO Regional meeting on Strengthening the ASEAN Regional Technology and Innovation support center (TISC) Network (27-28/02/2025)   | MOC and WIPO    | Dr. Davin Sang (Deputy-Head of UIL)   | UIL                       |
| 12 | 3-Mar-2025  | STI Workshop in Thailand  | JICA            | Dr. Long Bun (Deputy-Director)<br>Dr. Chanmoly Or (Director of RIC)<br>Dr. Molika Yin (Head of UIL)<br>Ms. Chikako Sasaki (Coordinator of JICA) | Direction, RIC, UIL, JICA |
| 13 | 3-Mar-2025  | Technology and Innovation Support Centers (TISCs) Training Workshop on TISC project management and patent search skill-building (3-4/03/2025)                                   | MOC and WIPO    | Dr. Davin Sang (Deputy-Head of UIL)<br>and students   | UIL                       |
| 14 | 14-Mar-2025 | Online L&T seminar conducted by Curtin Malaysia on "From Classroom to Startup: The Journey of Entrepreneurship" and From Classroom to Startup: The Journey of Entrepreneurship" | Curtin Malaysia | Dr. Samneang Chea (International Program Coordinator)<br>Dr. Molika Yin (Head of UIL)   | Malaysia                  |

**Annex 50. Industry Visit to ITC.**

| <b>No.</b> | <b>Date<br/>(DD-MM-YY)</b> | <b>Industries</b>   | <b>Subject</b>   | <b>Participant (ITC)</b>  | <b>Faculty/Department</b> |
|------------|----------------------------|---|--|---|---------------------------|
| 1          | 18-Mar-2024                | Australian Department of Foreign Affairs and Trade (DFAT) | Discuss about impacts of climate change on Cambodia  | Dr. Chhuon Kong (Dean of GRU)<br>Dr. KET Pinnara (Vice-dean of GRU)   | GRU                       |
| 2          | 13-Jun-2024                | JICA Japan  | Getting some input for LBE phase 2 and discussing collaboration works (research projects, students mobility staff capacity building, etc.)   | Dr. Eng Chandoeun (Dean of GGG)<br>Dr. Pech Sopheap (Vice-dean of GGG)<br>Dr. Yos Phanny<br>Dr. Sio Sreymean<br>Dr. Boeurt Sophea<br>Dr. Mao Pisith<br>Mr. Heng Ratha | GGG                       |
| 3          | 19-Jun-2024                | Ministry of Interior                                      | Discuss about the canned product development   | Dr. Yin Molika (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)<br>Dr. Mith Hasika (Lecturer and Researcher of FTN)<br>Dr. Morm Elen (Lecturer of GCA)             | UIL, FTN, GCA             |
| 4          | 3-Jul-2024                 | Panasonic   | Introducing new president of Panasonic   | H.E. Prof. Dr. PO Kimtho (Director)<br>Dr. Molika Yin (Head of UIL)   | Direction, UIL            |
| 5          | 4-Jul-2024                 | Shandong Dolang Technology Equipment                      | To explore collaborative opportunities<br>1. CEO of Shandong Dolang Technology Equipment<br>2. Ms.Carina Jing, Manager of International department<br>3. Mr. Samrithy In, Executive Director of PRI<br>4. Mr. Rath Sophak, Technical Advisor for PRI<br>5. Coordinator: Ms.Hang Chuon Nanita | Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)  | Direction, UIL            |



