



ANNUAL REPORT ON RESEARCH 2013

AIT CONFERENCE CENTER

PREFACE



The total number of publications for the same period stood at 457 from across AIT. Reinforcing AIT's continued commitment to enhancing the quality of its research. This clearly indicates the strength of its research output and the clear alignment of the institutions research activities in the thematic areas of focus towards its strategic priority of playing the leading role in the region's sustainable development.

The year saw AIT being successful in achieving its objective of consolidating the institute's research efforts and broadening of its networks and partnerships. This provided the platform to discuss and launch shared initiatives and pool resources to effectively address the rapidly changing needs of the region.

AIT research has maintained being the important value addition to its diverse academic offerings. This has helped the students to be more actively involved and obtain the much needed exposure to help broaden their horizons of knowledge.

We look forward to create a distinct profile for Asian Institute of Technology in the niche areas of our strength within the research agenda. And to conclude, I would like take this opportunity to thank all AIT faculty, staff, and students for their whole hearted efforts in achieving our collective goals.

Professor Kanchana Kanchanasut
Vice President for Research

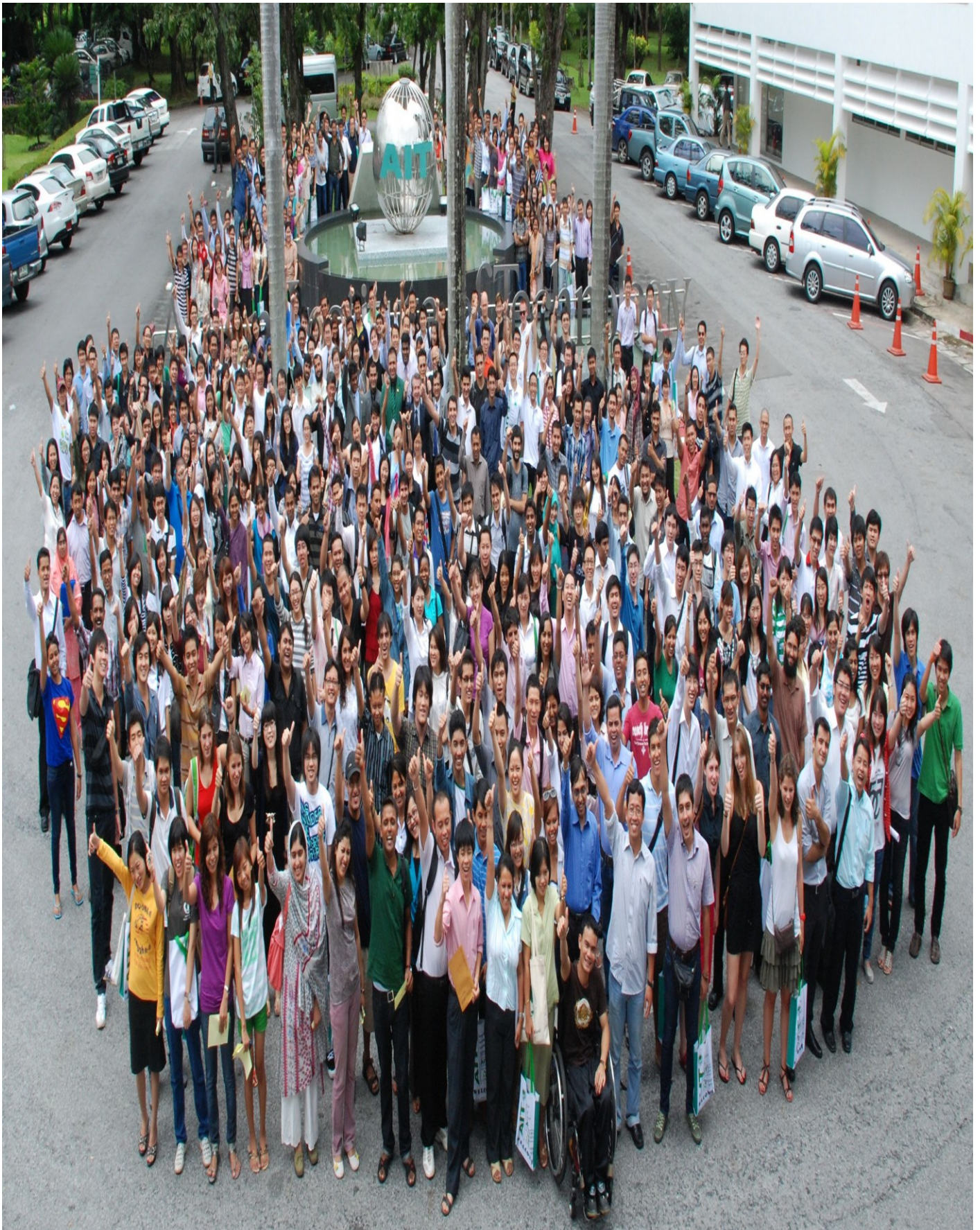
The Asian Institute of Technology is pleased to release the Report on Annual Research 2013 which provides a consolidated overview of the research activities conducted across the institute during the year.

The year witnesses a renewed vigor despite the adversities and challenges to ensure the continuity of the research and development agenda through the whole-hearted commitment of its faculty and staff towards achieving the project objectives and activities.

Overall, during the period January to December 2013, a total of 495 sponsored and contracted projects including capacity building activities with a total budgeted value of 1.9 billion THB were conducted by the faculty and staff from within the Fields of Study (FoS) of the three schools; School of Engineering and Technology (SET), School of Environment, Resources and Development (SERD), and School of Management (SOM), as well as at AIT Extension, Internet Education and Research Laboratory (IntERLab) and Institute-wide projects.

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Chapter 1: INTRODUCTION

1.1 AIT Mission

The **Asian Institute of Technology** promotes technological change and sustainable development in the Asian-Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT has become a leading regional postgraduate institution and is actively working with public and private sector partners throughout the region and with some of the top universities in the world.

Recognized for its multinational, multi-cultural ethos, the Institute operates as a self-contained international community at its campus located 40 km (25 miles) north of Bangkok, Thailand.

Besides the usual laboratories and academic buildings, the main campus includes housing, sports, and medical facilities, a conference center, and a library with over 230,000 volumes and 830 print and on-line periodicals. All serve to fulfill the AIT mission

to develop highly qualified and committed professionals who play leading roles in the region's sustainable development and its integration into the global economy.

1.2 AIT Vision

To become a leading and unique regional multicultural institution of higher learning, offering state-of-the-art education, research and training in technology, management and societal development.

With this clear, timeless vision, the multi-skilled team of students, faculty and staff at AIT are set to continuously strengthen the institution by becoming

- A trailblazer in advanced education in the region, with leadership in IT and new types of multidisciplinary programs.
- An exemplary institution, with an emphasis on academic quality in terms of courses and other aspects of the operation.
- A leader in professional development programs.

- A hub for the implementation of regional/transnational research projects, and a research facility for academic professionals. The hub will network with other academic and research institutions in the region and the world.
- A model international citizen.
- A collaborator and partner of national postgraduate institutions.
- A financially viable, self-sustaining institution, able to draw support from donors, the private sector and individuals, with good governance and strong leadership.
- A strong partner to its alumni, who are principal stakeholders through the AIT Alumni Association (AITAA)



Chapter 2: RESEARCH STATISTICS AND TRENDS, 2006-2013

2.1 Project Numbers and Budget 2006-2013

In line with the desire to impact on society by integrating academic research with industry and society's needs, AIT witnessed a good growth in the numbers of sponsored and contracted projects undertaken and that of publications between 2006-2013. **Figure 2.1** gives an overview of the trend of the ongoing sponsored and contracted projects for the period 2006-2013 both in and budget value terms and in terms of the number of ongoing projects undertaken during the same period.

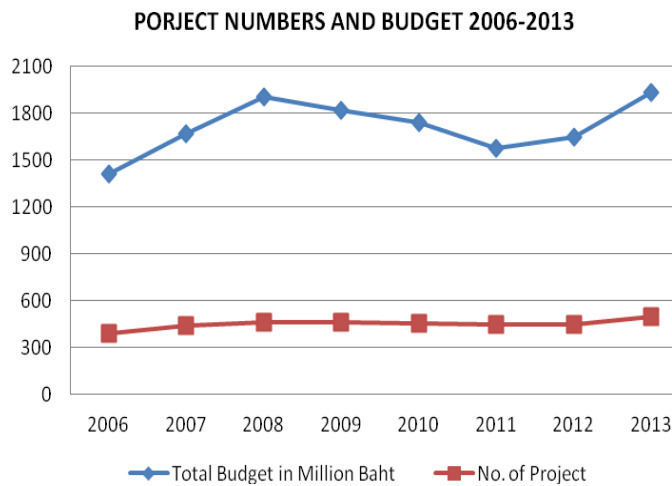


Figure 2.1: Project Budget is identified in Million ('000,000) Thai Baht.

2.2 Trend of the Ongoing Projects by Category

Sponsored and contracted projects undertaken at AIT are assigned under the Fund 30 which are categorized as Research and development which comprises Research, Capacity Building, Networking/Coordination, Training/Workshop and conference projects. The Academic Programs category comprises newly initiated

Professional programs conducted by the different schools and AIT Extension category comprise continuing professional education, short-course training and consultancy services. **Figure 2.2** provides the trend for the period 2006 – 2013 on budget value terms and **Figure 2.3** give the trend in terms of the number of ongoing projects under each category.

Publications over the years has seen an increase in the requirements in order to enhance quality of research from a

time about a decade ago when doctoral students had only to submit a manuscript of a Paper before graduation, today all such students need to show acceptance of paper by an international and referred journal before they graduate.

Publications in refereed Journals as one measure of productivity in the academic spheres increased with a high margin between 2009 and 2013 this .Discussions are being held to include additional criteria towards ascertaining the impact of such papers. **Figure 2.4** shows the trend of publications under the categories namely Referred Journal Publications, Doctoral Thesis, Master's Thesis as well as completed projects for the period 2006-2013.

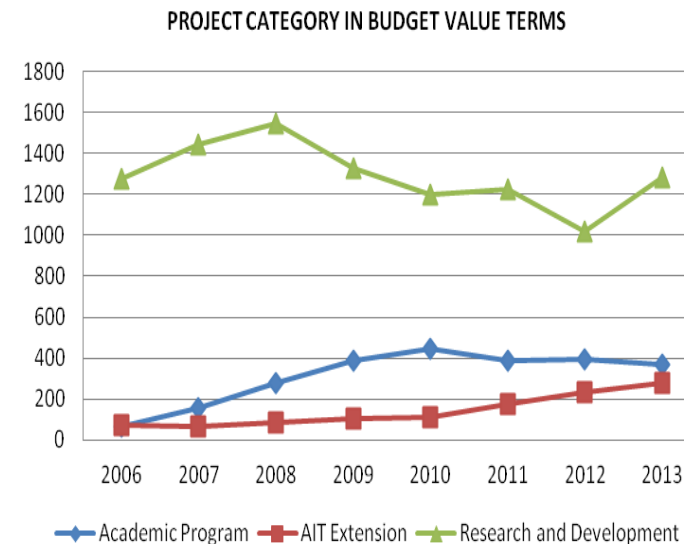


Figure 2.2 Budget Value terms 2006-2013

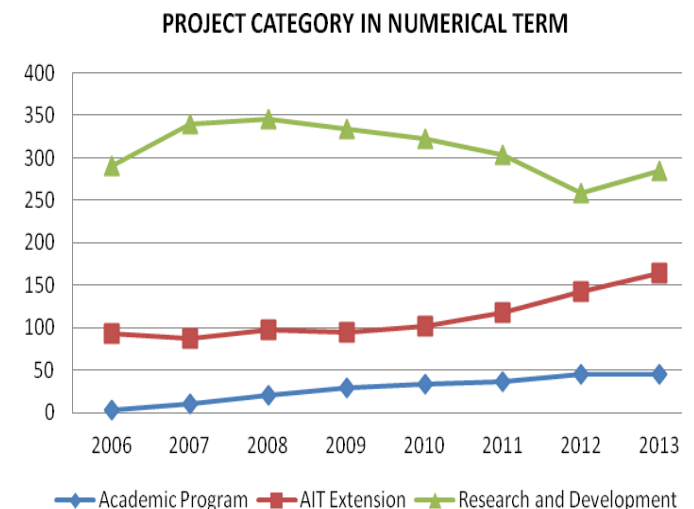


Figure 2.3 Numbers of Ongoing projects

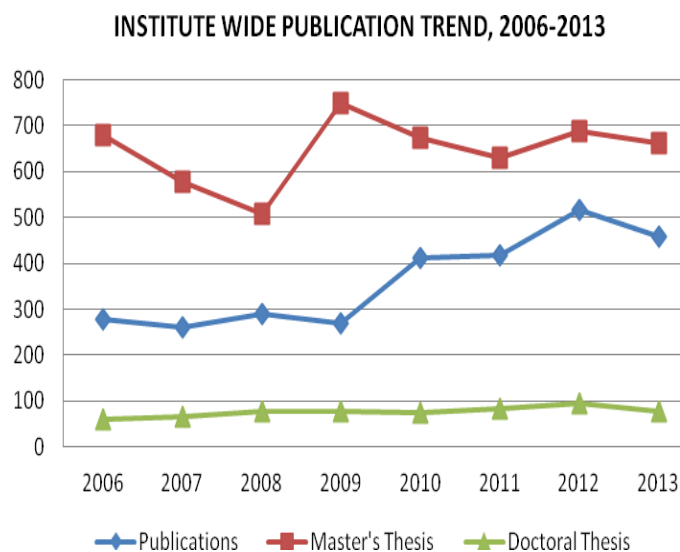


Figure 2.4: Institute Wide publications Trends

Over the years there has been a reduction in seconded faculty (supported by different countries). This led to a reduction in the total full time faculty (as they were not all replaced by direct hire faculty) and highlights the tremendous effort put in by our faculty and research staff. There has also been a subsequent increase in adjunct faculty who offer specialized courses and professional programs. Figure 2.5 below shows the trend in the Faculty strength grouped as Full time faculty and total faculty including adjunct, affiliated, visiting faculty, etc

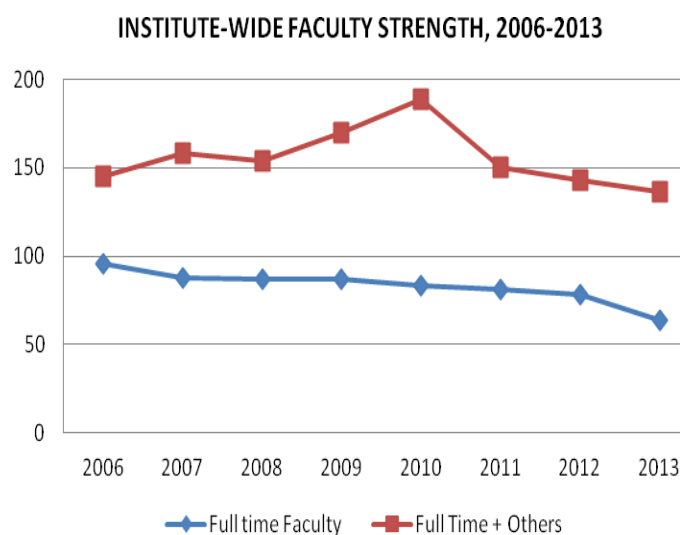


Figure 2.5: Faculty Strength 2006- 2013

Research excellence in an international institution of higher learning as AIT is linked with the graduate students we have. Figure 2.6 gives an institute wide trend on the intake, Enrolment and graduated student strength for the period.

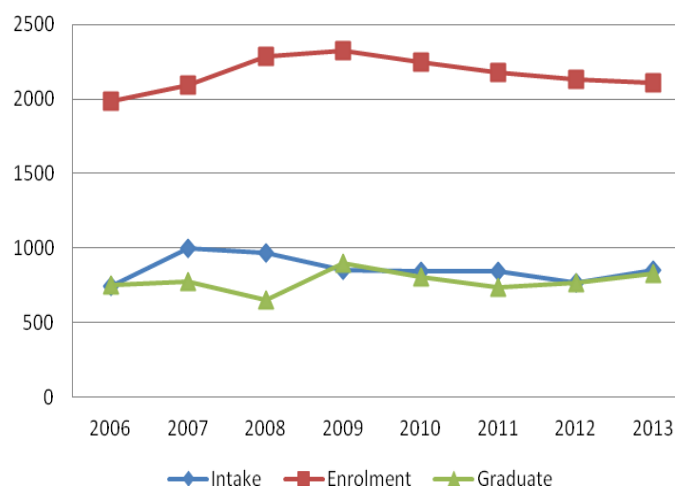


Figure 2.6: Instituted wide strength for the intake, Enrolment and graduated student strength for the period 2006-2013

2.3 Most cited papers in Scopus

Publication and citation information is considered one of the most widely recognizable indicators of research output and quality, and collection and analysis of this information is among means to judge alignment of the institutions research activities with its strategic priorities. Here below shows the top 5 most cited publications in Scopus lifetime. It is planned to have a year on year analysis in due course.

Top 5 Researchers with the Highest Number of Projects initiated 2006- 2013

1. On the acceptability of arguments and its fundamental role in nonmonotonic reasoning, logic programming and n-person games (Cited 1,231 time(s)) 1995; Artificial Intelligence; Dung, P.M.
2. Developments in industrially important thermostable enzymes: A review (Cited 404 time(s)) 2003; Bio resource Technology; Haki, G.D., Rakshit, S.K.
3. Direct solid-liquid separation using hollow fiber membrane in an activated sludge aeration tank (Cited 314 time(s)) 1989; Water Science and Technology; Yamamoto, K., Hiasa, M., Mahmood, T., Matsuo, T.
4. An abstract, argumentation-theoretic approach to default reasoning (Cited 248 time(s)) 1997; Artificial Intelligence; Bondarenko, A., Dung, P.M., Kowalski, R.A., Toni, F.
5. Membrane separation bioreactors for wastewater treatment (Cited 220 time(s)) 2000; Critical Reviews in Environmental Science and Technology; Visvanathan, C., Ben Aim, R., Parameshwaran, K.

2.4 Top 5 Researchers with the Highest Number of Projects initiated 2006- 2013

The streamlining of Project management and corresponding incentives towards initiation of projects has helped reinforce the institutions research objectives and focus. **Table 2.1** highlights the top Researchers with the Highest Number of Projects initiated 2006- 2013.

Faculty Name	No of Projects as PI	PI and Co PI
Prof Kanchana Kanchanasut	59	61
Prof S. Kumar	20	49
Prof C. Visvanathan	33	38
Prof Mukand S. Babel	30	35
Dr Kunnawee Kanitpong	27	30
Dr Kyoko Kusakabe	16	24

Table2.1: Top 5 Researchers with the Highest Number of Projects initiated 2006- 2013

Chapter 3: SCHOOL OF ENGINEERING AND TECHNOLOGY

3.1.1 VISION

The School of Engineering and Technology (SET) aims to become a unique and prestigious multicultural hub of higher learning in engineering and technology, offering state-of-the-art multidisciplinary programs and cutting-edge research in partnership with the industries for sustainable growth of the region. SET focus is on growth and long-term sustainability by enriching academic reputation and internationality.