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|----|-------------|--|--|--|--------------------------|
| 6  | 18-Jul-2024 | Nippon Koei Co., LTD                       | Discuss the problematic soils research, including Expensive soils, Erosion soils, and dispersion soils... in Cambodia, as well as explore the potential research interest for collaboration. | Dr. Eng Chandoeun (Dean of GGG)<br>Dr. Horng Vuthy<br>Dr. Por Sopheap<br>Dr. Mao Pisith<br>Mr. Kaing Sainglong | GGG                      |
| 7  | 19-Jul-2024 | Vision 26 Optical Manufacturing (Cambodia) | To explore collaborative opportunities, including student internship and job opportunity   | Dr. Molika Yin (Head of UIL)<br>Dr. Saosameth Chhith (Deputy-Head of GIM)                                      | UIL, GIM                 |
| 8  | 20-Jul-2024 | KSB Company from Singapore                 | Sharing the overview on water development in Cambodia  | Dr. Chhuon Kong (Dean of GRU)  | GRU                      |
| 9  | 22-Jul-2024 | FAO  | To discuss about the arrangement of the Food Safety Exhibition event at ITC  | Dr. Molika Yin (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)   | UIL, FTN                 |
| 10 | 26-Jul-2024 | K&K Pipe Cambodia                          | Meeting for revise the MoU between ITC and K&K Pipe Cambodia   | Dr. Chhuon Kong (Dean of GRU)  | GRU                      |
| 11 | 30-Jul-2024 | Plan Cambodia                              | To explore collaborative opportunities   | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)   | Direction, UIL           |
| 12 | 30-Jul-2024 | KSB Company from Singapore                 | To explore collaborative opportunities   | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)   | Direction, UIL           |
| 13 | 31-Jul-2024 | SDF Evaluation Team                        | To interview and evaluate the proposal for Program@School (the 28 training courses)  | Dr. Molika Yin (Head of UIL)<br>Representative Trainers  | UIL, Relevant Department |
| 14 | 14-Aug-2024 | Go Study                                   | Meet with Chinese Language Expert to discuss the Chinese course arrangement in ITC   | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)   | Direction, UIL           |
| 15 | 22-Aug-2024 | Confirel Co., Ltd                          | Discuss about possible collaborations and MoU  | Dr. Molika Yin (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)   | UIL, FTN                 |
| 16 | 28-Aug-2024 | Global Consultant for Australia Government | Climate Change Resilience Program  | Dr. Chhuon Kong (Dean of GRU)  | GRU                      |
| 17 | 4-Sep-2024  | VP.Start                                   | Visual discussion on sponsorship for the ITC 60th Anniversary  | Dr. Molika Yin (Head of UIL)   | UIL                      |

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|----|-------------|--|---|--|-----------------------------|
| 18 | 13-Sep-2024 | Mahidol University,<br>Prof. Jitladda<br>Sakdapipanich   | Discuss about possible collaborations<br>and providing the seminar for GGG<br>students on Rubber Technology   | Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Phanny Yos (Deputy-Director<br>of RIC)   | Direction, UIL, RIC         |
| 19 | 22-Oct-2024 | Website Developer (Mr.<br>Darith Lok)                    | Discuss about UIL Website<br>development supported by ARES-<br>CCD (R1)   | Dr. Chanmoly Or (Director of<br>RIC)<br>Dr. Molika Yin (Head of UIL)   | RIC, UIL                    |
| 20 | 8-Nov-2024  | WaterAid Cambodia  | Discussion on strengthening for water<br>related collaboration project  | Dr. Chhuon Kong (Dean of GRU)  | GRU                         |
| 21 | 8-Nov-2024  | RUAS Netherland  | Collaboration between ITC and RUAS<br>Netherland  | Dr. Chhuon Kong (Dean of GRU)<br>Dr. KET Pinnara (Vice-dean of<br>GRU)   | GRU                         |
| 22 | 20-Nov-2024 | Denso Cambodia   | Interview ITC students from GIM,<br>GIC, and AMS for internship in Denso<br>Thailand  | Dr. Chhith Saosometh (Vice-Head<br>of GIM)   | GIM                         |
| 23 | 25-Nov-2024 | Japanese companies                                       | To recruit Civil and Electrical<br>Engineers to work in Japan   | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Virak Han (Dean of GCI)<br>Dr. Phok Chrin (Head of GEE)                            | Direction, UIL, GCI,<br>GEE |
| 24 | 5-Dec-2024  | Go Study and their<br>university partners from<br>China  | Discuss about possible collaborations<br>and sharing course for GCI and GRU<br>students   | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Virak Han (Dean of GCI)<br>Dr. Chhuon Kong (Dean of GRU)                           | Direction, UIL, GCI,<br>GRU |
| 25 | 6-Dec-2024  | Good Neighbors<br>Cambodia, LG-KOICA<br>Project for TVET | Discuss about possible collaborations   | Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)   | Direction, UIL              |
| 26 | 6-Dec-2024  | CAS-BIZTechnology<br>(Certipoint)                        | Discuss about possible collaborations:<br>Invited ITC to be their Certipoint<br>Authorized Testing Centers in<br>Cambodia<br>Mr. Sam Piseth: Director<br>Mr. Soun Sophea: Deputy Director | Dr. Molika Yin (Head of UIL)<br>Dr. Saosameth Chhith (Deputy-<br>Head of GIM)<br>Ms. Seak Leng (Deputy-Head of<br>GIC)<br>Mr. Chanly Has (Head of GAI) | UIL, GIM, GIC, GAI          |
| 27 | 11-Dec-2024 | CE&P Corporation Ltd                                     | To discuss about professional training<br>for CE&P and joint proposal for SDF<br>(6 courses)  | Dr. Molika Yin (Head of UIL)<br>Dr. Saosameth Chhith (Deputy-<br>Head of GIM)  | UIL, GIM                    |

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|----|-------------|--|--|--|--------------------------------|
| 28 | 17-Dec-2024 | Cambodian Natural Gas Corp., LTD.              | Discuss about possible collaborations and MoU  | Dr. Eng Chandoeun (Dean of GGG)<br>Dr. Mao Pisith  | GGG                            |
| 29 | 24-Dec-2024 | Go Study                                       | Meet with Prof. Zhao to discuss about possible collaborations  | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Virak Han (Dean of GCI)  | Direction, UIL, GCI            |
| 30 | 24-Dec-2024 | Mesco Gold (Cambodia)                          | Discuss about possible collaborations and MoU  | Dr. Eng Chandoeun (Dean of GGG)<br>Dr. Mao Pisith  | GGG                            |
| 31 | 9-Jan-2025  | Confirel Co., Ltd                              | To sign MoU  | H.E. Prof. Dr. PO Kimtho (Director)<br>Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Relevant Departments                                | Direction, UIL                 |
| 32 | 9-Jan-2025  | LiNeng International (Cambodia) Power Co., LTD | Collaboration between ITC and LiNeng International (Cambodia) Power Co., LTD, and mainly focusing on staff and intern recruitment to work in their company | Dr. Molika Yin (Head of UIL)<br>Dr. Saosameth Chhith (Deputy-Head of GIM)<br>Dr. Kimleang Khoeurn (Vice-Dean of GCA)<br>Mr. Koksai Chou (Deputy-Head of GEE) | UIL, GCA, GEE, GIM             |
| 33 | 13-Jan-2025 | Confucius Institute                            | Discuss about possible collaborations  | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Relevant Departments   | Direction, UIL                 |
| 34 | 14-Jan-2025 | Rating Agency of (Cambodia) Plc.               | To sign MoU  | H.E. Prof. Dr. PO Kimtho (Director)<br>Dr. Long Bun (Deputy-Director)<br>Relevant Departments  | Direction, UIL                 |
| 35 | 20-Jan-2025 | ISCO   | Discuss about possible collaborations  | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Relevant Departments   | Direction, UIL                 |
| 36 | 24-Jan-2025 | Prince Foundation                              | To advertise / introduce their scholarship for ITC students  | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Ms. Phary Koy (Head of Finance Office)   | Direction, UIL, Finance Office |

|    |             |   |  |  |                     |
|----|-------------|---|--|--|---------------------|
| 37 | 6-Feb-2025  | Lanmei Training Center  | Lanmei (Cambodia) Training Center Explores Strategic Partnership with ITC to Enhance Aircraft Maintenance Education. The proposed collaboration includes two integrated program options:<br>1. Associate Degree Program: One year of study at ITC, followed by two years at Lanmei (Cambodia) Training Center.<br>2. Engineering Degree Program: Three years of study at ITC, followed by two years at Lanmei. | Dr. Molika Yin (Head of UIL)<br>Dr. Sarin Chan (Head of GIM)   | UIL, GIM            |
| 38 | 13-Feb-2025 | Honda (Cambodia)  | Strengthening collaboration  | H.E. Prof. Dr. PO Kimtho (Director)<br>Dr. Molika Yin (Head of UIL)  | Direction, UIL      |
| 39 | 15-Feb-2025 | The International Association for Hydro-Environment Engineering and Research (IAHR) | Discuss about possible collaborations  | Dr. Chhuon Kong (Dean of GRU)<br>Dr. KET Pinnara (Vice-dean of GRU)  | GRU                 |
| 40 | 18-Feb-2025 | Sumitomo Cooperation  | Strengthening collaboration  | Dr. Ty Soy (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>All Relevant Person                        | Direction, UIL      |
| 41 | 19-Feb-2025 | GFA Consulting Group (GFA)  | Discuss about possible collaborations on water sector  | Dr. Chhuon Kong (Dean of GRU)<br>Dr. KET Pinnara (Vice-dean of GRU)<br>Dr. PENG Chanthol (Head of WAE)     | GRU, WAE            |
| 42 | 19-Feb-2025 | ASEA-UNINET   | Discuss about possible collaborations and MoU  | Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Malyna Suong<br>Relevant Departments | Direction, UIL, RIO |
| 43 | 19-Feb-2025 | Khamsa Group of Businesses  | Introduce Khamsa Group of Businesses and seek for collaboration with ITC   | Dr. Molika Yin (Head of UIL)   | UIL                 |