3.1.2 CORE VALUES

Reflecting the uniqueness of AIT, the following core values are advocated by SET:

- Excellence in teaching / learning
- Excellence in research
- Transparency of administration
- Quality assurance
- Unity in Diversity
- Culture of Collaboration

School of Engineering and Technology (SET) is the biggest school in AIT with academic programs offerings in five countries: Thailand (mother campus), Vietnam, Sri Lanka, Nepal and Myanmar. The school is currently organized in three thematic areas and 8 academic outreach centers.

SET emphasizes on a learning process that combines theoretical problem-solving and real life application of engineering principles. Its research orientation is outward-looking; addressing the actual and anticipated needs of the region. SET enhances its academic portfolio by emphatically injecting the "5I" features namely internationality, innovation, integration, information technology and industrial partnership. The school is currently working on the

international accreditation process for all programs.

In line with the mission of the Institute, the mission of the School of Engineering and Technology is:

To develop highly qualified engineers and technologists who play leading roles in promoting the region's industrial competitiveness in its integration into the global economy.

More information about the school can be accessed at the SET's homepage <http://www.set.ait.asia/>

3.1.3 Thematic Groups, Fields of Study and Multidisciplinary Programs

CIVIL AND INFRASTRUCTURE ENGINEERING GROUP

Since the founding of AIT, its civil engineering fields have promoted modern methodologies, emerging technologies and innovative materials for the design and construction of safe and economical infrastructure in the region. The Civil and Infrastructure Engineering group includes the following fields of study:

- 1) Construction, Engineering and Infrastructure Management (CEIM)
- 2) Geotechnical and Geo environmental Engineering (GGE)
- 3) Structural Engineering (STE)
- 4) Transportation Engineering (TRE)
- 5) Water Engineering and Management (WEM)

INDUSTRIAL SYSTEMS ENGINEERING GROUP

For several decades, AIT has served in the development of the region by equipping young engineers with the high-tech knowledge required to work in complex industrial environments. Since

its inception, the Industrial Systems Engineering (ISE) thematic group at AIT has contributed to this mission by focusing on industrial competitiveness and innovation for sustainable growth in the region. The ISE group is comprised of the following fields of study:

- 1) Industrial and Manufacturing Engineering (IME)
- 2) Nanotechnology (NT)
- 3) Mechatronics (MEC)
- 4) Microelectronics and Embedded Systems (MES)

INFORMATION AND COMMUNICATIONS GROUP

Information and communications enable access, connections and sharing, in turn enable knowledge creation and economic opportunity. The fields in the Information and Communications group are:

- 1) Computer Science (CS)
- 2) Computer Science with specialization in Software Engineering
- 3) Information Management (IM)
- 4) Remote Sensing and Geo-graphic Information Systems (RSGIS)
- 5) Telecommunications (TC)

Interdisciplinary Programs

- 1) Disaster Preparedness, Mitigation and Management (DPMM)
- 2) Gender, Transportation and Development (GTD)
- 3) Geo- Exploration & Petroleum Geoengineering (GEPG)
- 4) Information and Communications Technologies (ICT)
- 5) Offshore Technology and Management (OTM)

Undergraduate Programs

- 1) Civil and Infrastructure Engineering
- 2) Computer Science/Information Technology
- 3) Electronics
- 4) Industrial Engineering

- 5) Information and Communication Technology
- 6) Mechatronics
- 7) Telecommunications

3.1.4 Strategic Research Areas

The School of Engineering and Technology has identified broad research areas related to the strengths of its faculty, its curriculum and its existing facilities that are the building blocks for education niches in engineering and advanced technologies.

The following lists the information about the specific focal areas grouped by Fields of Study.

Computer Science and Information Management (CSIM)

Software Engineering and Development; Information and Knowledge Management

Industrial Systems Engineering (ISE)

Design and development of devices and sensors; Automation and control of machines; Product design and integration of machines and processes; Planning, operation, control and logistics of Industrial systems

Remote Sensing and Geographic Information Systems (RS&GIS)

Remote Sensing (RS); Geographic Information System (GIS); Global Navigation Satellite System (GNSS); Geoinformatics Applications in Environment, Agriculture and Disaster Management, Sensor and WebGIS, Advance Mapping - UAV, LIDAR, Kinematic GPS, Monitoring Upper Atmosphere, Health GIS

Telecommunications, Information and Communications Technologies (TC, ICT)

Mobile Wireless Communications, Network Performance Analysis, Digital Communications

Geotechnical and Geoenvironmental Engineering (GGE)

Sustainable geological exploitation for engineering activities; Design of safe structures; Disaster mitigation and rehabilitation

Structural Engineering

Computational Mechanics, Earthquake Resistant Design, Experimentation Methods, Advanced Structural Materials.

Transportation Engineering (TRE)

Transportation Planning, Traffic Engineering, Highway and Pavement Engineering, Road Safety and Accident Analysis and Transportation Logistics

Water Engineering and Management (WEM)

Water resources management; Climate change impact and adaptation in water sector; Water related disaster management

3.1.5 Academic Outreach Centers

The School of Engineering and Technology has a wealth of innovative and untapped knowledge database from its master's and doctoral research activities. Many outreach and research centers are set up to transform the knowledge into industrial needs. These centers also serve to transfer the practical aspects and the society impacts of the knowledge and technology back to the class room.

ACSIG: Asian Center for Soil Improvement and Geosynthetic

ACSIG provides a strategic location for advanced technological education, researches and outreach activities on the application and effective utilization of ground improvement techniques. Visit ACSIG: <http://www.set.ait.asia/acsig/>

ACTS: Asian Center for Transportation Studies

ACTS activities include modules on intelligent transportation systems, traffic simulation, freight transport, urban road safety and road safety audit. Visit ACTS: <http://www.set.ait.asia/acts/>

Geo informatics Center

Geo informatics Center is dedicated to development and promotion of remote sensing research and activities in Asia-Pacific by sharing satellite data, research results and experiences with researchers in the region. Visit Geoinformatics Center <http://www.geoinfo.ait.asia/>

Habitech Center

Habitech activities include research and outreach activities such as training in production and construction, provision of services associated with projects implemented by various organizations, agencies or the private sector. Visit Habitech: <http://www.habitech-international.com/home.html>

Information Center

IFIC coordinates the activities of the International Ferro cement Society (IFS) including publication of "Journal of Ferro cement", conducting continuing education courses and sponsored research projects in low-cost construction. Visit IFIC: <http://www.set.ait.asia/ific/>

Regional Network Office for Urban Safety

The Regional Network Office for Urban Safety (RNUS) is a collaborative center jointly operated by the AIT and the University of Tokyo for the promotion of urban safety engineering utilizing advanced engineering technologies including remote sensing and GIS. Visit RNUS: <http://www.set.ait.asia/rnus/>

Thailand Accident Research Center

The Thailand Accident Research Center is an offspring of MOTC's Road Safety Master Plan acknowledging the lack of

information on accidents in Thailand and the need to establish TARC. TARC provides academic back up and a base for road safety research. Visit TARC: <http://www.tarc.ait.asia>, <http://www.tarc.or.th/>

AIT Center of Excellence in Nanotechnology

The Center of Excellence in Nanotechnology is jointly supported by Thailand's Nanotechnology Center (NANOTEC) and AIT, to cultivate and foster multidisciplinary activities including research and education in the applications of Nanotechnology in Developing World. Visit CoEN: <http://www.nano.ait.asia>

3.1.6 Governance

Dean (upto June 2013)

NITIN V AFZULPURKAR, BEng, Univ of Poona, India; PhD, Univ of Canterbury, New Zealand

Associate Professor [Computer vision (pattern recognition and image processing); MEMS design, fabrication for electronic and bio medical applications; Soft computing algorithms for robotics and automation applications; Mechatronics applications for industrial use]

Associate Dean (July – September 2013)

NITIN KUMAR TRIPATHI, Ph.D. BTech, National Institute of Technology, Warangal, India; MTech, IIT; PhD, IIT, Kanpur, India.

Associate Professor (GIS, Remote Sensing, RFID and Vehicle Tracking, Indoor Positioning Systems, Environment, Disaster, Agriculture, Health, Applications)

Interim Dean (October 2013 onwards)

VORATAS KACHITVICHYANUKUL, BS, Natl Taiwan Univ; MEng, AIT, Thailand; PhD, Purdue Univ, Indiana, USA.

Professor (Simulation; ERP; Scheduling, Metaheuristics; Parallel Computing) [Planning and Scheduling Systems; Enterprise Resource Planning Systems; Supply Chain Modeling and Analysis; Discrete Event Simulation Software Development; Manufacturing System Simulation; Manufacturing Decision Support Systems; Just-in-Time Manufacturing System]

Associate Dean

SANGAM SHRESTHA, MSc., Institute of Agriculture and Animal Science, Tribhuvan University, Nepal; MSc., Asian Institute of Technology, Thailand; PhD., University of Yamanashi, Japan.

Assistant Professor [Climate change and adaptation, Integrated water resources management, Hydrology and water quality modeling, Groundwater development and management, Sustainable water management policy]

3.2: SET – COMPUTER SCIENCE and INFORMATION MANAGEMENT FIELDS OF STUDY



3.1.7 Introduction

Computer Science Field of Study

This field of study focuses on world-class teaching and research into the foundations and applications of computing systems. The curriculum covers a broad range of topics in computer systems, theory, software engineering, information science, and applications. The faculties are particularly active in artificial intelligence, security, computer graphics, machine learning and data mining, robotics, computer vision and image processing, software engineering, networking, simulation, and information systems.

The courses and research topics span the range from theory to practice. Students are encouraged to take courses and conduct research in areas related to computer science such as Information Management, Telecommunications, Information and Communication Technologies, Remote Sensing and Geographic Information Systems, Mechatronics, Microelectronics and Embedded Systems, Industrial Engineering, and other fields of study at the Institute.

Software Engineering Area of Study

In addition to the traditional Masters program in computer science, the Computer Science field of study also offers a Masters degree in computer

science with specialization in software engineering. The Software Engineering Area of Specialization is specially designed to fill the Asia-Pacific region's need for highly-trained specialists in software development and the management of software development projects.

Information Management Field of Study

The Information Management field of study at AIT aims to fulfill the growing need for information management skills in government and private organizations. It was the first program of its kind in Asia.

The field focuses on planning the effective use of information and communication technologies within organizations, developing corporate and government policies to maximize the benefits resulting from the wide-spread use of these technologies, improving the strategic management of information resources in business, government, and non-profit organizations, and increasing the productivity and creativity of managers and executives who work with information resources.

3.1.8 Research Facilities and Laboratories

CSIM Laboratories are well-equipped for teaching and research. The program maintains its own file, Web, email, and

database servers for experimental and daily use. The teaching lab is kept up to date with modern desktop systems and can seat up to 60 students for practical sessions. Specialized equipment includes a 20-core Xeon grid computing cluster, a heterogeneous compute cloud, and experimental broadband satellite links to Japan and other countries in the region, video and image processing equipment, and augmented/virtual reality equipment. Full wireless coverage in the building allows students to conveniently work with their personal notebook computers.

Faculty and Research Staff

Full-time Faculty

KANCHANA KANCHANASUT, PhD, MSc, Computer Science, University of Melbourne, Australia; Graduate Diploma, Computer Science, BSc Mathematics, University of Queensland, Australia.

Chair Professor, Thai Network Information Center (THNIC) and IntERLab Director (*Networking and Distributed Computing, Algorithms, Programming Languages*)

PHAN MINH DUNG, MSc, PhD, University of Technology, Dresden, Germany.

Professor (*Computer and Network Security, Autonomous Computing, Logic*)

Programming, Artificial Intelligence)

SUMANTA GUHA, MS, PhD, University of Michigan, Ann Arbor, USA; PhD, Indian Statistical Institute, Calcutta, India; BSc, MSc, University of Calcutta, India.

Professor (*Algorithms, Computer Graphics, Computational Geometry, Robotics*)

VATCHARAPORN ESICHAIKUL, BAcc, Chulalongkorn University, Thailand; MBA, Oklahoma State University; PhD, Kent State University, USA.

Associate Professor (*Electronic Commerce/Electronic Business, Web-based Information Systems, Hypermedia, Electronic Government*)

MATTHEW N. DAILEY, BSc, MSc, North Carolina State University, PhD, University of California, San Diego.

Associate Professor (*Machine Vision & Learning, Robotics, Software Engineering and Open-source Software Development*)

Visiting and Adjunct Faculty

PAUL JANECEK, BSEE, US Military Academy; MSc, University of London, UK; PhD, Swiss Federal Institute of Technology, Switzerland.

Visiting Faculty (*Human-Computer Interaction; Analysis and Design of Information Visualization Systems, Semantic Fisheye Views, Software Engineering and Open-source Software Development, and Information System Development*)

RAPHAEL DUBOZ, MA, University of Marseille, France; MA, University of Paris 6, France; PhD, University of Littoral Cote d'Opale, France.

Visiting Assistant Professor and Researcher in Centre de Cooperation Internationale en Rechercher Agronomique Pour Le Development (CIRAD) (*Computing Modeling and Simulation, with Applications in the Environmental Sciences*)

CHUTIPORN ANUTARIYA, BSc, First Class Honors, Chulalongkorn University, Thailand; MSc, D.Tech.Sc., Asian Institute of Technology.

Adjunct Faculty (Database Systems, XML and Web Technologies, Knowledge Representation, Intelligent Systems, Semantic and Linked Data Technologies)

SURADET JITPRAPAIKULSARN, BS, Chulalongkorn University, Thailand; PhD, Case Western Reserve University, USA.

Adjunct Faculty (System Engineering, Software Engineering, System & Software Development in managerial role, Advanced knowledge of software architecture, software product line and software process improvement)

Research Staff

RAMESH MARIKHU, BEng, Kathmandu University, Nepal; MEng, Information & Communication Technologies, Asian Institute of Technology, Thailand.

JEDNIPAT MOONRINTA, BEng, Computer Engineering, Second-Class Honors, Chiang Mai University, Thailand; MEng, Computer Science, Asian Institute of Technology, Thailand.

M.P. HIRANYA N. KUMARA, BEng, University of Ruhuna, Sri Lanka, MEng, Computer Science, Asian Institute of Technology, Thailand.

HITES NIDHI SHARMA, BEng, Computer Engineering, Tribhuvan University, Nepal, MEng, Information Management, Asian Institute of Technology, Thailand.

PHAN MINH THANG, BEng, Kaldol Kalman College, Hungary; MEng, Computer Science, Asian Institute of Technology, Thailand.

3.1.9 Grants and Sponsored Research Completed in 2013

Image Processing and Classification System

Duration: 17-JUN-2013 to 31-DEC-2013
Project Investigator(s): Matthew Dailey

Sponsor: Laser Vision Systems Pte Ltd (LVS), Singapore
Total Contracted Amount (THB): 157,500

Building An Integrated Leading Euro-Asian Higher Education and Research Community in the Field of the Semantic Web (EASTWEB)

Duration: 1-OCT-2006 to 31-DEC-2013
Project Investigator(s): Mathew Dailey
Sponsor: EU
Total Contracted Amount (THB): 3,043,862.64

3.1.10 Publications

International Journal Articles with Impact factor

Alm, H., P. Janecek, and O. Forsgren. (2013) "Co-design Research and Business Development: Case of Scandinavian Airlines (SAS), Systemic Practice and Action Research, pp.1-19

Bajrachary, K. a, and R. Duboz. (2013) "Comparison of Three Agent-Based Platforms on the Basis of a Simple Epidemiological Model (WIP), Simulation Series, 45(4): 48-53.

Bukhari, F. and M.N. Dailey. (2013) "Automatic Radial Distortion Estimation from a Single Image", Journal of Mathematical Imaging and Vision, 45(1): 31-45, 2013. [PDF]

Chaiprasurt, C. and V. Esichaikul. (2013). "Enhancing Motivation in Online Course with Mobile Communication Tool Support: A Comparative Study", *The International Review of Research in Open and Distance Learning*, 14(3), pp. 377-401.

Chatkaewmanee, P. and M.N. Dailey. (2013) "Object virtual viewing using adaptive tri-view morphing", *IET Image Processing*, 7(6): 586-595, 2013. [PDF]

Collineau, L., R. Duboz, M. Paul, M. Peyre, F. Goutard, S. Holl, and F. Roger. (2013) "Application of Loop Analysis for the Qualitative Assessment of

Surveillance and Control in Veterinary Epidemiology, Emerging Themes in Epidemiology, 10(1)

Doudpota, S.M., S. Guha, and J. Baber. (2013) "Mining Movies for Song Sequences with Video Based Music Genre Identification System", Information Processing and Management 49 (2): 529-544.

Esichaikul, V., W. M. Aung, C. Bechter, and M. Rehman. (2013). "Development and Evaluation of Wiki Collaboration Space for E-Learning", *Journal of Enterprise Information Management*, 26(5).

Hossain, A.K.M.M., P. Mekbungwan, and K. Kanchanasut. (2013) "Directed Information Dissemination in Vehicular Ad-Hoc Networks, Wireless Networks, pp. 1-18.

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Vallee, E., A. Waret-Szkuta, H. Chaka, R. Duboz, M. Balcha, and F. Goutard. (2013) "Analysis of Traditional Poultry Trader Networks to Improve Risk-Based Surveillance", *Veterinary Journal*, 195(1): 59-65.

Conference Publications

Lertsinsrubtavee, A., N. Malouch, S. Fdida, and K. Kanchanasut. (2013) "Spectrum sharing and Impact on Spectrum Handoff in Multi-Channel Cognitive Radio Networks, 2013 IEEE 14th International Symposium on a World of Wireless Mobile and Multimedia Networks.

Maidi, M., M. Preda, M.N. Dailey, and S. Kongsilp. (2013) "Natural feature tracking on a mobile handheld tablet", In *International Conference on Signal and Image Processing Applications, IEEE, 2013*. [PDF]

Majeed, M. F., V. Esichaikul, and M. e No (2013) "Use of Multi-agent Based Platform for Providing Document-Centric Interoperability in the Realm of E-government", *the 6th International Conference on Advances in Information Technology (IAIT 2013)*, 12-13 December 2013, Bangkok, Thailand.