|    |             |  |  |  |                          |
|----|-------------|--|--|--|--------------------------|
| 44 | 21-Feb-2025 | Thai Beverage Public Company Limited (Thai Bev.) | Thai Beverage Public Company Limited (Thai Bev.) and the Institute of Technology of Cambodia (ITC) have initiated a strategic partnership to enhance education and career opportunities. In a recent meeting at ITC, both parties discussed academic collaboration, student career development, and industry engagement. | Dr. Ty Soy (Deputy-Director)<br>Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Saosameth Chhith (Deputy-Head of GIM)<br>Dr. Phok Chrin (Head of GEE)<br>All Relevant Person                   | Direction, UIL, GIM, GEE |
| 45 | 24-Feb-2025 | Cambodia Chamber of Commerce                     | To discuss about professional training for member of CCC and joint proposal for SDF (6 training) and seeking for the support from CCC to organize the venture spark business matching) event (at ITC on 24 April 2025).  | Dr. Molika Yin (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)<br>Ms. Chakrya Choeun (Business Developer of ITC)   | UIL, FTN, RIC            |
| 46 | 27-Feb-2025 | AI Farm  | Discuss about possible collaborations (presentation of their products) and MoU   | Dr. Long Bun (Deputy-Director)<br>Dr. Molika Yin (Head of UIL)<br>All Relevant Person  | Direction, UIL           |
| 47 | 6-Mar-2025  | Firemax and NUS                                  | Discuss about possible collaborations: providing training for ITC students   | Dr. Malyna Suong (Deputy-Head of RIO)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Virak Han (Dean of GCI)<br>Dr. Sarin Chan (Head of GIM)<br>Dr. Sivmey Hor (Vice-Dean of GCA)<br>Dr. Kimleang Khoeurn (Vice-Dean of GCA) | RIO, UIL, GCI, GIM, GCA  |
| 48 | 10-Mar-2025 | Khamsa Group of Businesses                       | Discuss about possible collaborations and MoU: Joint research, technology transfer, student internship and job opportunity   | Dr. Molika Yin (Head of UIL)<br>Dr. Sarot Srang (Lecturer of GIM)<br>Dr. Sothea Has (Lecturer of AMS)  | UIL, GIM, AMS            |

|    |             |                                      |  |   |                    |
|----|-------------|--------------------------------------|--|---|--------------------|
| 49 | 17-Mar-2025 | Suntel Technology Cambodia Co., Ltd. | Discuss about possible collaborations and introducing the company:<br>1. Mr. Siek Sovann, CEO<br>2. Mr. Keo Ra, HR Supervisor<br>3. Mr. Huor Kimhak, Senior IT<br>4. Mr. But Sopha, Public Relations and Community Liaison | 1. Dr. Yin Molika (Head of UIL)<br>2. Dr. Valy Dona (Head of MIT)<br>3. Dr. Phauk Sokkey (Head of AMS)<br>4. Ms. Seak Leng (Deputy-Head of GIC) | UIL, MIT, AMS, GIC |
| 50 | 19-Mar-2025 | KVRX2                                | Nutrition data for snail   | Dr. Malyna Suong (Deputy-Head of RIO)<br>Dr. Molika Yin (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)                                     | RIO, UIL, FTN      |