Marikhu, R., J. Moonrinta, M. Ekpanyapong, M.N. Dailey, and S. Siddhichai. (2013). "Police Eyes: Real world automated detection of traffic violations", In *Proceedings of ECTI-CON, 2013*. Article number 6559635 [PDF]

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Ouivirach, K. and M.N. Dailey. "Extracting the object from the shadows: Maximum likelihood object/shadow discrimination", In *Proceedings of ECTI-CON, 2013*. Article number 6559543 [PDF]

3.1.11 Doctoral Students' Dissertation

Computer Science

Object Virtual Viewing Using Adaptive Tri-view Morphing
By Pin Chatkaewmanee
Supervisor: Dr. Matthew Dailey

Detection and Tracking of Multiple Humans in High-Density Crowds
By Irshad Ali
Supervisor: Dr. Matthew Dailey

Development of the Decision Support Tool for Regional Climate Change Impact Assessment, Trend Analysis and Hydrologic Modeling
By Kifayat Ullah
Supervisor: Dr. Sumanta Guha

Applying Semantic Suffix Nets to Clustering for Search Results
By Jongkol Janruang
Supervisor: Dr. Sumanta Guha

An Ontology Framework to Enhance Business Process Mining and Analysis.
By Wirat Jareevongpiboon
Supervisor: Dr. Paul Jancecek

Learning Predictive Models for Optimization.
By Waheed Noor
Supervisor: Dr. Matthew Dailey and Prof. Peter Haddawy

Improving the Performance of Local Keypoint Descriptions for Image and Video Applications.
By Junaid Baber
Supervisor: Dr. Nitin V. Afzulpurkar

Giving Users What They Ask for: Improving Question Answering by Question Classification, Question Disambiguation and Answer Filtering.
By Maheen Bakhtyar

Supervisor: Dr. Matthew Dailey

Incremental Behavior Modeling and Suspicious Activity Detection.

By Kan Ouivirach

Supervisor: Dr. Matthew Dailey

Information Management

Factors Influencing the Adoption of e-government Services

By Mariam Rehman

Supervisor: Dr. Vatcharaporn Esichaikul

Enhancement of E-Learning Motivation through Interactive M-Learning.

By Chantorn Chaiprasurt

Supervisor: Dr. Vatcharaporn Esichaikul

Evaluating Non-Visual Interaction for Content Navigation and Targeting Tasks.

By Eakachai Charoenchaimonkon

Supervisor: Dr. Paul Janecek

3.1.12 Masters Students' Theses and Research Studies

Computer Science

Intelligent Powered Pen.

By Suwich Chaivatmalakul

Supervisor: Prof. Sumanta Guha

Hybrid Federated Computing Solution for E-Learning in Thailand.

By Phattarachai Chaimongkol

Supervisor: Dr. Matthew Dailey

Privacy in Online Networking Sites.

By Sanghamitra Konwar

Supervisor: Prof. Phan Minh Dung

3D Web Application for Virtual Interactive Travel in Chiang Mai Province.

By Namchok Petsaen

Supervisor: Prof. Sumanta Guha

Application of LBS and ICT for Agriculture in Thailand.

By Aamir Ali

Supervisor: Dr. Sarawut Ninsawat

Pose Graph Based Unmanned Aerial Vehicle Localization and Mosaicking.

By Saket Konwar

Supervisor: Dr. Matthew Dailey

Facilitate Business Process Design by Recommending Activities Vbased on Process Event Logs.

By Karn Yongsiriwit

Supervisor: Dr. Matthew Dailey

Study of Collaboration Pattern & Knowledge Flow in Co Authorship Network of NII Researchers.

By Alok Pokharel

Supervisor: Dr. Raphael Duboz

Identifying the Source of Diffusion in Epidemic Networks.

By Alka Shah Gupta

Supervisor: Dr. Raphael Duboz

Multi Agent Model of Email Communication.

By Punnawit Budsapawanich

Supervisor: Prof. Phan Minh Dung

Heart Surveillance Using Data Mining.

By Jyotismita Talukda

Supervisor: Prof. Sumanta Guha

Interactive Autonomous Parental Telepresence Robot.

By Madduma P.H.N. Kumara

Supervisor: Dr. Matthew Dailey

Chamfer Matching for Image Transformation Estimation in Capsule Endoscopic Videos

By Pobporn Danvirutai

Supervisor: Dr. Matthew Dailey

MedVis: A 3D Web-Based Visualizer of Medical File Formats

By Paphanan Sunantawanit

Prof. Sumanta Guha

Modelling TCP SYN Flooding Attacks Using Multiagent System.

By Piyawat Sudsri

Supervisor: Prof. Phan Minh Dung

Multiagents-Based Development of Mobile Application using JADE.

By Bu Saw

Supervisor: Prof. Phan Minh Dung

Information Management

Clinical Decision Support System for HLA

Typing Result Interpretation.

By Sasithon Puapairoj

Supervisor: Prof. Sumanta Guha

A Hybrid Semantic Energy Saving Service for Cloud-Based Smart Homes.

By Quyet Cao

Supervisor: Dr. Matthew Dailey

Using an Evolutionary Algorithm for the Optimization of Epidemic Surveillance and Control in Networks.

By Chaipichet Palotaitakerng

Supervisor: Dr. Raphael Duboz

An Investment DSS to Forecast Stock Price using Hybrid Model: A Case Study of Thai Stock Market.

By Napadol Khunanugul

Supervisor: Dr. Vatcharaporn Esichaikul

Using Social Networking to Build Relationships Among Employees: A Case of The Bank of Thailand.

By Naphat Cheamchenkool

Supervisor: Dr. Vatcharaporn Esichaikul

Mining Rare Association Rules in a Distributed Environment using Multiple Minimum Support.

By Jutamas Tempaibookkul

Supervisor: Prof. Sumanta Guha

Comparison between Four Data Mining Toolkits with Respect to Same Data Mining Techniques.

By Myat Noe Oo

Supervisor: Prof. Sumanta Guha

Task-Based Usability Evaluation of University Website: Case Study of some Asian University.

By Bharadwaj Choudhury

Supervisor: Prof. Sumanta Guha

Performance Comparison between Native Mobile and Cross-Pattern Applications and Development.

By Kanhathai Ninrat

Supervisor: Prof. Sumanta Guha

Community Detection on an Undirected Network using a K-Means Based Method Including Network and Profile Information.

By Nicolas Richard

Supervisor: Prof. Sumanta Guha

Real Time Value Creation with Big Data Analytics Based on Customer Related Information: An Information System Template.

By Geoffroy Dammon

Supervisor: Dr. Vatcharaporn Esichaikul

Web GIS Application Integrated with Social Network to Disseminate Information Based on User Preferences and Location Information.

By Ramesh De Silva

Supervisor: Dr. Sarawut Ninsawat

Expert System to Text Anxiety.

By Muhammad K. Hasin

Supervisor: Prof. Sumanta Guha

3.3: SET – CONSTRUCTION ENGINEERING AND INFRASTRUCTURE MANAGEMENT FIELD OF STUDY



3.3.1 Introduction

The Construction, Engineering and Infrastructure Management field trains professionals to play leading roles in the international construction industry and in infrastructure development and management. It offers courses in four levels - operations, project, strategic issues and corporate issues. It prepares students to become effective managers and decision-makers familiar with modern techniques of construction management, engineering management and infrastructure management.

The field's courses are delivered based on a hierarchical knowledge scale that considers principles and fundamentals, applications (tools and techniques), and emerging issues. In offering courses spanning fundamentals to advanced, the emphasis is on shifting from classical to innovative knowledge.

3.3.2 Faculty and Research Staff

CHOTCHAI CHAROENNGAM, BEng, King Mongkut's Inst of Tech, Thonburi, Thailand; MS, Univ of Kansas; PhD, Univ of Texas at Austin, USA

Associate Professor (*Project Planning, Scheduling, and Controls; Construction*

Productivity Improvement; Public Private Partnership Project; Project Financing)

BONAVENTURA H W HADIKUSUMO, BEng, Univ of Diponegoro, Indonesia; MEng, AIT; PhD, Univ of Hong Kong.

Associate Professor (*Construction Information Technology; Construction Project Management; Construction Site Safety, Virtual Reality application in construction; Web-based project design and management; System Dynamic Simulation in Construction; Construction site safety*)

DJOEN SAN SANTOSO, BEng., Parahyan-gan Catholic University, Indonesia; M.Eng, AIT; PhD, Saitama University, Japan

Assistant Professor (Infrastructure management in developing countries, construction project management, public transportation, non-motorized transportation, risk management)

3.3.3 Grants and Sponsored Research Completed in 2013

Training HYUNDAI Engineering & Construction South Korea

Duration: 19-April-12 to 18-Aug-13
Project Investigator(s): BHW Hadikusumo

Sponsor: Hyundai Engineering and Construction Company

Total Contracted Amount (THB) 1,056,300

Training, HYUNDAI Engineering & Construction (Hyundai E&C), South Korea

Duration: 19-April-13 to 18-Aug-13
Project Investigator(s): BHW Hadikusumo
Sponsor: HYUNDAI Engineering & Construction, Korea
Total Contracted Amount (THB) 1,056,300

Professional Master Project Management Hanoi Sept 2012

Duration: 1-Sep-12 to 31-Dec-13
Project Investigator(s): BHW Hadikusumo
Sponsor: MPM Hanoi
Total Contracted Amount (THB) 4,730,017.50

Professional Master Project Management Can Tho City 2012

Duration: 1-Mar-12 to 31-Dec-13
Project Investigator(s): BHW Hadikusumo
Sponsor: MPM Cantho
Total Contracted Amount (THB) 5,533,661.25

Training HYUNDAI Engineering & Construction South Korea

Duration: 1-Sep-12 to 31-Dec-13
Project Investigator(s): BHW Hadikusumo

Sponsor: Construction Corporations in Vietnam
 Total Contracted Amount (THB) 8,877,462.165

3.3.4 On-going Grants and Sponsored Research

Professional Master in Project Management Ho Chi Minh City Class A Sept. 2013

Duration: 1-Sep-2013 to 30-Jul-2015
 Project Investigator: BHW Hadikusumo
 Sponsor: Construction Corporations in Vietnam
 Total Contracted Amount (THB): 8,497,500

Professional Master Project Management CanTho City 2013

Duration: 1-Jun-13 to 31-Dec-14
 Project Investigator(s): Dr. BHW Hadikusumo and Dr. Pennung Warnitchai
 Sponsor: Construction Corporations in Vietnam
 Total Contracted Amount (THB) 5,021,250

Professional Master Project Management Hanoi Sept 2013

Duration: 1-Sep-13 to 31-Jul-15
 Project Investigator(s): Dr. BHW Hadikusumo
 Sponsor: Construction Corporations in Vietnam
 Total Contracted Amount (THB) 5,021,250

3.3.5 Publications

International Journal Articles with Impact factor

Refereed Journal Papers

Munira, S., Sarm, S. and Santoso, D.S., 2013, "Perception of public van users in Bangkok". Journal of Eastern Asia Society for Transportation Studies, Vol. 10 pp. 1501-1515.

Nguyen Thanh Tam and Bonaventura H.W. Hadikusumo, "Identification of Operational Trust Factors in Contractor-Owner Relationships: A Case Study in Vietnam" International journal of Project Organization and Management (accepted)

Pham Hong Linh and BHW. Hadikusumo, "Schedule Delays in EPC Petrochemical Projects in Vietnam: A Qualitative Research Study", International Journal of Energy Sector Management (accepted)

Sunindijo, R. and Hadikusumo, B. (2013). "Emotional Intelligence for Managing Conflicts in the Sociocultural Norms of the Thai Construction Industry." J. Manage. Eng., 10.1061/(ASCE)ME.1943-5479.0000211 , 04014025.

Refereed Proceedings

Boonaiem, S., Aung, S.N., Santoso, D.S., "Customer Satisfaction towards the Interchange of Chatuchak MRT Station". Proceedings of the 6th ATRANS Symposium-Young Researcher's Forum, 23-24 August, 2013, Bangkok, Thailand.

Diary Report". Proceedings of the 10th EASTS Conference, 9-12 September 2013, Taipei, Taiwan.

Joewono, T.B., Santoso, D.S., Hadi, P.L., "Exploring University Students' Activities and Travels based on Travel

Santoso, D.S., "Perceptions of Foreign Tourists towards Street Vendor in Bangkok". Proceedings of the 10th EASTS Conference, 9-12 September 2013, Taipei, Taiwan.

Santoso, D.S., Mahadthai, S., Jahed, A.B., Tun, N., "How Safe is the Rail Platform? A Study of Bangkok Mass Rapid Transit (BTS)". Proceedings of the 10th EASTS Conference, 9-12 September 2013, Taipei, Taiwan.

3.3.6 Doctoral Students' Dissertation

Strategic Behaviors in Thai Contractors By Arthasith Hastheetham

Supervisor: Dr. Bonaventura H.W. Hadikusumo

3.3.7 Masters Students' Theses and Projects

Key Factors of Effective Fast-Track Projects: A Case Study of High-rise Buildings in Vietnam

By Le Viet Hoai
 Supervisor: Dr. Bonaventura H.W. Hadikusumo

Risks and Cost Escalation of Underground Construction Package of High-rise Building

By Bien Nam Hai
 Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Schedule Delay in Infrastructure Construction in North Vietnam: A Case Study of Highway Project in the Northern of Vietnam

By Tran Le Minh Triet
 Supervisor: Dr. Chotchai Charoenngam

Developing Project Governance Framework for Industrial Estate Developer

By Nguyen Van Nhan
 Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Management Life Cycle for Green Building

By Nguyen Anh Tuan
 Supervisor: Dr. Bonaventura H.W. Hadikusumo
 Co-chairperson: Dr. Oulawan Kulchartchai

Investment Risk Management for Oil and Gas Projects through FDI: A Case Study of Investment Projects in Thailand

By Silapa Hanpadungdhuma
 Supervisor: Djoen San Santoso
 Co-chairperson: Dr. Chotchai Charoenngam

Procurement Method Selection of Internationally-Funded Highway Projects in Thailand

By Takuya Watanabe
 Supervisor: Dr. Chotchai Charoenngam

Application of Value Engineering in Nepalese Building Construction Industry By Shreena Malla Supervisor: Dr. Chotchai Charoenngam	Supervisor: Dr. Bonaventura H.W. Hadikusumo	Projects at Petrovietnam Exploration and Production Corporation (PVEP) By Truong Thoi Nhiem Supervisor: Dr. Bonaventura H.W. Hadikusumo
Sequencing of Critical Activities and Resource Balancing in the Construction of Multi-storey Buildings in Pakistan By Sidra Maqsoom Supervisor: Dr. Chotchai Charoenngam	Project Management Maturity Assesment and Development of a Bridge and Road Contractor: A Case Study of a Taiwanese Contractor Operating in Vietnam By Nguyen Hong Phuoc Supervisor: Dr. Bonaventura H.W. Hadikusumo	Construction Project Management Delays in Roads and Bridges in Can Tho City: A Case Study of Mau Than Road Tra Noc Airport, Can Tho, Vietnam By Nguyen Hoang Dao Supervisor: Dr. Bonaventura H.W. Hadikusumo
End Product Defects in Residential Building Construction By Kobdao Maneejak Supervisor: Dr. Chotchai Charoenngam	Co-chairperson: Dr. Oulawan Kulchartchai	
Total Quality Management Application of Interior Contractors in Thailand By Nichapa Nirasok Supervisor: Dr. Bonaventura H.W. Hadikusumo	Risks, Insurances and Bonds in Construction Projects: A Case Study of High-rise Building Projects By Ly Minh Van Supervisor: Dr. Bonaventura H.W. Hadikusumo	Owner's Project Quality Management System: A Case Study of Bored Piles Part of High-rise Building Projects for Resettlement of People Relocated By Hua Van Hung Supervisor: Dr. Bonaventura H.W. Hadikusumo
Key Strategic Project Management Processes for Different Project Delivery Systems: A Case Study of Construction Projects in Thailand By Praneet Prasongnitjakit Supervisor: Dr. Bonaventura H.W. Hadikusumo	Co-chairperson: Dr. Oulawan Kulchartchai	Co-chairperson: Dr. Oulawan Kulchartchai
Building Maintenance Management using the Analytic Hierarchy Process: A Case Study of Two University Buildings By Rohan Bataju Supervisor: Dr. Bonaventura H.W. Hadikusumo	Critical Success Factors of Owner's Contract Management for Building Projects in Vietnam By Le Hong Ha Supervisor: Dr. Bonaventura H.W. Hadikusumo	Industrial Zone Project Development Approach and Risks Management By Pham Quang Dung Supervisor: Dr. Chotchai Charoenngam
Management of Cost Estimation in Post Disaster Renovation Projects By Nishat Farhin Islam Supervisor: Dr. Chotchai Charoenngam	Quality Management System for Engineering Consultant Firms By Nguyen Quoc Huy Supervisor: Dr. Bonaventura H.W. Hadikusumo	Owner's Quality Management in Building Construction Projects: A Case Study of Hau Giang Department of Finance Head Office By Nguyen Hoa Duy Supervisor: Dr. Bonaventura H.W. Hadikusumo
Factors Affecting Construction Productivity in Cambodia By Hong Meng Supervisor: Dr. Bonaventura H.W. Hadikusumo	Co-chairperson: Dr. Oulawan Kulchartchai	Project Owner's Risk Conrol: A Case Study of Nga Bay River Embankment Project By Phan Vinh Loc Supervisor: Dr. Djoen San Santoso
Improving Workflow in High Rise Building through Lookahead Planning: A Case Study in Nepal By Sajen Pradhan Supervisor: Dr. Chotchai Charoenngam	Project Owner Contract Administration and Problems in Building Projects By Tran Trong Khiem Supervisor: Dr. Chotchai Charoenngam	Project Contract Management in Design - Bid - Build Construction Projects: A Case Study of An Giang Vocational College By Phan Duy Quang Supervisor: Dr. Bonaventura H.W. Hadikusumo
Constructs of Social Interaction Theory in Relational Contracting in Construction Projects By Shoeb Ahmed Memon	Risk Management During the Preconstruction Process for High-rise Commercial Projects in Vietnam By Tran Thanh Cong Supervisor: Dr. Djoen San Santoso	Co-chairperson: Dr. Oulawan Kulchartchai
	Effective Design Management Approach for Green Building Design By Ho Khue Supervisor: Dr. Bonaventura H.W. Hadikusumo	Project Contract Management in Design-Bid-Build Construction Projects: A Case Study of Can Tho In-Service Training Center (School Project) By Nguyen Chi Hieu

Supervisor: Dr. Bonaventura H.W. Hadikusumo	Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Organizational Structure of an Engineering Constultant Company: A Case Study of Tedisouth Company By Dang Minh Hai Supervisor: Dr. Bonaventura H.W. Hadikusumo
Perception and Assessment of Productivity Factors on Construction Projects By Fitri Hardiyanti Supervisor: Dr. Chotchai Charoenngam	Project Management Competency of a Small Contractor: A Case Study of Vietnamese Amcons Contractor By ran Cong Doan Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Medical Service Investment Project (Corporate Type Hospital) in Vietnam: A Case Study of Hospital of Ho Chi Minh City Medicine and Pharmacy University Project By Do Cao Hai Ninh Supervisor: Dr. Chotchai Charoenngam
Project Features Affecting Project Culture and Performance in Construction Projects By Denny Ervianto Supervisor: Dr. Bonaventura H.W. Hadikusumo	Sub-Contract Managemen: A Case Study of Waste Water Treatment Plant in Long Duc Industrial Park Project By Le Minh Khoa Supervisor: Dr. Bonaventura H.W. Hadikusumo	Project Development Risks in Planning and Design: A Case Study of PTSG Hotel Complex, Hanoi, Vietnam By Le Thi Thanh Ha Supervisor: Dr. Bonaventura H.W. Hadikusumo
ERP System for Wood Working Project: Application in Danh Moc Company By Nguyen Chanh Phuong Supervisor: Dr. Bonaventura H.W. Hadikusumo	Project Organizational Structure and Governance of a Real Estate Developer: A Case Study of Housing and Urban Development Corporation (HUD Corporation) By Le Quang Trung Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Contractor's Contractual Risks Management in the Lancaster Hanoi Project By Tran Quang Nam Supervisor: Dr. Bonaventura H.W. Hadikusumo
Quality and Schedule Management of a Project: A Case Study of Owner's Quality Management during the Building Period By Pham Dang Dung Supervisor: Dr. Chotchai Charoenngam	Adoption of Overall Cost Leadership Strategy for Interior Decoration Contractors in Vietnam By Nguyen Quoc Binh Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Design Review for Construction Project Quality Management: A Case Study of VIETCOMBANK Tower Project By Huynh Ngoc Phat Supervisor: Dr. Bonaventura H.W. Hadikusumo
Project Quality Management of Owners during Construction Phase: A Case Study of Anh Thuy Clinic Project By Pham Quoc Anh Supervisor: Dr. Djoen San Santoso	Contract Management at Jabil Vietnam Project By Dat Tan Bui Supervisor: Dr. Bonaventura H.W. Hadikusumo	The Owner's Project Quality Management in a Hydropower Plant Project: A Case Study of Bac Ha Hydropower Plant Project By Doan Manh Hung Supervisor: Dr. Bonaventura H.W. Hadikusumo
Real Estate Project Development and Management: A Case Study of Garden Villas in Con Khuong Island By Tran Phuong Thanh Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Vietnam Government's Laws and Regulations Affecting Project Safety Management in Building Projects: A Case Study of SC VIVO Project By Pham Quang Vu Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Project Owner's Quality Management System: A Case Study of Azura, a Luxury Department Project By Tung Ba Dinh Supervisor: Dr. Bonaventura H.W. Hadikusumo
Cost Overruns and Cost Control during Construction Stage in Vietnam: A Case Study of a Housing Project By Dong Chi Thai Viet Supervisor: Dr. Bonaventura H.W. Hadikusumo Co-chairperson: Dr. Oulawan Kulchartchai	Quality Management System for Design: A Case Study of Job Information and Vocational Training for the Youth Center in Can Tho City Project By Nguyen Kim Thu	Caustive Factors Leading to Cost Overrun in EPC Processing Projects: A Case Study of Dinh Vu Polyester Plant Project in Vietnam By Hoang Chi Kien

Supervisor: Dr. Bonaventura H.W.
Hadikusumo

3.4 SET – GEOTECHNICAL AND GEOTECHNICAL EARTH RESOURCES ENGINEERING FIELD OF STUDY



3.4.1 Introduction

The Geotechnical and Earth Resources Engineering field of study (GTE) provides with the education and training on the following areas of specializations, i.e., Soil Engineering, Engineering and Applied Geology, Geoenvironmental Engineering and an interdisciplinary program of Geoexploration & Petroleum Geoengineering (GEPG). Besides the traditional areas of engineering geology and soil engineering such as foundation engineering, earth structures, underground excavations, land subsidence, and landslide mitigations, geotechnical engineers and researchers are increasingly involved in areas of ground improvement, geosynthetic engineering, land reclamation, lightweight materials and forensic geotechnical engineering. Further-more, geotechnical engineers are increasingly challenged to solve environmental problems related to the reduction of construction wastes, provision of efficient waste disposal facilities, clean-up of contaminated sites as well as geological related hazards such as landslides and soil erosion. To meet the increasing demands of the region in finding new mineral and energy resources, since 2001 a new interdisciplinary area of specialization in Geosystem Exploration and Petroleum Geoengineering has been setup for development of human resources to serve the mining industry and especially

the upstream sector of oil and gas exploration and production (E & P). In accommodating these requirements, the courses in the field have been enhanced to equip geotechnical and exploration engineers not only with traditional knowledge of soil mechanics and geology but also with skills in hydrogeology, geochemistry, petroleum engineering, and engineering and exploration geophysics. Since 2008 the field had successfully opened and operated two professional programs in Geoexploration & Petroleum Geoengineering (PME-GEPG) and Geotechnical Engineering & Management (PME-GEM), respectively, in HCM City and Hanoi to meet the increasing demands of Vietnam in these areas.

3.4.2 Research Facilities and Laboratories

The Geotechnical Laboratory can be boasted as one of the most equipped geotechnical laboratories in the region with more than 30 years of experience in both soil and rock testing. The laboratory, which offer technical services on testing and research on the engineering behavior and properties of soil and rock; geologic mapping; environmental geophysical surveys; and testing of geosynthetic materials conducted by ACSIG, consists of six (6) sections, i.e., *Soil Mechanics, Rock Mechanics, Engineering Geology, Geo-*

xploration & Petroleum Geoengineering (GEPG), Geophysics, and Geoenvironmental Engineering.

Soil Mechanics Laboratory

The Soil Mechanics Laboratory has facilities for testing and research on the engineering behavior and fundamental properties of soil. It is equipped to test compaction, seepage, compressibility, deformation and shear strength, soil dynamics, and ground improvement.

Among other equipment, it has an automatic Central Data Acquisition System (CDAS) and two temperature-controlled rooms that house triaxial and consolidation equipment. Its field operation unit has a full range of tools for sampling soils and rocks and field test equipments for vane tests, Dutch cone tests, piezocone tests, pressuremeter tests, screw plate tests, electric logging, and vibration measurements.

Rock Mechanics Laboratory

The Rock Mechanics Laboratory has facilities to determine a variety of the physical and mechanical properties of rocks and rock aggregates required for research and practice.

Moreover, the laboratory is capable of determining hardness, swelling and slake durability index properties of weak rocks. The laboratory has provided

testing services to a large number of infrastructure projects in the region.

Engineering Geology Laboratory

The Engineering Geology Laboratory has facilities for research on the engineering behavior and fundamental properties of rocks and minerals.

It provides classification and characterization tests for rock and minerals including petrographic and X-ray diffraction studies. It has stereoscopes, radial line planimetric plotter, stereo-sketch and sketch masters for analysis and interpretation of airphotos as applied to mineral explorations, transportation route studies, forestry, and civil engineering.

Geophysics Laboratory

The Geophysics Laboratory is being developed for training and researches in Geosystem Exploration and Petroleum Geoengineering. It has a number of seismic, electric, magnetic and radiometric instruments, including some of the most advanced equipment such as G-856AX PROTON MAGNETOMETER, GRADIOMETER, GEODE SEISMIC SYSTEM and SYSCAL R1 Plus (IRIS Instruments), an all-in-one multi-electrode resistivity and induced polarization (IP) imaging system.

The Laboratory is capable of conducting and assisting in geophysical field surveys for engineering, environmental applications, mineral and groundwater resources, as well as in performing analysis, interpretation and visualization of geophysical data acquired.

Geoexploration and Petroleum

Geoengineering Laboratory

This new laboratory unit hosts high-capacity computers installed with very specialized software used in the upstream sector of petroleum E&P industry, notably with the well-known software for subsurface exploration, petrophysical characterization and reservoir simulation such as Petrel,

Techlog, Eclipse, Pipesim, PetroMOD etc. which are worth of more than 2 million USD as donated by Schlumberger to AIT.

Geoenvironmental Laboratory

The Geoenvironmental Laboratory provides a variety of equipment for geoenvironmental engineering research. It has equipment for geotechnical and chemical analysis that supports research in fundamental processes related to soil, water and chemical interactions that are applied to site and risk assessment, waste containment systems, and remedial technology. The chemical analysis equipment, spectrophotometer, from which the ion concentration can be determined with good accuracy and precision, enables research on soil-contaminant interaction.

Flexible wall permeameter, rigid wall permeameter and consolidation cell with permeameter are used to analyze water and chemical migration through waste containment systems. While the electrokinetic cell with advanced monitoring and controlled system is utilized for research in site reclamation and site remediation.

3.4.3 Faculty and Research Staff

Emeritus Professor

A S BALASUBRAMANIAM, BSc, Ceylon Univ, Sri Lanka; PhD, Cambridge Univ, UK

Full-time Faculty

NOPPADOL PHIEN-WEJ, BEng, Chulalongkorn Univ, Thailand; MS, PhD, Illinois at Urbana-Champaign, USA.

Associate Professor (*Tunnelling and underground excavations in rocks and soils; Slope stability and retaining structures; Landslides; Earth structures and dams; Pile foundations; Buried pipes and culverts*)

PHAM HUY GIAO, DEng, MEng, Asian Institute of Technology, Thailand; Dipl

Ing (MSc), Bucharest University, Romania

Associate Professor (*Exploration and Engineering Geophysics; Petrophysics; Geotechnical Engineering; Computer-aided Analysis in Geoengineering*)

3.4.4 Grants and Sponsored Research Completed in 2013

PME in Geotechnical Engineering and Management in Hanoi, Vietnam (PME-GEM HN01)

Duration: 1-Feb-12 to 30-Jun-13
Project Investigator(s): Dr. Pham Huy Giao
Sponsor: FECON and other Geotechnical Companies in Vietnam
Total Contracted Amount (THB) 2,951,286

PME in Geotechnical Engineering and Management in Hanoi Vietnam

Duration: 1-Feb-12 to 30-Jun-13
Project Investigator(s): Pham Huy Giao, Noppadol Phien-Wej
Sponsor: FECON and other geotechnical companies in Vietnam
Total Contracted Amount (THB) 2,892,000

PME in Geoexploration and Petroleum Geoengineering PME GEPG 04

Duration: 1-Aug-11 to 28-Feb-13
Project Investigator(s): Pham Huy Giao, Noppadol Phien-Wej
Sponsor: Siam City Cement Public Co Ltd
Total Contracted Amount (THB) 4,031,496

Professional Masters Program in Geotechnical Engineering and Management

Duration: 1-Aug-11 to 30-Jan-13
Project Investigator(s): Pham Huy Giao, Noppadol Phien Wej, D Bergado
Sponsor: University of Kyoto
Total Contracted Amount (THB) 3,379,500

3.4.5 On-going Grants and Sponsored Research

PME in Geotechnical Engineering and Management in Hanoi, Vietnam (PME-GEM HN02)

Duration: 15-Feb-13 to 30-Dec-14
 Project Investigator(s): Dr. Pham Huy Giao and Dr. Noppadol Phien-wej
 Sponsor: FECON and other Geotechnical Companies in Vietnam
 Total Contracted Amount (THB) 3,165,000

PME in GeoExploration & Petroleum Geoengineering (PME-GEPG05)

Duration: 10-Jan-12 to 1-Mar-14
 Project Investigator(s): Pham Huy Giao,
 Sponsor: Oil and Gas Company in VN
 Total Contracted Amount (THB) 3,216,105.75

3.4.6 Publications

International Journal Articles with Impact factor

Kaewkongkaew, K., Phien-wej, N., Harnpattanapanich, T., & Sutiwanich C. (2013), Geology Model of Mae Tang – Mae Ngad Diversion Tunnel Project, Northern Thailand. *Open Journal of Geology* (OJG, ISSN: 2161-7589)

Kaewkongkaew, K., Phienweij, N. and Kam-ai, D. (2014), Prediction of Rock Mass along Tunnels by Geostatistics, *KSCE Journal of Civil Engineering* (In print)

Muradi, S., Phien-wej, N. & Pham Huy Giao (2013), Depletion of Water Resources, Issues and Challenges of Water Supply Management in Mazar-i-Sharif City, Afghanistan, *Research Journal of Environment and Earth Sciences*, Maxwell Scientific Organization (Maxwell Science publication), Code: 9230-RESJE- RJEES

Sabirullah Muradi, Noppadol P. and P. H. Giao (2013), Preliminary Engineering geological mapping of Mazar-i-Sharif City, Afghanistan, *Journal of Environmental Earth Sciences*. Semi-monthly, ISSN: 1866-6280 Springer, NY, USA.

Sabirullah Muradi, Noppadol P. and P. H. Giao (2013), Depletion of Water Resources, Issues and Challenges of Water Supply Management in Mazar-i-Sharif City, Afghanistan, *Research Journal of Environmental and Earth Sciences*, Maxwell Science Publisher.

Conference Publications

Cheang, W., Phienweij, N. and Amornfa, K. (2013), Optimisation of a Piled-Raft Foundation System via 3D FEM, Proc. Interantional Conference on Geotechnics for Sustainable Development - Geotec Hanoi 2013, Phung (editor), Hanoi, Vietnam

Giao, P. H. and H. Hiep (2013), Parametric study for settlement analysis of soft clay improved by PVD and vacuum at a site in the Sai Gon - Dong Nai river delta, Viet Nam, *Proc. The 2nd Intl' Conference on Geotechnics with Sustainable Development "Geotech Hanoi 2013"*, 28-29 November 2013, Hanoi, Vietnam

Giao, P. H., T. Paveechana and K. Saowiang (2013), Consolidation Settlement Analysis with reference to groundwater recovery in the Bangkok Multi-aquifer system, p. 567-573, *Proc. 1st Southeast Asian Geotechnical Conference cum Inaugural AGSSEA Conference, Advances in Geotechnical Infrastructure*, Ed. by C. F. Leung, S. H. Goh and R. F. Shen, Research Publishing, Singapore.

Krit S. & P. H. Giao (2013), An overview on the effect of groundwater recovery on subsoil structures in some megacities, Comparison of geotechnical properties of soft clays at different sites in Mekong delta, *Proc. EIT-JSCE Joint Intl' Symp. on International Human Resource Development for Disaster-resilient Countries*, Sept. 12-13, 2013, Imperial Queen's Park Hotel, Bangkok, Thailand.

Iyaruk, A. and Phien-wej, N. (2013), Geotechnical Aspects of Landslide and Debris Flow at Khao Panom, Krabi, Southern Thailand, Proc. 4th International Symposium Thai Rocks, Nakorn Ratsima, Thailand

Phienweij, N. (2013), Risk in underground construction and lessons learnt from incidents of collapse cases, A Geotechnical Seminar, Annual National Engineering Convention of Thailand, Engineering Institute of Thailand, Impact, Bangkok.

Phienweij, N. (2013), Causes and Mitigations to Problems of river bank instability in Central Chao Phraya Plain, Proc. of EIT-JSCE Joint International Symposium on International Human Resource Development for Disaster-Resilient Countries 2013, September 12 - 13, 2013, Bangkok

Phienweij, N. (2013), Coastal and river bank erosion problems in Thailand, Keynote lecture, Proc. of International Symposium Hanoi Geoengineering 2013, Natural Resources Engineering and Disaster Mitigation for Infrastructure Development, 17-19 October 2013, Hanoi, Vietnam

Phienweij, N. (2013), Experiences in soft ground tunnelling in Bangkok, Proc. Interantional Conference on Geotechnics for Sustainable Development - Geotec Hanoi 2013, Phung (editor), Hanoi, Vietnam

Phienweij, N. (2013), Risk in Tunnel Construction And Lessons Learnt From Incidents Of Collapse In Urban Areas, Proc. International Workshop on the Risk Management in Urban Underground Construction, Le Quang Hanh (Ed), 16 October 2013, Hanoi, Vietnam,

Phienweij, N. (2013), Tunnelling and deep excavations in Bangkok, Prof. Soil and Foundation International Seminar, Thai Geotechnical Society with support from International Society of Soil Mechanics and Geotechnical Engineering, 28 February, 2013, Bangkok, Thailand.

Phienweij, N., Amornfa, K. and Kitpayuck, P. (2013), Current practice on foundation design of tall buildings in Bangkok, Proc. Interantional Conference on Geotechnics for Sustainable

Development - Geotec Hanoi 2013, Phung (editor), Hanoi, Vietnam

Phienwej, N., Giao, P.H. and Weesakul, S. (2013), Current situation on river and coastal erosion problems in Thailand, Prof., Post GCOE Meeting on Collaborative Research Works 22 December 2013, Jin-yu Hall, Kyoto University, Japan

Thoang, T. T. & P. H. Giao (2013), Comparison of geotechnical properties of soft clays at different sites in Mekong delta, *Proc. EIT-JSCE Joint Intl' Symp. on International Human Resource Development for Disaster-resilient Countries*, Sept. 12-13, 2013, Imperial Queen's Park Hotel, Bangkok, Thailand.

Wiwattanachang N. and P. H. Giao (2013), Time-dependent Measurements of Electrical Resistivity and Compressive Strength of a Hardening Concrete, *Proc. Intl' Symp. on the Fusion Technologies between Korea and Thailand*, The ISFT, 1-3 Aug. 2013, jointly conducted by Rajamangala Univ., RMUTSB (Thailand) and Gyeonsang International University (Korea).