**Annex 51. ITC Lecturers and Students Visit to Industries.**

| <b>No.</b> | <b>Date (DD-MM-YY)</b> | <b>Industries</b>   | <b>Subject</b>   | <b>Participant</b>  | <b>Faculty/Department</b> |
|------------|------------------------|---|--|---|---------------------------|
| 1          | 5-Jul-2024             | Sihanoukville Autonomous Port   | Visit Sihanoukville Autonomous Port  | Ms. YANG Panha , Dr. HAM Ramrav, Dr. SAUM Narith , I4-GTI   | GTI                       |
| 2          | 5-Apr-2024             | Vital Premium Water NVC Corporation Co., Ltd<br>One More Manufacturing Co., Ltd (Mee Chiet) | Student Visit to company   | Mr. SOK Kimheng, Top 50 I4-GIC Student  | GIC                       |
| 3          | 2-Aug-2024             | X-Water Technology Co., Ltd   | Educational Student visit  | Dr. BUN Saret, Mr. Lun Sambo, and I4-WEE and T1-WSP   | GRU                       |
| 4          | 3-Aug-2024             | Landfill in Preah Sihanouk  | Educational Field Visit to Landfill in Preah Sihanouk  | Dr. BUN Saret, Mr. Lun Sambo, and I4-WEE and T1-WSP   | GRU                       |
| 5          | 4-Aug-2024             | Anco Water Supply   | Educational Student visit  | Dr. BUN Saret, Mr. Lun Sambo, and I4-WEE and T1-WSP   | GRU                       |
| 6          | 7-Dec-2024             | DENSO Cambodia  | Monozukuri workshop training on basic IoT  | Dr. Chhith Saosometh, Mr. Mut Mesa, Mr. Keo Chivorn   | GIM                       |
| 7          | 6-Jan-2025             | AFD   | Project progress and possible project collaboration  | Dr. Chhuon Kong, Mr. Nhem Sophal  | GRU                       |
| 8          | 8-Jan-2025             | Cambodia Water Partnership (CWP)  | Project collaboration on Water Scarcity Program in Cambodia                                      | Dr. Chhuon Kong, Dr. HENG Sokchhay  | GRU                       |
| 9          | 10-Jan-2025            | Kampot K-Cement   | Educational Field Visit to Kampot K-Cement   | Mr. Sou Senrong, Mr. Chork Vuthy, and I4-WRI students   | GRU                       |
| 10         | 15-Jan-2025            | Bueng Cherng Ek Wastewater Treatment  | Educational Field Visit to Bueng Cherng Ek Wastewater Treatment in Phnom Penh                    | Mr. Hong Penghour, Ms. PHOEURN Chan Arun, and I5-WEE  | GRU                       |
| 11         | 6-Feb-2025             | Cambodia Chamber of Commerce  | To discuss about professional training for member of CCC and joint proposal for SDF (6 training) | Dr. Molika Yin (Head of UIL)<br>Dr. Phat Chanvorleak (Head of FTN)<br>Dr. Sereyvath Yoeun (Researcher of FTN) | UIL, FTN                  |

|    |            |   |  |  |     |
|----|------------|---|--|--|-----|
| 12 | 7-Feb-2025 | Ministry of Water Resources and Meteorology | Educational Field visit to flood relief and diversion system from Phnom Penh at Kampong Speu | Dr. Chhuon Kong, Dr. Song Layheang, Mr. Hun Ketya, Mr. Chork Vuthy, Mr. Chan Rathboren, and I4-WRI and I5-WRI students | GRU |
|----|------------|---|--|--|-----|



**Annex 52. Projects, Training and Consulting Services for Private Sectors.**

| <b>No.</b> | <b>Date</b>              | <b>Type of service</b> | <b>Subject</b>   | <b>Industries</b>  | <b>Coordinator and Trainers</b> | <b>Faculty/Depart</b> |
|------------|--------------------------|------------------------|--|--|---------------------------------|-----------------------|
| 1          | April 2024-December 2025 | Project                | ASEAN-Norwegian Cooperation Project on Regional Capacity Building for Reducing Plastic Pollution Phase 2 (ASEANO2) | Norwegian Institute for Water Research (NIVA)                          | Dr. Chhuon Kong                 | GRU                   |
| 2          | 3-Jul-24                 | Project                | Development of a robotic platform  | International Center for Neuromphic Systems, Western Sydney University | Dr. SRANG Sarot                 | GIM                   |
| 3          | 5-Jul-24                 | Project                | Product development for the meat products  | Ministry of Interior (Cambodia)  | Dr. MORM Elen                   | GCA                   |
| 4          | 9-Jul-24                 | Project                | Analysis of pesticide content in water in Kanghot and Rovieng irrigation chemes                                    | CIRAD  | Dr. PHAT Chanvorleak            | FTN                   |
| 5          | 12-Aug-24                | Project                | Project RP-013 (CAPfish Project Round II)  | CAPFish - UNIDO  | Dr. TAN Reasmey                 | GCA                   |
| 6          | 12-Aug-24                | Project                | Project RP-015 (CAPfish Project Round II)  | CAPFish - UNIDO  | Dr. Mith Hasika                 | GCA                   |
| 7          | 12-Aug-24                | Project                | Project RP-016 (CAPfish Project Round II)  | CAPFish - UNIDO  | Dr. IN Sokneang                 | GCA                   |
| 8          | 12-Aug-24                | Project                | Project RP-023 (CAPfish Project Round II)  | CAPFish - UNIDO  | Dr. IN Sokneang                 | GCA                   |
| 9          | 12-Aug-24                | Project                | Project RP-018 (CAPfish Project Round II)  | CAPFish - UNIDO  | Dr. PENG Chanthol               | GCA                   |
| 10         | 12-Aug-24                | Project                | Project RP-009 (CAPfish Project Round I)   | CAPFish - UNIDO  | Dr. Morm Elen                   | GCA                   |