3.4.7 Doctoral Students' Theses

Sustainable Method for Slope Stabilization and Erosion Control
By Jindarat Maneecharoen
Supervisor: Prof. Dennes T. Bergado

Modified Limited Life Woven Geotextiles (LLGs) Made of Natural Fiber for Soil Erosion Control and Soil Reinforcement
By Suthasinee Artidteang
Supervisor: Prof. Dennes T. Bergado

Engineering Geology for Sustainable Development of Mazar-I-Sharif City, Afghanistan
By Sabirullah Muradi
Supervisor: Dr. Noppadol Phien-wej

Laboratory and Field Behavior of Reinforced Wall/Embankment Using Various Reinforcement and Facing Systems
By Sowarapan Duangkhae

Supervisor: Prof. Dennes T. Bergado

3.4.8 Masters Students' Theses

Review of Road Tunnel Underpass in Thailand
By Sara Kanyalong
Supervisor: Dr. Noppadol Phien-wej

Assessment of HPHT oil Well Cement Mixed with Additives using Resistivity Measurement
By Nutthapon Piriyananusanorn
Supervisor: Dr. Pham Huy Giao

Evaluation of Material Balance Methods for OGIP Estimation of Water-Drive Dry-Gas Reservoirs
By Dr. Pham Huy Giao
Supervisor: Prof. Dennes T. Bergado
Co-chairperson: Dr. Suwat Athichanagorn

Formation Evaluation and Reservoir Characterization in the Phrae Sub Basin
By Rattanaporn Rattanabunlang
Supervisor: Dr. Pham Huy Giao

Petrophysical Modeling for the Miocene Sand in the South Fang Basin
By Chaulwarin Sakulluangaram
Supervisor: Dr. Pham Huy Giao

Interpretation of 3D Seismic Data for the Chaiprakarn Field in Southern Fang Basin
By Monthathip Kosolpinete
Supervisor: Dr. Pham Huy Giao

Simulation of Enhanced Gas Recovery with Various Conditions for Water-Drive Gas Reservoirs
By Wisarut Puttaraseree
Supervisor: Dr. Pham Huy Giao
Co-chairperson: Dr. Suwat Athichanagorn

Applicability of Material Balance Method for OHIP Estimation of Multi-layered Reservoirs having Different Gas Condensate Composition
By Juthaporn Densirimongkol
Supervisor: Dr. Pham Huy Giao
Co-chairperson: Dr. Suwat Athichanagorn

Reanalysis of Full Scale Test Embankment with Polymer and Metallic Reinforcement on Hard Ground Using FEM-PLAXIS 2D

By Sailesh Shrestha
Supervisor: Prof. Dennes T. Bergado

Engineering Analysis for Bank Protection Structure in Upper Chao Phraya River Zone
By Piyapat Vara-asvapati
Supervisor: Dr. Noppadol Phien-wej

Analysis and Simulation of Flood and Erosion Protection Design Using the PLAXIS 2D and Slide Programs
By Nachanok Chanmee
Supervisor: Prof. Dennes T. Bergado

An Overview of Subsoil Condition and Foundation Practice in Kandahar City, Afghanistan
By Abdul Bari Jahed
Supervisor: Dr. Noppadol Phien-wej

Petroleum System Modeling for the Northern Pattani Basin
By Klaonapa Himapanich
Supervisor: Dr. Pham Huy Giao

A Comparative Well Log Analysis for Two Miocene Clastic Reservoirs in the Pattani and Cuu Long Basins
By Aunchalee Kongrukksa
Supervisor: Dr. Pham Huy Giao
Assessment on Applicability of Sequential Tunnel Excavation in Bangkok Soil by means of Numerical Analysis
By Muhammad Usman Tahir
Supervisor: Dr. Noppadol Phien-wej

An Expeditive Tool to Identify Reservoir Fluids Using Downhole Fluid Analyzer Data
By Juthamas Wongprachanukool
Supervisor: Dr. Pham Huy Giao

Optimization of Simultaneous production from Two Gas Fields in Nam Con Son Basin with Consideration of Water Coning
By Nguyen Quang Hoa
Supervisor: Dr. Pham Huy Giao

Estimation of Water Saturation using Height-Function for Gas Reservoir in a Carbonate Build up, Nam Con Son Basin

By Chau Dang Khoa
Supervisor: Dr. Pham Huy Giao

Settlement Analysis and Stability Control Diagram for an Embankment Constructed on Mekong Delta Soft Ground Improved by PVD

By Nguyen Duc Dung
Supervisor: Dr. Pham Huy Giao

Geotechnical Characteristics of the Soil Cement Mixture and Settlement Analysis for the Tan Son Nhat Binh Loi Outerring Road

By Bui Minh Tuan
Supervisor: Dr. Pham Huy Giao

Review and Evaluation of Foundation Curtain Grouting at Srepok 3 Dam

By Pham Vo Nguyen Truong
Supervisor: Dr. Noppadol Phien-wej

Assessment of Horizontal Consolidation Coefficient for the Thai Binh Clay Using CPTu and CRS Data

By Do Ngoc Phong
Supervisor: Dr. Pham Huy Giao

Numerical Analysis on Benefit of Jet Cement Grouting in Ground Movement Control in Tunnelling in Metro Line in Ho Chi Minh City

By Nguyen Van Thanh
Supervisor: Dr. Noppadol Phien-wej

Back Analysis of Soil Stiffness Parameters for Deep Excavation in Hanoi

By Nguyen Viet Hoa
Supervisor: Dr. Noppadol Phien-wej

Field Behavior of Diaphragm Wall at Golden Palace Building Excavation in Hanoi, Vietnam

By Nguyen Van Tuan
Supervisor: Dr. Noppadol Phien-wej

Determination of Nkt Cone Factor for the Clay Layer Beneath the Thai Binh Thermal Power Plant

By Nguyen Tuan Anh
Supervisor: Dr. Pham Huy Giao

Prediction of Porosity by ANN Analysis Integrating Well Log and Seismic Attribute Data for an Oil Field in the Cuu Long Basin, Offshore Vietnam

By Do Van Thanh
Supervisor: Dr. Pham Huy Giao

Comparison of Petrophysical Characteristics of Miocene and Oligocene Reservoirs in the Cuu Long Basin

By Vuong Thi Ha
Supervisor: Dr. Pham Huy Giao

3D Facies Modeling for Clastic Reservoirs, Orinoco Heavy Oil Belt (La Faja Del Orinoco), Venezuela

By Duong Tan Da
Supervisor: Dr. Pham Huy Giao

Geological Modeling of the Miocene Sand with Reference to OIIP Estimation for Gau Trang Field, Cuu Long Basin

By Le Minh Hai
Supervisor: Dr. Pham Huy Giao

3.5: SET – INDUSTRIAL AND MANUFACTURING ENGINEERING FIELD OF STUDY



3.5.1 Introduction

Industrial and Manufacturing Engineering field of study prepares students for manufacturing management and decision support positions in industry and public sector, by equipping them with a broad range of decision making skills for a variety of applications. The IME curriculum reflects the objective of imparting fundamental knowledge to develop the ability to address complex industrial issues, emphasizing on how to design, operate, control, and optimize the production systems.

3.5.2 Research Facilities and Laboratories

IME field shares all the laboratory facilities with Mechatronics and Microelectronics and Embedded Systems fields of study. There are several well equipped laboratories with the primary function of supporting the students and faculty for teaching and research and to conduct outreach programs.

Computer Integrated Manufacturing (CIM) Laboratory

The Computer Integrated Manufacturing (CIM) laboratory was officially inaugurated on September 23, 1991. It provides the hardware and software support for Industrial Systems Engineering. Many research activities have been

carried out in close collaboration with industry and government sectors in the areas of Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Computer Numerical Control (CNC), Rapid Prototyping (RP) and Medical Technology. The CIM Laboratory also provides specialized training and consultancy services in CAD, CAM, CNC Machining, Reverse Engineering, Rapid Prototyping, Packaging Technology, Flexible Manufacturing Systems [FMS], and Development of Postprocessor for 5-axis CNC.

The CIM Laboratory is equipped with available CAD/CAM software includes UNIGRAPHICS NX4, Master CAM 9.1, Mechanical Desktop 6, AutoCAD Inventor Series, SolidWorks 2005, CAM 2000, Mimics 6.3 & Magic 5.4.

Metrology Laboratory

Metrology Laboratory provides the hardware and software support for teaching and research activities in Industrial Systems Engineering. Metrology Laboratory is equipped with Measuring Instruments (Zeiss CMM, Mitutoyo Profile Projector, Taylor Hobson Surface Roughness Tester, Lab View Hardware & Software).

Simulation Laboratory

This lab is equipped with networks of Pentium PC for general applications and internet access, high end CAD/CAM & Simulation software such as ARENA and

AutoMOD. In addition, a high performance computer facility with parallel cluster is also available for research use.

3.5.3 Faculty and Research Staff

Full-time Faculty

VORATAS KACHITVICHYANUKUL, BS, Natl Taiwan Univ; MEng, AIT, Thailand; PhD, Purdue Univ, Indiana, USA.

Professor (Simulation; ERP; Scheduling, Metaheuristics; Parallel Computing) [Planning and Scheduling Systems; Enterprise Resource Planning Systems; Supply Chain Modeling and Analysis; Discrete Event Simulation Software Development; Manufacturing System Simulation; Manufacturing Decision Support Systems; Just-in-Time Manufacturing System]

MARIO T TABUCANON, BSEE, BSME, Cebu Inst of Tech, Philippines; MEng, DEng, AIT, Thailand.

Professor (Multiple Criteria Decision Making; Operations and Production Management; Operations Research; Project Management; Systems Modeling)

ERIK L J BOHEZ, Burgerlijk Werktuig Kundig Electro- TechnischIngenieur, RijksUniversiteit Gent (State University Ghent, Belgium); Kandidatuur BurgerlijkIngenieur, RijksUniversiteit Gent

(State University Ghent, Belgium); TechnischIngenieur Electro-Mechanica, HogerTechnischInstituutSint Antonius Gent, (High Technical Institute Saint Antonius Ghent; Belgium).

Associate Professor(*Computer Aided Design; Computer Aided Manufacturing; Computer Graphics; Computer Numerical Control; Five Axis Machining; Robust Control; Simulation of Metal Removal; [CNC/CAD/CAM ; Mold and Die Design, Eco-Design, Biomechanics, Industrial Packaging]*)

HUYNH TRUNG LUONG, BEng, Ho Chi Minh City Univ of Tech, Vietnam; MEng; DEng, AIT, Thailand.

Associate Professor(*Emergency inventory policies and inventory policies for perishable products; Supply chain design; Measures of bullwhip effect in supply chains; Availability-based and reliability-based maintenance; Fuzzy quality control charts; Statistical design of experiments; Network flows related problems]*)

PISUT KOOMSAP, BEng, Thammasat Univ, Thailand; MSc, Univ of Louisville; PhD, Pennsylvania State Univ, USA

Associate Professor (*Sensing and Control for Manufacturing Processes and Systems; Laser Applications in Manufacturing; Rapid Prototyping; Condition-Based Maintenance; Continuous Improvement*) [*Rapid Prototyping; Sensing and Control for Manufacturing Processes and Systems; Laser Applications in Manufacturing; Condition- Based Maintenance; Continuous Improvement*]

Visiting Faculty

Dr. Indrajit Mukherjee, Ph.D. in Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India.

Visiting Assistant Professor, currently Assistant Professor in the Shailesh J. Mehta School of Management, IIT Bombay.

Dr. Sounak Kumar Choudhury, Ph.D. in Manufacturing Science in Mechanical Engineering, Lumumba University, Moscow, Russia.

Visiting Professor, currently Professor in the Mechanical Engineering Department of the Indian Institute of Technology (IIT) Kanpur, India

3.5.4 Grants and Sponsored Research Completed in 2013

Product Design & Development for Nawaplastic Industries

Duration: 25-Jul-2011 to 24-Dec-2013
Project Investigator (s): Dr. Pisut Koomsap

Sponsor: The Nawaplastic Industries (Saraburi) Co.,Ltd.
Total Contracted Amount (THB): 120,000

The 13th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2012)

Duration: 1-Jun-2012 to 31-Dec-2013
Project Investigator (s): Prof. Voratas Kachitvichyanukul

Sponsor: Industrial/Universities
Total Contracted Amount (THB): 1,000,000

Life Cycle Assessment Fine Paper

Duration: Jun-2008 to May-2013
Project Investigator (s): Ir. Erik L.J. Bohez

Sponsor: Double A
Total Contracted Amount (THB): 1,275,000

Project on Human Resource Development in Multi-Axis CNC Machining for EGAT

Duration: Feb-2007 to May-2013
Project Investigator (s): Ir. Erik L.J. Bohez

Sponsor: Electricity Generating Authority of Thailand
Total Contracted Amount (THB): 750,000

Professional masters degree program in IEM & ISCM in Hochiminh City Vietnam

Duration: 1-Jun-2012 to 30-May-2013
Project Investigator (s): Huynh Trung Luong

Sponsor: PM IEM & ISCM
Total Contracted Amount (THB): 4,338,000

3.5.5 On-going Grants and Sponsored Research

Optimal Design of Turbine Geometry for Small Hydroelectric Power Plant of PEA

Duration: May-2012 to May-2014
Project Investigator (s): Ir. Erik L.J. Bohez
Sponsor: Provincial Electricity Authority
Total Contracted Amount (THB): 12,762,000.00

3.5.6 Publications

International Journal Articles with Impact factor

Refereed Journals

Aziz M.H., Bohez E., Kanda Y., Hibino H., Sakuma T (2013). Bottleneck oriented card-based production control for push repetitive manufacturing systems. *Journal of Advanced Mechanical Design, Systems and Manufacturing*, Vol 7 ISBN 18813054

Aziz,M.H., Bohez, E.L.J., Pisuchpen, R., and Parnichkun M., (2013). Petri Net model of repetitive push manufacturing with Polca to minimise value-added WIP, *International Journal of Production Research*,DOI:10.1080/00207543.2013.765073.

Dang, L.V., Luong, H.T., Claudiu, C.V., and Achim, M. (2013). The impact of inventory sharing on the bullwhip effect in decentralized inventory systems. *Logistics Research*, Vol 6, No. 2-3, 89-98

Kasi, J.K., Kasi, A.K., Afzulpurkar, N., Bohez, E.L.J., and Poyai, A., (2013). Bending Behavior of Nanochannels in the Edges of Anodic Aluminum Oxide Membrane, *Advanced Science, Engineering and Medicine*, Vol. 5, No. 3, pp. 239-244

Koomsap, P., and Chansri, N., (2014). Topological Hierarchy-Contour Tracing

- Algorithm for Nests of Interconnected Contours, *International Journal of Advanced Manufacturing Technology*, Volume 70, Issue 5, 2014, pp.1247-1266, DOI:10.1007/s00170-013-5330-1
- Lumsakul, P., and Luong, H.T. (2013).** Development of a Composite Revenue Sharing- Quantity Flexibility Contract. *Industrial Engineering and Management Systems*, Vol 12(3), 223-232.
- Nakthewan, K., and Koomsap, P., (2013).** Direct Contour Generation for Structured Light System-Based Selective Data Acquisition, *Virtual and Physical Prototyping* Vol. 8, Issue 2, pp. 135-163, DOI:10.1080/17452759.2013.806865
- Phonsuwan, S., and Kachitvichyanukul, V., (2013).** Simulation for OTOP Supply Chain with Hybrid Push Pull Flow Control, *Journal International Journal of Services and Operations Management*, Vol. 15, No. 2, pp. 196-214. DOI 10.1504/IJSOM.2013.053645.
- Saithong, C. and Luong, H.T. (2013).** Supply Chain Contract with Put and Call Option: the Case of Non-Linear Option Premium Price. *Industrial Engineering and Management Systems*, Vol 12(2), 85-94.
- Senjuntichai, A., and Luong, H.T., (2013).** The Research, Development and Acquisition Selection Policies, *Advanced Science Letters*, Vol. 19, No.1, pp. 252-259.
- Thang, P.M. and Luong, H.T. (2013).** Translating Preferred Subtheories into Structured Argumentation. *Journal of Logic and Computation*, (accept).
- Thien, N.P., Luong, H.T., Khang, D.B. and Sukhotu, V. (2013).** Revenue Sharing Contract with Two-Way Penalties. *International Journal of Operational Research*, (accepted)
- Trinh, T.H., and Kachitvichyanukul, V., (2013).** An Analytical Framework for the Design of Service Delivery Systems: A Co Production Approach, *International Journal of Operational Research*, Vol. 17, No.1, pp. 125-144. DOI 10.1504/IJOR.2013.053190.
- Trinh, T.H., Kachitvichyanukul, V., and Khang, D.B., (2013).** The Co-Production Approach to Service: A Theoretical Background, *Journal of the Operational Research Society*, pp. 1-8, DOI: 10.1057/jors.2012.183.
- Trinh, T. H., and Kachitvichyanukul, V., (2013).** A Unified Framework for the Design of Service Systems, *International Journal of Services and Operations Management*, Vol.15, No.3, pp.374-388, DOI: 10.1504/IJSOM.2013.054448
- Wisittipanich, W., and Kachitvichyanukul, V., (2013).** An Efficient Particle Swarm Optimization for Finding Pareto-Frontier in Multi-objective Job Shop Scheduling Problems, *Industrial Engineering and Management Systems*, Volume 12, Number 2, pp 151-160.
- Wongwiwat A., Bohez E.L.J., Pisuchpen R. (2013).** Production scheduling for injection molding manufacture using Petri Net model. *Assembly Automation*. Vol 33 ISBN 1445154
- Conference Publications**
- Auyson, K., Koomsap, P., Chanthakulchan, A., and Supaphol, P.,** Investigation of Applying Electrospinning in Fused Deposition Modeling for Scaffold Fabrication, *High Value Manufacturing: Advanced Research in Virtual and Rapid Prototyping: Proceedings of the 6th International Conference on Advanced Research in Virtual and Rapid Prototyping*, Leiria, Portugal, 1-5 October, 2013, pp. 149 154.
- Chansri, N., and Koomsap, P.,** Supporting Rapid Product Development with Sketch-Based Modeling, *Advances in Production Management Systems. Sustainable Production and Service Supply Chains*, IFIP Advances in Information and Communication Technology, Vol. 415, pp 270-277
- Fauzi, Sa'dilah, Bohez, E.L.J., (2013)** Life cycle assessment of lele Catfish (*Clarias gariepinus*) farming in Bogor Regency, Indonesia, The 2nd Environment Asia International Conference.
- Jewpanya, P., and Kachitvichyanukul, V.,** General Model for Cross-Docking Distribution Planning Problem with Time Window Constraints, *Proceedings of the Institute of Industrial Engineers Asian Conference 2013*, pp89-102
- Kunnapadeelert S., and Kachitvichyanukul, V.,** Differential Evolution Algorithm for Generalized Multi-Depot Vehicle Routing Problem with Pickup and Delivery Requests, *Proceedings of the Institute of Industrial Engineers Asian Conference 2013*, pp749-756
- Kunnapadeelert, S., and Kachitvichyanukul, V.,** Solving Multi-depot Vehicle Routing Problem with Pickup and Delivery Requests via Differential Evolution, *International Conference on Intelligent Manufacturing and Logistics*, Shanghai, China, February 2013.
- Lestari, R.L., Bohez, E.L.J. Ciptomulyono, U. Perret, S.R.(2013)** Life Cycle Assessment of Sugar from Sugarcane: A case Study of Indonesia, 2nd ASEAN ACADEMIC SOCIETY International Conference , 4-5 November 2013, AASIC 2013.
- Liu, J., and Kachitvichyanukul, V.,** A New Solution Representation for Solving Location Routing Problem via Particle Swarm Optimization, *Proceedings of the Institute of Industrial Engineers Asian Conference 2013*, pp103-110
- Nanda S.S., Boonchu C., Chimpalee T., Bohez, E.L.J. Dash T.,** Dash, P. Patnaik S.K. Cradle-to-Grave LCA of Fine Printing Paper: A Case Study in Thailand. *International Conference on Advanced Research in Mechanical, Electrical and Computer Engineering*, 24-26th March 2013, Bangkok.
- Senanan, P., Chansri, N., and Koomsap, P.,** Investigation of Process Condition for Constructing Plaster of Paris Part with Selective Vacuum Manufacturing, *High Value Manufacturing: Advanced Research in Virtual and Rapid Prototyping: Proceedings of the 6th*

International Conference on Advanced Research in Virtual and Rapid Prototyping, Leiria, Portugal, 1-5 October, 2013, pp. 101-105.

Thienhirun, S. and Koomsap, P., Application of Design by Customer in Tile Decoration Business, the Advances in Production Management Systems. Sustainable Production and Service Supply Chains, IFIP Advances in Information and Communication Technology, Vol. 415, pp 202-209

Wisittipanch, W., and Kachitvichyanukul, V., A Pareto-Based Differential Evolution Algorithm for Multi-Objective Job Shop Scheduling Problems, Proceedings of the Institute of Industrial Engineers Asian Conference 2013, pp1117-1126

3.5.7 Doctoral Students' Dissertation

Industrial Engineering and Management

OTOP Management via Supply Chain Simulation: A Case Study
By Seksan Phonsuwan
Supervisor: Prof. Voratas Kachitvichyanukul

Production Scheduling for Injection Molding Manufacture Using Petri Net
By Asawin Wongwiwat
Supervisor: Assoc. Prof. Erik L. J. Bohez

Industrial and Manufacturing Engineering

Card-Based Production Control for Repetitive Manufacturing Systems to Reduce Value Added Work in Process
By Muhammad Haris Aziz
Supervisor: Assoc. Prof. Erik L. J. Bohez

Measure of Bullwhip Effect: The Cases of Dual Sourcing and VAR (1) Demand Process
By Kittiwat Sirikasemsuk
Supervisor: Dr. Huynh Trung Luong

3.5.8 Masters Students Theses and Projects

Industrial and Manufacturing Engineering

Modeling and Simulation of a Micro Hydro Power Plant for Automatic Control and Monitoring
By Rueben Shrestha
Supervisor: Assoc. Prof. Erik L. J. Bohez

Supply Chain Coordination with the Consumer Return Policy
By Nutthanond Liksitpong
Supervisor: Dr. Huynh Trung Luong

Managing Design by Customer with Choice Architecture
By Supimmas Thienhirun
Supervisor: Pisut Koomsap

Identifying Process Conditions for Size Reduction of SVM-Based Scaffolds
By Tanyaluck Rungwiryawanich
Supervisor: Dr. Pisut Koomsap

LCA of A Mixed Bio-Fuel Coal Power Plant: A Case Study in Thailand
By Nattanun Kiatnoravich
Supervisor: Assoc. Prof. Erik L. J. Bohez

Design and Development of an Electrospinning-based Rapid Prototyping System
By Apinya Chanthakulchan
Supervisor: Dr. Pisut Koomsap

Design and Manufacturing of a Micro Hydraulic Francis Turbine: A Case Study at Ban Khun Pae, Thailand
By Choosak Ngaongam
Supervisor: Assoc. Prof. Erik L. J. Bohez

A Spreadsheet Program for Assembly Line Balancing of the Mix-Model Shoe Stitching Line
By Atitaya Saibuathong
Supervisor: Prof. Voratas Kachitvichyanukul

An Optimal Joint Maintenance and Spare Parts Inventory Model
By Parag Jafar Siddique
Supervisor: Dr. Huynh Trung Luong

Life Cycle Assessment of Sugar from Sugarcane: A Case Study of Indonesia
By Rahandini Lukita Lestari
Supervisor: Assoc. Prof. Erik L. J. Bohez

Automatic Mosaic Tiling System Enhancement
By Panitcha Peganant
Supervisor: Dr. Pisut Koomsap

Managing the Consignment Stock with Capacity Constraint on Manufacturer's Warehouse
By Pavin Teeramongkol
Supervisor: Dr. Huynh Trung Luong

A Stochastic Overbooking Model for Outpatient Clinic with No-Shows and Walk-ins
By Thanin Puangmalit
Supervisor: Dr. Huynh Trung Luong

A Study of Container Port Capacity in East Java Province Using System Dynamic Approach
By Putri Amelia
Supervisor: Prof. Voratas Kachitvichyanukul

MASTER OF ENGINEERING (PROFESSIONAL)

(Area of Specialization: Industrial and Supply Chain Management)

Project: Applied Factory Physics in WIP Management-The Case of Intel Products Vietnam
By Tran Duc Binh
Supervisor: Dr. Huynh Trung Luong

Project: Control Chart for Flux Activation Time at 150-190 C at Reflow Procss at Ball Attach Operation at Intel Vietnam Factory
By Vu Nhu Dam
Supervisor: Dr. Huynh Trung Luong

Project: Production and Distribution Planning for Masan Consumer Corporation, Vietnam
By Huynh Ngoc Bao
Supervisor: Dr. Huynh Trung Luong

Project: Analysis of Kanban and Conwip Pull Systems bySimulation in a Semiconductor Factory
By Huynh Quoc Duy
Supervisor: Dr. Huynh Trung Luong

Project: The Spare Parts for Maintenance of Combine Cycle Power Plant of Petrovietnam Power Corporation
By Ma Ngoc Ky
Supervisor: Prof. Voratas Kachitvichyanukul

Project: Construct WIP Model by Applying Factory Physics Concepts: An Integrating Approach
By Le Tri Tin
Supervisor: Dr. Huynh Trung Luong

Project: Spare Part Management at Intel Products Vietnam Co., Ltd.
By Tran Quang Minh
Supervisor: Dr. Huynh Trung Luong

**MASTER OF ENGINEERING
(PROFESSIONAL)**

(Area of Specialization: Industrial Engineering and Management)

Project: Control Chart for Chip Attach Process at Intel Assembly and Test Factory in Vietnam
By Nguyen Tuan Nga
Supervisor: Prof. Voratas Kachitvichyanukul

Project: Modified Shewhart Attribute Control Chart to Detect Defect for High Yield Process
By Ho Ngoc Vy
Supervisor: Prof. Voratas Kachitvichyanukul

Project: Inventory Control Policy for Spare Parts at Phu My 3 Power Plant, Vietnam
By Nguyen Van Dong
Supervisor: Prof. Voratas Kachitvichyanukul

Project: Project Planning and Control for EPCIC Projects of Petro Vietnam
By Phan Thanh Tung
Supervisor: Dr. Huynh Trung Luong

Project: Optimization of Production Scheduling for a Food Processing Factory at Cautre Export Goods Processing Joint Stock Company
By Van Nguyen Thai Binh
Supervisor: Prof. Voratas Kachitvichyanukul

3.6: SET – MECHATRONICS and MICROELECTRONICS & EMBEDDED SYSTEMS FIELDS OF STUDY



3.6.1 Introduction Mechatronics

At present, most academic institutions and industries in the Asian region are only system integrators. Components are procured from more developed countries (e.g. computer numerically controlled machines, robots, and automated guided vehicles) and are integrated as a system (e.g. flexible manufacturing system). To support the growth of the region's economy, expertise not only as system integrators but also as builders of components of advanced technologies must be developed. The growing number of electronic devices and the strong interactions between mechanical and electronic parts no longer permit separate investigations of these components.

Mechatronics provides new insights through an integrated consideration of mechanics, electronics and information technology. The curriculum is designed to provide multidisciplinary knowledge and to develop the ability to design mechatronics systems.

Microelectronics and Embedded Systems

The region's growing industrial sector and the increasing demand for high technologies have brought the need for expertise in microelectronics to a critical

level. The students are prepared to cope with the needs of the electronics industry in the region. The curriculum is equally balanced between the analog and digital design of circuits as well as the processing related topics including failure analysis, suitable for this electronics industrial sector in the region. The curriculum has been designed and constantly adapted in partnership with microelectronics industries and collaborating universities overseas. Miniaturisation of IC and the possibilities of completely new technologies like nanotechnology have also been introduced.

3.6.2 Research Facilities and Laboratories

Mechatronics and Microelectronics and Embedded Systems fields of study share all the laboratory facilities with the Industrial & Manufacturing Engineering field of study. There are several well equipped laboratories with the primary function of supporting the students and faculty for teaching and research and to conduct outreach programs.

Mechatronics and Automation Laboratory

The Mechatronics and Automation laboratory is well equipped with many PLC systems (S5, S7200/300/400, INDRAMAT, BOSCH), distributed control systems (PCS7), operator panels (OP5,

OP17/DP and OP35), a PC-based human machine interface package (WINCC) and networked field buses (PROFIBUS, INTER-BUS and SERCOS). The lab has mobile robots (NOMAD, PIONEER 2), robot arms (CRS), an industrial robot (KUKAKR15), a self-made open architecture CNC machine, CNC control systems (MTC200, SINUMERIK 8100/8400), image processing systems (DVT, MATROX) and FPGA's (XILINX-1i VIRTEX PRO, ALTERA). Software such as SYNOPSIS IC Design, ANSYSIM, ANSYS, ADAMS and many types of special sensors and actuators are also available for research use.

The Integrated Circuit Design laboratory gives students access to a wide variety of professional software applications including ANSYS, Orcad, ModelSim SE, Xilinx ISE, Synopsys, Leonardo Spectrum LS and Tanner (S-Edit for Schematic Capture, T-Spice and W-Edit for Simulation and LEdit for Physical

Layout). The laboratory's facilities are used for analog and digital circuit design, microchip design and fabrication, MEMS, microactuators and micro-sensors design, computational electronics, and so on. Fabrication facilities are available through the National Electronics Technology Center and the National Science and Technology Development Administration located in nearby Science Park.

Mechatronics faculty and students work in close collaboration with industry and government sectors in the areas of industrial automation, robotics, control, system design and integration. Some examples of ongoing projects include a medical tele-analyzer, automated visual inspection systems, MEMS design, an autonomous flying robot, automating centrifuge machines, an autonomous underwater robot and automating crystallization processes.

Simulation Laboratory

This lab is equipped with networks of Pentium PC for general applications and internet access, high end CAD/CAM & Simulation software such as ARENA and AutoMOD. In addition, a high performance computer facility with parallel cluster is also available for research use.

IC Design Laboratory

The Integrated Circuit Design laboratory gives students access to a wide variety of professional software applications including ANSYS, Orcad, ModelSim SE, Xilinx ISE, Synopsys, Leonardo Spectrum LS and Tanner (S-Edit for Schematic Capture, T-Spice and W-Edit for Simulation and LEdit for Physical Layout). The laboratory's facilities are used for analog and digital circuit design, microchip design and fabrication, MEMS, microactuators and micro-sensors design, computational electronics, and so on. Fabrication facilities are available through the National Electronics Technology Center and the National Science and Technology Development Administration located in nearby Science Park.

Nanotechnology Center of Excellence (CoEN)

The Center of Excellence in Nanotechnology addresses the creation of knowledge in areas relevant to industries. Activities include joint research with other local and international universities and institutes, education and training personnel in the

field of nanotechnology, technology transfer and promotion of public and industrial awareness of nanotechnology. This center provides international platform for academicians and researchers from the region, AIT and our partnered universities worldwide to work together with the industries. Current research activities at the CoEN is based on a unifying concept of using inexpensive wet chemical methods and self-organisation processes to fabricate innovative materials, develop diagnostic tools, and apply nanoparticles to environmental issues amongst others. Activities of the CoE at AIT include, but not exclusively, research and development focused on the application of nanoparticles, nanomaterials, devices and sensors. The CoE will support innovative research suited to the region, education and training of highly qualified personnel and in increasing public and industrial awareness of nanotechnology, amongst other activities like arranging conferences, workshops etc.

3.6.3 Faculty and Research Staff

Full-time Faculty

JOYDEEP DUTTA, BSc (Hons), St Edmund's College; MSc (Physics), North Eastern Hill Univ; PhD, IACS, Calcutta Univ, India.

Professor [*Functional materials, nanomaterials, Nanoparticles, self-organisation, Biomimetic processes, Polyelectrolyte deposition, Gas sensors, Bio-sensors, optoelectronic devices*]

MANUKID PARNICHKUN, BEng, Chulalongkorn Univ, Thailand; MEng, PhD, Univ of Tokyo, Japan

Associate Professor [*Robotics, control, and measurement (involves with design and development of hardware and software of mechatronics devices); New robot mechanism, novel control algorithm, and innovative measurement concept are investigated*]

NITIN V AFZULPURKAR, BEng, Univ of Poona, India; PhD, Univ of Canterbury, New Zealand

Associate Professor [*Computer vision (pattern recognition and image processing); MEMS design, fabrication for electronic and bio medical applications; Soft computing algorithms for robotics and automation applications; Mechatronics applications for industrial use*]

MONGKOL EKPANYAPONG, B.Eng., Chulalongkorn, Univ, Thailand; M.Eng. Asian Institute of Technology, Thailand, M.Sc., Ph.D., Georgia Institute of Technology, USA

Assistant Professor [*Embedded Systems, Computer Architecture, VLSI design (Low power design), Physical VLSI design, High Performance Computing, GPGPU, DSP*]

Visiting Faculty

Dr. Bidyadhar Subudhi, PhD in Control System Engg. from Univ. of Sheffield, UK.

Visiting Professor, currently Professor at the Department Electrical Engg., National Institute of Technology Rourkela, India.

Dr. Zahid Raza, Ph.D. in Computer Science, Jawaharlal Nehru University, India.

Visiting Faculty, currently an Assistant Professor in the School of Computer and Systems Sciences, Jawaharlal Nehru University, India.

GABOR LOUIS HORNYAK, Ph.D. (1997), Colorado State University. Instructor (Introduction to Nanoscience) and Research Professor, Department of Metallurgical & Materials Engineering, Colorado School of Mines in Golden, Colorado

Adjunct Faculty [*Span carbon nanotube synthesis & thermodynamics, nano metal composite materials fabrication and optical properties, template synthesis of gold-55 quantum dot*]

clustersyn thesis& optical characterization]

Chanchana Thanachayanont, Ph.D., Imperial College, London, U.K.

Adjunct Faculty [Transmission Electron Microscopy; Semiconductor Physics; Quantum Physics; Solar Cells; and Nanoparticles]

Metha Jeeradit, Ph.D. (Electrical Engineering) from Stanford University, USA

Adjunct Faculty [Electrical Engineering]

3.6.4 Grants and Sponsored Research Completed in 2013

Automated Traffic Violation Monitoring System for Road safety (Police Eyes Phase II)

Duration: 1-Jun-2012 to 31-May-2013
Project Investigator (s): Dr. Mongkol Ekpanyapong,
Sponsor: National Science and Technology Development Agency (NSTDA), Thailand
Total contracted Amount (THB): 1,360,000

Masters degree in HDD Engineering Technology #5

Duration: 21-Sep-2011 to 31-Dec-2012 (extended deadline)
Project Investigator (s): Dr. Nitin Afzulpurkar, Prof Joydeep Dutta, Dr.Manukid Parnichkun
Sponsor: Western Digital Thai Co Ltd
Total contracted Amount (THB): 6,792,000

3.6.5 On-going Grants and Sponsored Research

Master Degree in HDD Engineering Technology #6

Duration: 1-Jul- 12 to 1-Jul-14
Project Investigator(s): Nitin Afzulpurkar
Sponsor: Western Digital Co. Ltd.
Total Contracted Amount (THB): 6,016,000

The analysis, study, and improvement of automated rice dropping system for

reduction and productivity improvement in farming

Duration: 1-Aug-13 to 31-Aug-14
Project Investigator(s): Dr. Mongkol Ekpanyapong
Sponsor: Agricultural Research Development Agency (ARDA)
Total Contracted Amount (THB): 812,480

NSTDA Investorday Award 2013

Duration: 1-Jun-2013 to 31-Mar-2014
Project Investigator (s): Dr. Mongkol Ekpanyapong and Matthew N. Dailey
Sponsor: National Science and Technology Development Agency
Total Contracted Amount (THB): 500,000

MoU Between AIT and Univ of Cordilleras

Duration: 1-May-2013 to 1-Apr-2014
Project Investigator (s): Dr. Nitin Afzulpurkar
Sponsor: University of Cordilleras
Total Contracted Amount (THB): 678,600

Master of HDD Engineering 5

Duration: 1-Jul-2012 to 1-Jul-2014
Project Investigator (s): Dr. Nitin Afzulpurkar
Sponsor: multi-donor
Total Contracted Amount (THB): 6,016,000

3.6.6 Publications

Journal Paper

Carvalho A., F. Afonso, P. Cardoso, J. Cabral, M. Ekpanyapong, S. Montenegro, A. Tavares, "Cache full-virtualization for the PowerPC 405-S", IEEE International Conference on Industrial Informatics (INDIN), 2013

Chaithat Thitharatanapor, Anantachai Naijit, Manukid Parnichkun, Chailerd Pichitpornchai. "Brain-Machine Interface Based Direction Control of a Rat Using Tele-Stimulation," Proceedings of the 36th Electrical Engineering Conference (EECON 36), pp.903-906, 2013.

HornamchaS. i, M. Ekpanyapong, and P. Israsena, The design of a blind source separation system for digital hearing

aids", Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON) 2013

Lobo T., S. Pinto, V. Silva, S. Lopes, J. Cabral, A., S. Yoowattana, W. Sritriratanarak, M. Ekpanyapong, "LP805X: A Customizable and Low Power 8051 Soft Core for FPGA Applications", IEEE International Symposium on Industrial Electronics, IEEE-ISIE 2013

Marikhu R., J. Moonrinta, M. Ekpanyapong, M. Dailey, S. Siddhichai, "Police Eyes: Real World Automated Detection of Traffic Violations", Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON) 2013

Pinto S., T. Castro, J. Mendes, S. Lopes, M. Ekpanyapong and A. Tavares, "Exploiting Template Metaprogramming to Customize an Object-Oriented Operating System", IEEE International Symposium on Industrial Electronics, IEEE-ISIE 2013

Rassarin Chinnachodteeranun, Kiyoshi Honda, Apichon Witayangkurn, Manukid Parnichkun. "Production Management for Aqua Farm Based on Field Sensor Network Technology and GAP," Proceedings of the SICE Annual Conference 2013, SICE 2013, 2013.