|    |                               |          |  |   |                    |     |
|----|-------------------------------|----------|--|---|--------------------|-----|
| 11 | 26-Sep-24                     | Project  | Research on poverty alleviation and food security for stallholder farmers in Cambodia in the ACIAR project CROP/2023/129 | Australian Centre for Robotics, Digital Sciences Initiative - Agriculture | Dr. SRANG Sarot    | GIM |
| 12 | 2-Aug-24                      | Training | Short course training on "Construction project management" - Payment by company  | Mega Asset Management - MAM   | Dr. YIN Molika     | UIL |
| 13 | 5-Sep-24                      | Training | Short course training on "Introduction to data analytic with Spreadsheet SQL and Python" - Partly supported by SMP       | Lotus Green Team Co., Ltd   | Dr. YIN Molika     | UIL |
| 14 | 23-Oct-24                     | Training | Training on "Technical Certificate in House Connection and Water Supply"   | Phnom Penh Water Supply Authority   | Dr. KET Pinnara    | GRU |
| 15 | 30-Oct-24                     | Training | Training on "Electrical System Control"  | SNKRP Co., Ltd  | Mr. CHOU Kosal     | GEE |
| 16 | June 2024 - February 2025     | Project  | Support the restoration of the Preah Vihear Temple's Gopura V (Phase II)   | Archaeological Survey of India  | Dr. Chhuon Kong    | GRU |
| 17 | February 2025 - December 2025 | Project  | Support the restoration of the Preah Vihear Temple's Gopura V (Phase III)  | Archaeological Survey of India  | Dr. Chhuon Kong    | GRU |
| 18 | February 2025 - July 2025     | Project  | Water Scarcity Project in Cambodia   | FAO   | Dr. Chhuon Kong    | GRU |
| 19 | January - December 2025       | Project  | Enhanced Durability and Sustainability of Asphalt Concrete through Waste Plastic Recycling                               | IKEE  | Dr. KAN Kuchvichea | GCI |

**Annex 53. Memoranda of Understanding and Memoranda of Agreement with Industry.**

| No. | Name of partner                         | Sector       | Agreement type | Effective Date | Expiration Date | Outcome  | Country  |
|-----|---|--------------|----------------|----------------|-----------------|--|----------|
| 1   | SATO KOGYO                              | Industry     | MoU            | 23-Jul-2024    | 23-Jul-2029     | Establish a cooperative relationship between ITC and Sato Kogyo including R&D, Education & training, Infrastructure Development, and Community Engagement.   | Japan    |
| 2   | Phnom Penh Autonomous Port (PPAP)       | Organization | MoU            | 7-Oct-2024     | 7-Oct-2027      | Scholarship, Internship, Training<br>2022-2023 recruited 25 interns<br>2022-2023 recruited 19 interns  | Cambodia |
| 3   | HOTEL OFURO Co., Ltd.                   | Industry     | MoU            | 2-Dec-2024     | N/A             | Internship student program in Japan  | Japan    |
| 4   | Renaissance Minerals (Cambodia) Limited | Industry     | MoU            | 4-Dec-2024     | 4-Dec-2027      | <ul style="list-style-type: none"> <li>• Development of academic curricula and professional training programs</li> <li>• Exchange of academic and industry expertise through guest lectures, seminars, and workshops</li> <li>• Facilitation of internships and practical training opportunities for ITC students</li> </ul> | Cambodia |
| 5   | Confirel Co., Ltd                       | Industry     | MoU            | 9-Jan-2025     | 9-Jan-2028      | Skill Development, Joint Research, Intellectual Properties, Lab Partnership  | Cambodia |
| 6   | Rating Agency of (Cambodia) Plc.        | Industry     | MoU            | 14-Jan-2025    | 14-Jan-2027     | Cooperation on the technical support of ITC on the Assurance Engagement  | Cambodia |
| 7   | Tekoma Energy KK                        | Industry     | MoU            | 28-Feb-2025    | 28-Sep-2025     | Provide internship for year 5 students from GCI (1) and GEE (1) in Japan   | Japan    |