3.6.7 Doctoral Students' Dissertation

Microelectronics and Embedded Systems

MEMS based Hemofiltration Systems
By Shahzadi Tayyaba
Supervisor: Dr. Nitin V. Afzulpurkar

Mechatronics

Research on the Rework Process for Defective HGA from the Solder Jet Bonding Process
By Reangroaj Rojanasiri
Supervisor: Dr. Nitin V. Afzulpurkar

3.6.8 Masters Students' Theses and Projects

Microelectronics

Mathematical Modeling Slider Tag Character Recognition
By Waranya Thiraputtipong
Supervisor: Assoc. Prof. Erik L. J. Bohez

Microelectronics and Embedded Systems

The Design of a Blind Source Separation System for Digital Hearing Aids
By Supot Hornamchai
Supervisor: Dr. Mongkol Ekpanyapong

Design of a 20-GHz Low Noise Amplifier in 0.18 um TSMC Technology for Automotive Collision Avoidance Application
By Akilan Thangarajah
Supervisor: Dr. Mongkol Ekpanyapong

Robot Localization in Paddy Fields Using Sensor Fusion
By Piyanun Ruangurai
Supervisor: Dr. Mongkol Ekpanyapong

Growth of ZnO Nano Rods on Different Substrates and Fabrication of Hybrid Light Emitting Diode (LED) on Gold Sputtered Glass Substrate
By Sadia Sarahnaz
Supervisor: Dr. Nitin V. Afzulpurkar

The Design of a Wristband Screen Application for Interface with Android Systems
By Wuttinan Sereethavekul
Supervisor: Dr. Mongkol Ekpanyapong

A Bayesian Approach to Automated Optical Inspection for Solder Jet Ball Joint Defects in the Head Gimbal Assembly Process
By Mak Chee Wai
Supervisor: Dr. Nitin V. Afzulpurkar

Design and Development of a Low Cost

Plastic Recycle Machine
By Nimit Tuksavitayapong
Supervisor: Dr. Mongkol Ekpanyapong

Energy Saving Multi Temperature Control Device System for Home Automation
By Buddhapala Wongkaew
Supervisor: Dr. Mongkol Ekpanyapong

Characterization of Inter Track Interference in Shingled Magnetic Recording
By Natthinee Sirichaisopon
Supervisor: Mr. Brent Bargmann

A Characterization on Full-Width Profile Response of Tunneling Magnetoresistive Reader in Conventional Perpendicular Recording for Two-Dimensional Technology
By Mark Valen Leal Aganon
Supervisor: Mr. Brent Bargmann

Wafer Throughput Improvement in Soft Bake Process with Hot Plate Method in Photolithography by DOE Technique
By Arunee Suwanrat
Supervisor: Dr. Nitin V. Afzulpurkar

Optimization of Lapping Parameters for Lapping Time Minimization in Slider Fabrication Manufacturing Using DOE
By Assadawut Suwanrat
Supervisor: Dr. Nitin V. Afzulpurkar

Study of High Precision Adhesive Dispenser for HGA Manufacturing Process
By Jadet Neamsuwan
Supervisor: Dr. Nitin V. Afzulpurkar

Mechatronics

Improvement of Screw Sorting Machine
By Montree Jittasinawa
Supervisor: Dr. Nitin V. Afzulpurkar

Development of a Ping-Pong Robot
By Warat Thongrubbai
Supervisor: Dr. Manukid Parnichkun

Improve the Machinability of Aluminum with the Assistance of Electricity
By Ritukar Vashistha
Supervisor: Assoc. Prof. Erik L. J. Bohez

Brain-machine Interface Based Direction Control of a Rat Using a Telestimulator
By Chaithat Thitharatanaporn
Supervisor: Dr. Manukid Parnichkun

A Path Planning Algorithm for an Autonomous Mobile Robot in a Dynamic Environment
By May Zar Lin
Supervisor: Dr. Manukid Parnichkun

Resultant Torque Feedback for Auto Driver Machine
By Phongsatorn Nusrikaew
Supervisor: Dr. Manukid Parnichkun

Web Based Reporting, Monitoring and Triggering System for HDD Backend Manufacturing
By Somkeat Wangchanachai
Supervisor: Dr. Nitin V. Afzulpurkar

Spiral Quality Analysis at Seeder Tester Using Drive PCB
By Chaisit Siricharoenchai
Supervisor: Dr. Nitin V. Afzulpurkar

Integrate and Optimize the Optical Characteristic Recognition on Dynamic Electrical Test Machines
By U-Thai Emsing
Supervisor: Dr. Nitin V. Afzulpurkar

Offset Distance and Heading Angle Detection for Steering Control of an Intelligent Vehicle using Canny Edge Detection and Hough Transformation
By Tanapong Makmaitree
Supervisor: Dr. Manukid Parnichkun

Integrated Manufacturing System to Produce Toy Cars
By Avishek Choudhuri
Supervisor: Assoc. Prof. Erik L. J. Bohez

3.7: SET – NANOTECHNOLOGY FIELD OF STUDY

3.7.1 Introduction

Nanotechnology

The programme in Nanotechnology at AIT is designed to address the knowledge-based industries of the 21st century that will require continuous development of their workforce. Postgraduate nanotechnology masters and Ph. D. courses are a well-recognized means of gaining experience in state-of-the-art techniques and applications. The program at AIT is addressed to the needs of engineers and science background students for entering into this burgeoning technology area. Nanotechnology with a focus on nanomaterials engineering at AIT provides international level engineering program. Partnership in learning and research with the corporate world is

been one of the hall marks of the program.

The AIT Nanotechnology Graduate program is a unique blend of truly cross-disciplinary teaching with an integrated curriculum. Budding Nanotechnologists come from different disciplines, including various engineering disciplines, physics, materials sciences and chemistry, so a good postgraduate programme in nanotechnology must be able to accommodate students from a wide range of backgrounds. Nanotechnology is an interdisciplinary field and the engineering focus of the AIT programme indeed targets only the engineers and science background students.

Our research encompasses working in "Poor-man's nanotechnology". The unifying concept in the laboratory is to make use of inexpensive wet-chemical methods to fabricate innovative materials and futuristic device components. The education is supported by a state-of-the-art research center focused on applications of nanoparticles in Energy, Food & Agriculture and the environment. Current research activities focuses on dye-sensitized solar cells, piezotronic devices, gas sensors, bio-diagnostic tools, environmental mitigation through visible light photocatalysis, self-organization of nanoparticles, and layer-by-layer growth from colloidal particles, amongst others.

3.7.2 Research Facilities and Laboratories

Center of Excellence in Nanotechnology (CoEN)



The Center of Excellence in Nanotechnology addresses the creation of knowledge in areas relevant to industries. Activities include joint research with other local and international universities and institutes, education and training personnel in the field of nanotechnology, technology transfer and promotion of public and industrial awareness of nanotechnology. This center provides international platform for academicians and researchers from the region, AIT and our partnered universities worldwide to work together with the industries.

Current research activities at the CoEN is based on a unifying concept of using inexpensive wet chemical methods and self-organization processes to fabricate innovative materials, develop diagnostic tools, and apply nanoparticles to environmental issues amongst others. Activities of the CoE at AIT include, but not exclusively, research and development focused on the application of nanoparticles, nanomaterials, devices and sensors. The CoE will support innovative research suited to the region, education and training of highly qualified personnel and in increasing public and

industrial awareness of nanotechnology, amongst other activities like arranging conferences, workshops etc. Members of the Center of Excellence in Nanotechnology have published over 80 journal papers, articles and book chapters since its inception in 2006. Wide ranging collaboration with multinationals and smaller companies in the region includes Donaldson Inc. (USA), Rak Investment Co. (UAE), SVI Company Ltd. and Western Digital (Thailand), Advance Nanotec (India) and NanoThread Inc. (USA). The Center of Excellence in Nanotechnology has

extensive research collaborations with State University of New York, Buffalo and Colorado School of Mines (USA), Swiss Federal Institute of Technology-Lausanne (Switzerland), Uppsala University and Royal Institute of Technology (Sweden), Agharkar Research Institute and S. N. Bose Center for Basic Sciences (India), Chulalongkorn

University, Prince of Songkhla University, Naresuan University, NANOTEC/NSTDA (all in Thailand), amongst others.

The Center of Excellence in Nanotechnology, AIT released a portfolio of 16 nanotechnology products and processes to mark the AIT 52nd Anniversary celebrations last September

5, 2011 at Renaissance Hotel, Bangkok. The portfolio release is a culmination of five (5) years of extensive research in the center, one of the 8 centers in Thailand supported by National Nanotechnology Center (NANOTEC). Four patents for these products have been applied and others in the process.



3.7.3 Faculty and Research Staff

Full-time Faculty

JOYDEEP DUTTA, BSc (Hons), St Edmund's College; MSc (Physics), North Eastern Hill Univ; Ph.D., IACS, Calcutta University, India.

Professor [Functional materials, nano-materials, Nanoparticles, nanorods, self organisation, Biomimetic organisation, Polyelectrolyte deposition, photocatalysis, Gas sensors, Bio-sensors, solar cells, water treatment, desalination]

Associated Faculty

GABOR LOUIS HORNYAK, Ph.D. (1997), Colorado State University. Instructor (Introduction to Nanoscience) and Research Professor, Department of Metallurgical & Materials Engineering, Colorado School of Mines in Golden, Colorado

Professor, [Carbon nanotube synthesis & thermodynamics, nano metal composite materials fabrication and optical properties, template synthesis of gold-55 quantum dot cluster synthesis & optical characterization]

SIVANAPPAN KUMAR, Ph.D. Institut National Polytechnique de Toulouse, France

Professor, Energy Field of Study, SERD, AIT (Renewable energy resource and technologies, Climate change and green house gas mitigation, Solar Energy, Cleaner production, Energy and sustainable development)

CHETTIYAPPAN VISVANATHAN, Ph.D. (1998) Chemical / Environmental

Engineering, Institut National Polytechnique, Toulouse, France.

Professor, *Environmental Engineering and Management Field of Study, SERD, AIT (Cleaner production, Industrial Environment Management, Membrane Technology, Solid/Liquid Separation, Water and Wastewater Treatment)*

OLEG V SHIPIN, PhD, Inst of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

Associate Professor, Environmental Engineering & Management Field of Study (*Anaerobic and Aerobic Wastewater Treatment; Environmental Impact Assessment; Microbial biotechnology (production of commercially important metabolites); Natural systems (ponds and wetlands) as Wastewater treatment systems; Microbial of Environmental Engineering; Molecular Microbiology, Health and Ecological Risk assessment, Ecological Engineering*)

THAMMARAT KOOTTATEP, D.Eng. Water and Wastewater Engineering, Asian Institute of Technology, Thailand

Associate Professor, *Environmental Engineering and Management Field of Study, SERD, AIT (Decentralized Waste and Wastewater Treatment Systems, Eco-engineering Technology for Waste and Wastewater Treatment and Management, Environmental Health and Sanitation)*

ANIL KUMAR ANAL, DVM., University of Agriculture, Pakistan; MSc. and PhD., AIT, Thailand

Assistant Professor, Food Engineering & Bioprocess Technology Field of Study (*Animal Biotechnology, Food and Pharmaceutical Biotechnology, Dairy and Meat Process Technology, Food Colloids and Biopolymer, Functional Foods, Micro- /Nanoencapsulation, Bionanotechnology*)

PRABHAT KUMAR, Dr.-Rer.Hort., Uni Hannover, Germany; M.Sc. (Ag. Systems), AIT, Thailand; B.Sc. (Ag.) & Hons. RAU, Pusa, India

Affiliated faculty & Senior Research Specialist, Agricultural Systems & Engineering Field of Study (Integrated Pest Management, Farming Systems, Climate change adaptation, Tropical Plant Production and Protection, Smallholder production, Applied research, Nanotechnology and agriculture)

Visiting Faculty

SIDDHARTH JABADE, Ph.D. (2005) in Mechanical Engineering, Indian Institute of Technology-Bombay, India.

Visiting Faculty (*Intellectual property rights, Innovation management, heat transfer*).

Adjunct Faculty

CHANCHANA THANACHAYANONT, Ph. D. (1999) and BE (1994), Imperial College, London. The National Metals and Materials Technology Center, National Science and Technology Development Agency, Thailand

Adjunct Faculty (Transmission Electron Microscopy, Materials Characterization, Semiconductor Physics, III-V Compound Semiconductors)

WALEED S. MOHAMMED, Ph. D. (2004), University of Central Florida (USA), M. Eng (1999) Cairo University, Egypt; Bangkok University (Rangsit Campus), Bangkok, Thailand

Adjunct Faculty (Optical wireless, Micro/nano optics, Fiber optics, Grating design, Bio- Photonics)

Research Staff

TANUJJAL BORA, M.Eng Microelectronics, AIT, Thailand; Ph.D. (2012) Nanotechnology, AIT, Thailand

Research Associate (*quantum dot, solar cell, photocatalysis, water purification, metal-semiconductor nanostructures*)

MAYUR BABANRAO CHAUDHARI, B.E. Electronics, Vishwakarma Institute of

Technology, India: M.Eng (2011) Nanotechnology, AIT, Thailand

Research Associate (*Optical properties of metal nanoparticles, size and shape effects, simulation*)

HTET HTET KYAW, B.E Electronic Communication, Mandalay Technological University, Myanmar; M.Eng (2012) Nanotechnology, AIT, Thailand

Research Associate (*Heavy Metal Ion sensor by electric field assisted surface plasmon resonance approach*)

MAYUREE JAISAI, B.Sc. Biotechnology, Mae Fah Luang University, Thailand

Research Assistant (Hydrothermal growth to produce antimicrobial paper and properties)

Administrative Staff

ARGIE D. GONZALES, B.Sc. Business Administration, MSU-Iligan Institute of Technology, Philippines

Assistant Administrative Office

3.7.4 Grants and Sponsored Research Completed in 2013

3.7.5 On-going Grants and Sponsored Research

Photocatalytic material for degradation azo dyes in waste water

Duration: Jun-2012 to Sept-2013

Project Adviser(s): Prof. Joydeep Dutta, Dr. Thammarat Koottatep and Dr. G.L. Hornyak

Sponsor: National Research Council of Thailand (NRCT) / NANOTEC, National Science and Technology Development Agency, Thailand

Total Contracted Amount (THB): 92,460

3.7.6 Publications

International Journal Articles with Impact factor

Aneeqa Sabah, Prabhat Kumar, Waleed S. Mohammed and Joydeep Dutta "Visible-Light-Induced Directed Gold Microwires by Self-Organization of Nanoparticles on *Aspergillus Niger*" Particle & Particle Systems Characterization 30 (2013) 473-480 [JCR 2012 Impact Factor ~ 0.857]

Bora, T., KK Lakshman, S Sarkar, A Makhal, S Sardar, SK Pal, J Dutta "Modulation of defect-mediated energy transfer from ZnO nanoparticles for the photocatalytic degradation of bilirubin" Beilstein Journal of Nanotechnology 4 (1), 714-725 [JCR 2012 Impact Factor ~2.374]

Danwittayakul, S., J Dutta "Two step copper impregnated zinc oxide microball synthesis for the reduction of activation energy of methanol steam reformation" Chemical Engineering Journal 223 (2013) 304-308 [JCR 2012 Impact Factor ~3.473]

Danwittayakul, S., M Jaisai, T Koottatep, J Dutta "Enhancement of photocatalytic degradation of methyl orange by supported zinc oxide nanorods/zinc stannate (ZnO/ZTO) on porous substrates" Industrial & Engineering Chemistry Research 52 (2013), 13629-13636 [JCR 2012 Impact Factor ~2.206]

Fallah, H., M Chaudhari, T Bora, SW Harun, WS Mohammed, J Dutta "Demonstration of side coupling to cladding modes through zinc oxide nanorods grown on multimode optical fiber" Optics Letters 38 (18), 3620-3622 [JCR 2012 Impact Factor ~3.385]

Karim, F., T Bora, MB Chaudhari, K Habib, WS Mohammed, J Dutta "Optical fiber-based sensor for in situ monitoring of cadmium sulfide thin-film growth" Optics Letters 38, 24(2013), 5385-5388 [JCR 2012 Impact Factor ~3.385]

Mohammad Abbas Mahmood, Tanujjal Bora and Joydeep Dutta "Studies on hydrothermally synthesised zinc oxide nanorod arrays for their enhanced visible light photocatalysis" International Journal of Environmental Technology and Management 16 (2013) 146-159

Myo Tay Zar Myint, Nithin Senthur Kumar, Gabor Louis Hornyak and Joydeep Dutta "Hydrophobic/hydrophilic switching on zinc oxide micro-structured surface" Applied Surface Science 264 (2013) 344-348 [JCR 2012 Impact Factor ~2.112]

Pattamon Teerapanich, Myo Tay Zar Myint, Claire M. Joseph, Gabor L. Hornyak and Joydeep Dutta "Development and improvement of carbon nanotube based ammonia gas sensors using inkjet-printed interdigitated electrodes" IEEE Transactions on Nanotechnology 12 (2013) 255-262 [JCR 2012 Impact Factor ~ 1.8]

Promnimit, S., S Baruah, U Lamdu, J Dutta "Hydrothermal Growth of ZnO Hexagonal Nanocrystals: Effect of Growth Conditions" Journal of Nano Research 21 (2013), 57-63 [JCR 2012 Impact Factor ~0.57]

Viphavakit, C., C Themistos, M Komodromos, N Atthi, S. Boonrueng,

WS Mohammed, and J Dutta "Development of Integrated Microfluidic Device for Optical Flow Rate Sensing" Journal of Circuits, Systems, and Computers 22, 9(2013) 1340016 [JCR 2012 Impact Factor ~0.238]

Zaheer Abbas Khan, Rachana Kumar and Joydeep Dutta "Effective Medium Theory applied to colloidal solution of gold nanoparticles and alternating gold-silica multilayer thin film composites" Journal of Chemical Society of Pakistan 35 (2013) 250-256

3.7.7 Doctoral Students' Dissertation

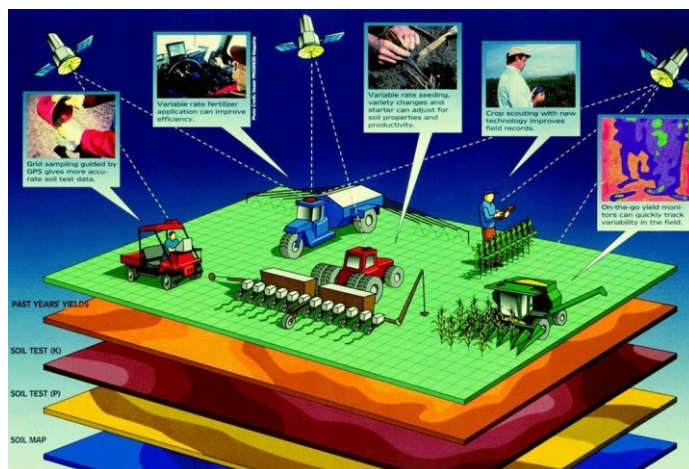
Self Organization of Charge Stabilized Gold Nanoparticles on Directed Fungal Mycelia Directed by External Stimuli
By Aneeqa Sabah
Supervisor: Prof. Joydeep Dutta

3.7.8 Masters Students' Theses and Research Studies

Application of Layer-by-layer Films in Optical and Electrical Sensors
By Md. Shah Alam
Supervisor: Prof. Joydeep Dutta

Optical Fiber-Based Sensor for In-Situ Monitoring of Anodic Alumina Film Growth
By Farzia Karim
Supervisor: Prof. Joydeep Dutta

3.8: SET – REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS FIELD OF STUDY



3.8.1 Introduction

Geoinformatics comprising Remote Sensing (RS), Geographic Information Systems (GIS) and Global Positioning System (GPS) provides extremely useful tools for environmental and natural resources management. They are widely recognized as supporting tools for the planning, monitoring, and management of the appropriate utilization of resources at the country, regional and global levels.

While they represent multidisciplinary backgrounds, students in RS&GIS share a common interest, that is, to use remote sensing, GIS, GPS and other space technologies as tools in pursuing their academic work as well as in developing new technologies that are applicable to the region. Because of the complexity of the technologies together with the heavy dependence on advanced computer skills, application specialists need to have a sound knowledge of the theoretical aspects and practical approaches to integrate many resources of information that address different applications.

Furthermore, scientists, planners or engineers interested in these technologies should be familiar with past, present and future satellite

systems, their appropriate usage, data acquisition and handling and integration with other data sources.

The curriculum well covers the theoretical aspects and application of space technology, especially in Remote Sensing and GIS. It provides students ample time to gain application know-how through laboratory sessions. Students are free to use satellite data received by the NOAA, AVHRR and MODIS Satellite Receiving Stations for their theses or research studies. Recently such as open source Geoinformatics climate change Monitoring using courses Geoinformatics, Advanced Application Development Advance Analysis Methods and Microwave Remote Sensing are add.

The demand for RS&GIS graduates is very high as there is lack of professionals in these disciplines, particularly those with a vast knowledge of the practical utilization of these technologies. Employment opportunities are available in a wide range of areas, including agriculture, forestry, coastal development and management, urban planning and development, medical technology, mapping and planning, disaster mitigation and environmental management.

Major areas covered in the coursework are fundamentals of remote sensing and GIS, earth energy interaction, atmospheric correction, application potential in various disciplines, GIS data sources, map projection, geostatistics, spatial modeling, automated mapping, digital terrain model, GPS data acquisition, and integration of GIS, remote sensing and GPS.

3.8.2 Research Facilities and Laboratories

The RS&GIS field of study provides excellent facilities for learning, research and projects which consists of the Digital Image Processing laboratory, Institute-wide GIS laboratory, Asia e-learning project experiment room, meeting rooms, and the Geo informatics Center laboratory topographic, landuse, soil, geology maps of Thailand and some aerial photographs, ALOS data, are also available. Some equipment in its laboratory available for academic activities include: Arc GIS, ERDAS, Arc View 3.3, ENVI; Total Station; Trimble geoexplorer; Garmin GPS Series III and V; digital camera; wireless hub/switch; wireless USB; network switch; network hub; black/white and color laser printers; A4 and A0 scanners; RFID reader/writer, Sensors and Wi Fi Network, Spectrophotometer, Laser

Range Finder, Echo Sounder, Sensor Web GIS; table and personal stereoscopes, SCINDA GPS Base Station, TOPCON Photogrammetry Station and others.

3.8.3 Faculty and Research Staff

Full-time Faculty

NITIN KUMAR TRIPATHI, BTech, National Institute of Technology, Warangal, India; MTech, IIT; PhD, IIT, Kanpur, India.

Associate Professor (*GIS, Remote Sensing, RFID and Vehicle Tracking, Indoor Positioning Systems, Environment, Disaster, Agriculture, Health, Applications*)

SARAWUT NINSAWAT, BSci, Silpakorn University; MSci, Asian Institute of Technology, Thailand; Doctor of Creative Cities, Osaka City University, Japan

Lecturer (*WebGIS, OGC Web Services & Specifications, SensorWeb, LBS, Mobile GIS Application*)

Visiting Faculty

KIYOSHI HONDA, BAg, DEng, University of Tokyo, Japan

Visiting Professor (*Image Processing, Erosion control, Terrain modeling, Sensor Web GIS*).

MARC SOURIS, PhD, Université de La Rochelle, France

Visiting Professor (*Computational geometry and algorithms, GIS development, Spatial analysis, GIS and Remote Sensing for Epidemiology*)

RYOSUKE SHIBASAKI, BEng, MEng, University of Tokyo; Deng

Visiting Professor (*integration of data and models based on GIS to reconstruct spatio-temporal dynamics of objects, micro-simulation modeling, 3D mapping of urban areas, and their applications*)

MASAHIKO NAGAI, BS, St. Cloud State University, USA; MS, Asian Institute of Technology, Thailand; DEng, The University of Tokyo, Japan

Visiting Faculty (*Spatial Information Engineering, Remote Sensing, GIS, Image Processing, Mobile Mapping Ontology, Data Interoperability, Environmental Information Science*)

Adjunct Faculty

SURAT LERTLUM, BS, Norwich University; MS, The George Washington University, USA; DTechSc Computer Science, Asian Institute of Technology, Thailand

Adjunct Faculty (*GIS, RS, Digital Image Processing, Surveying, Mapping*)

Affiliated Faculty and Research Staff

TARAVUDH TIPDECHO, BSc, MSc, Chiangmai Univ, Thailand; DTechSc, Remote Sensing & GIS, Asian Institute of Technology, Thailand

Research Specialist I (*Advanced Mapping, Terrestrial Scanning*)

VIVARAD PHONEKEO, Bsc, Volgograd State Pedagogical University, Russia, MSc, DTech Sc, Asian Institute of Technology, Thailand

Senior Research Associate (*Remote Sensing and GIS, NOAA AVHRR&Terra/Aqua MODIS receiving and processing system, Digital Image Processing, Computer Graphics, Spatial Data Visualization, MODIS Active Fire Monitoring System, Global Environment and Disaster Monitoring using MODIS*)

3.8.4 Grants and Sponsored Research Completed in 2013

Landuse Landcover Mapping using Advanced

Duration: 15-March-12 to 31-Dec-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: National Land Commission, Bhutan

Total Contracted Amount (THB) 510,500

South-East Asia Centre on European GNSS for International Cooperation and Local Development (SEAGAL)

Duration: 15-July-12 to 31-Dec-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: ISMB
Total Contracted Amount (THB) 309,041

Research on Ionospheric in Asia (RISA)

Duration: 21-DEC-11 to 21-Sep-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: Asian Office of Aerospace R&D
Total Contracted Amount (THB) 1,411,740

UNIGIS Online Masters and Professional Program

Duration: 1-Aug-07 to 31-March-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: Self-paid
Total Contracted Amount (THB) 1,089,000

Integrated Coastal Zone Planning and Management Using RS and GIS

Duration: 1-Sep-08 to 31-Jan-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: Self-paid
Total Contracted Amount (THB) 1,257,450

Business and Logistics Management using

Duration: 1-Aug-07 to 31-Jan-13
Project Investigator(s): Dr.Nitin Kumar Tripathi
Sponsor: RTG/CARACAD
Total Contracted Amount (THB) 1,800,000

Issues on Sustainable Development in Asia

Duration: 1-Aug-12 to 31-Jul-13
Project Investigator(s): Dr. Sarawat Ninsawat
Sponsor: Chubu University
Total Contracted Amount (THB) 430,000

3.8.5 On-going Grants and Sponsored Research

Winter Education Camp and Study Tour 2014 for JIS Group Educational Initiatives, India

Duration: 20-Dec-13 to 31-Dec-14
 Project Investigator(s): Nitin Kumar Tripathi
 Sponsor: JIS Group Educational Initiatives, India
 Total Contracted Amount (THB) 500,000

Summer Education Camp and Study Tour 2013 for JIS Group Educational Initiatives, India

Duration: 1-Jul-13 to 30-Jun-14
 Project Investigator(s): Nitin Kumar Tripathi
 Sponsor: JIS Group Educational Initiatives, India
 Total Contracted Amount (THB) 500,000

Yamaguchi University Summer Training Program 2013

Duration: 1-Sep-13 to 31-Mar-14
 Project Investigator(s): Dr. Nitin Kumar Tripathi and Dr. Masahiko Nagai
 Sponsor: Yamaguchi University, Japan
 Total Contracted Amount (THB) 170,000

Asian Summer School for Geoinformatics and issues on Sustainable Development in Asia

Duration: 1-Aug-13 to 30-Jun-14
 Project Investigator(s): Dr. Sarawut Ninsawat
 Sponsor: Chubu University
 Total Contracted Amount (THB) 600,000

Developing Mobile GIS Application on Tablet Device for iOS and Android Operating System

Duration: 6-May-13 to 30-Apr-14
 Project Investigator(s): Dr. Sarawut Ninsawat
 Sponsor: D.T.S. Technology Partnership Limited
 Total Contracted Amount (THB) 1,000,000

Prototyping system development for Ontology-Based Data Retrieval Support System

Duration: 1-Apr-13 to 31-Mar-15
 Project Investigator(s): Dr. Nitin Kumar Tripathi and Dr. Masahiko Nagai
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 1,252,548

Prototyping system development for global Urban and infrastructure data

Duration: 1-Apr-13 to 31-Mar-15
 Project Investigator(s): Dr. Nitin Kumar Tripathi and Dr. Masahiko Nagai
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 1,100,724

GPS Trip Segmentation Data

Duration: 1-Apr-13 to 31-Mar-14
 Project Investigator(s): Dr. Nitin Kumar Tripathi
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 120,380

Summer Education Camp and Study Tour 2013 for United Group of institution

Duration: 1-Jun-13 to 31-May-14
 Project Investigator(s): Nitin Kumar Tripathi
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 950,000

MNNIT Training and Study Tour

Duration: 1-Oct-13 to 31-May-14
 Project Investigator(s): Nitin Kumar Tripathi

Sponsor: Motilal Nehru National Institute of Technology, Allahabad
 Total Contracted Amount (THB) 200,000

Basic Investigation and Prototyping for Overseas

Duration: 1-Apr-12 to 31-March-15
 Project Investigator(s): Dr. Masahiko Nagai
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 1,760,822.06

Survey for Information Distribution and Decision

Duration: 1-Apr-12 to 31-March-15
 Project Investigator(s): Dr. Masahiko Nagai
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 1,546,392.12

Design and Prototype development for Ontology-Based Data Retrieval Support System

Duration: 1-Apr-12 to 31-March-15
 Project Investigator(s): Dr. Masahiko Nagai

Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 1,760,822.08

Development of Web Service and Survey of Analytical Model and Data Flow for Critical Earth Observation Parameters

Duration: 1-Apr-12 to 31-March-15
 Project Investigator(s): Dr. Masahiko Nagai
 Sponsor: The University of Tokyo
 Total Contracted Amount (THB) 883,652.79

3.8.6 Publications

International Journal Articles with Impact factor

Akiyama K. and S. Nakamura (2013) "GPS-based precise orbit determination for LEO satellites with carrier-phase ambiguity resolution", 57 th the Japan Society for Aeronautical and Space Science Sumposium, 9 October 2013, Yonago, Japan.

Diep Thi Hong Nguyen, Nitin Kumar Tripathi, Wenresti G. Gallardob and Taravudh Tipdecho (2013) "Coastal and Marine Ecological Changes and Fish Cage Culture Development in Phu Quoc, Vietnam (2001 to 2011)" Ceocarto International (Impact Factor: 0.58). 11/2013; DOI: 10. 1080/ 10106049. 2013. 798358.

Kawate, K. and S. Nakamura (2013) "The development result of the ground infrastructure for Real time PPP experiment by using QZSS" G N S S Precise Point Positioning Workshop 2013, 13 June 2013, Ottawa, USA.

Kodaka, A., Kawasaki, A., Ohara, M., Komori, D., Ninsawat, S. (2013) A Study on the Possibility of Mobile Phone Use as a Disaster Information Dissemination Mean for Rural Mountainous Areas in Thailand, *Institute of Social Safety Science*, no. 21, pp. 159-167. (ISSN: 0037-105X) [in Japanese]

Kritsana Kityuttachi, Nitin K. Tripathi, Taravudh Tipdecho, Rajendra Shrestha (2013), "CA-Markov Analysis of

Constrained Coastal Urban Growth Modeling: Hua Hin Seaside City, Thailand”, *Sustainability* 04/2013; 5(4):1480-1500. DOI: 10/3390/su5041480.

Nakamura, S. (2013), “Japanese SLR Challenges”, 18th International Workshop on Laser Ranging, 15 November 2013, Fuji-Yoshida, Japan.

Nakgoi, K., Nitatpattana, N., Wajjwalku, W., Pongsopawijit, P., Kaewchot, S., Yoksan, S., Siripolwat, V., Souris, M. and Gonzalez, J.-P. Dengue, Japanese encephalitis and Chikungunya virus antibody prevalence among captive monkey (Macaca nemestrina) colonies of Northern Thailand. *American Journal of Primatology*, 2013. doi: 10.1002/ajp.22213 (Impact factor 2.46)

Samphutthanon, R., Tripathi, N.K., Ninsawat, S., Duboz, R. (2013) Spatio-Temporal Distribution and Hotspots of Hand, Foot and Mouth Disease (HFMD) in Northern Thailand. *Int. J. Environ. Res. Public Health* 2014, vol. 11, no. 1, pp. 312-336. (ISSN: 1660-4601)

Takasu, T. and S. Nakamura (2013) “Development and evaluation of “Multi-GNSS advanced demonstration tool for orbit and clock Analysis (MADOCA)”, Japan Geoscience Union Meeting 2013, 19-24 May 2013, Chiba, Japan.

Takasu, T. and S. Nakamura (2013), “Development of multi-GNSS precise orbit and clock determination tool MADOCA”, 57th the Japan Society for Aeronautical and Space Science Symposium, 10 October 2013, Yonago, Japan.

Conference Proceedings

Sarawut Ninsawat “The International Conference on E-Technologies and Business on the Web (EBW2013), 7 – 9 May 2013, Bangkok Thailand

Worapong Sirirojtjanawong, Sarawut Ninsawat, Nitin Kumar Tripathi and Vivarad Phonekeo, HealthGIS (2013) “An Online Disease Surveillance and Warning System” 21 – 23 August 2013, Pathumthani, Thailand, 6 pages

Yoshio Tanaka, Hirokazu Yamamoto, Sameer Tilak and Peter Arzberger (2013) “GEO GRID Platform for Integrated Earth Sensing:

Paper

Montenbruck, O. and S. Nakamura (2013), Initial assessment of the COMPASS/BeiDou-2 regional navigation satellite system, *The Journal of Global Navigation Satellite Systems*, GPS Solution, Vol. 17, 211-222.

Othubo, T., and S. Nakamura (2013), “Satellite Laser Ranging Activities in Japan Reviewed from the International Perspective”, *The Geodetic Society of Japan*, *Journal of the Geodetic Society of Japan*, (In press).

3.8.7 Doctoral Students’ Dissertation

Spatial Pattern Analysis and Association of Influenza Morbidity with Climatic Factors using Fuzzy AHP in Chiang Mai, Thailand
By Supachai Nakapan
Supervisor: Dr. Nitin K. Tripathi

Extraction of Mangrove Biophysical Parameters at an Individual Tree Level Using Airborne LiDAR Measurement
By Wasinee Wannasiri
Supervisor: Dr. Masahiko Nagai
Co-chairperson: Kiyoshi Honda

Impact of Climate Variability on Agriculture in Ping River Basin, Thailand
By Abbadi Girmay Reda
Supervisor: Dr. Nitin K. Tripathi

3.8.8 Masters Students’ Theses

Development of a Low Cost System to Determine Vegetation Index Using a Single Modified Digital Camera
By Babu Ram Poudel
Supervisor: Dr. Sarawut Ninsawat

Understanding Grassland Phenology Responses to Climate Variability in the Upper Indus Basin, Pakistan
By Sawaid Abbas

Supervisor: Dr. Nitin K. Tripathi

A Geospatial Analysis of the Distribution of Healthcare Facilities in Abuja, Nigeria
By Chinweokwu Uche Ifenwoye
Supervisor: Dr. Nitin Tripathi
Co-chairperson: Dr. Georges Richard Tadonki

Digital Surface Model Generation from ALOS/PRISM for Delineation of Elevation Extent in Jamalpur District, Bangladesh
By Farhana Rahman
Supervisor: Dr. Masahiko Nagai

Mapping Potential Sites for Rainwater Harvesting in Kandahar Province, Afghanistan
By Mohammad Karam Ikram
Supervisor: Dr. Nitin K. Tripathi

Developing One Stop Service for the Near Real-Time Mosaicking and Publishing of UAV Images under the Constraints of Network Bandwidth
By Avinash Singh Mahat
Supervisor: Dr. Masahiko Nagai

Spatio-Temporal Pattern Analysis of DF/DHF and Associated Factors in Phitsanulok, Thailand
By Narinee Kueyen
Supervisor: Dr. Nitin Kumar Tripathi

An Online Disease Surveillance and Warning System
By Worapong Sirirojtjanawong
Supervisor: Dr. Sarawut Ninsawat

Unmixed Pixel Method by Using Landsat and MODIS Data Fusion for Detecting Rice Crop Calendar in Small Paddy Fields
By Atittaya Russameejaem
Supervisor: Dr. Sarawut Ninsawat

Investigation of the Appropriate Approach to Generate the Noise Map from Crowdsourcing
By Chanitnart Mahakanta
Supervisor: Dr. Sarawut Ninsawat
Land Suitability and Crop Substitution Modeling for Sugarcane and Cassava in Khamphaeng-Pet Province, Thailand
By Nopphawan Tamkuan
Supervisor: Dr. Nitin Tripathi

Positioning Related to RTK-GPS Error Analysis Through Local and Global Interferences
By Yila Caiaphas Makadi
Supervisor: Dr. Nitin K. Tripathi

Assessment of a Flood Area by Using Satellite-based Rainfall (GSMAP) and IFAS in Nakhon Si Thammarat City, Thailand
By Sompop Sangpray
Supervisor: Dr. Sarawut Ninsawat

Suitability Map Analysis for Planning Wildlife Corridor: A Case Study of

Elephants in Khao Ang Rue Nai Wildlife Sanctuary, Thailand
By Pichitporn Pholgerddee
Supervisor: Dr. Sarawut Ninsawat

Development of a Location Based Service Application Using Augmented Reality Technology for Historical Tourism on an iOS Platform
By Jittin Chaitamart
Supervisor: Dr. Sarawut Ninsawat

Spatial Temporal Impacts of Climate Variability on Malaria Distribution in

Gulu and Mpigi Districts in Uganda using GIS
By Samaila Kuna Yusuf
Supervisor: Dr. Nitin Kumar Tripathi
Co-chairperson: Dr. Georges Richard Tandonki

3.9: SET – STRUCTURAL ENGINEERING FIELD OF STUDY



3.9.1 Introduction

Structural engineering has always been seen as one of the few fields of study where one can combine real technical skills with artistic flair. Structural engineers are known to be people who enjoy innovation, opportunities, responsibility and excitement, whilst working within a creative profession. Structural engineers plan and design various structures such as buildings, bridges, sport stadiums, towers, and underground structures.

The built environment which is designed and constructed by structural engineers has an enormous impact on our everyday lives. In order to design and construct safe and economic structures, they need to keep abreast with the latest methods of structural analysis, modeling concepts for computation, advanced design, material technology, and improved knowledge in structural loadings. The field educates professionals who will be at the forefront of advanced research in Structural Engineering. They are trained to respond creatively to the industrial requirements of infrastructure development

3.9.2 Research Facilities and Laboratories

Structural Engineering Laboratory

The Structural Engineering Laboratory (STE Lab) has a long history of excellence in advanced structural and material research. The STE Lab is equipped with instruments for scientific research, which provide excellent experimental environment for scholars and experts in the Asian region to enhance academic cooperation and development. Completed in 1975 and renovated in 2000, the structural testing area of the laboratory is a versatile area with a two-storey clear height that can be used to carry out a wide range of tests of building materials, components, structural assemblies and models.

One of principal elements of STE Lab is a strong floor system. The strong floor is a 1.5 meter deep heavily reinforced concrete mat, covering an area of 380 square meters, with anchorage slots spaced 1 meter apart and cluster points with a capacity of 1,000 kN per cluster. This arrangement provides versatility in the mounting of experiments, and full-size members of complete structures can be loaded to destruction. A test control room and the hydraulic power supply area are located adjacent to the test floor.

The laboratory is equipped with a series of hydraulic actuators of various load (100 kN to 500 kN.), stroke (+100 mm to +250 mm.) and servo-value capacities for static, dynamic and fatigue testing. Standard laboratory instrumentation for structural engineering is available e.g.,

extensometer, universal testing machine, ultrasonic pulse velocity and strain gauge preparation, impulse force test hammer, etc.

Seismic Load Simulation Facility

Set up in 2001, the Seismic Load Simulation Facility is basically composed of (1) a rigid, A-shape, steel reaction wall, (2) a 50-ton force generating capacity, 1000-mm piston stroke, hydraulic actuator that operates under precision closed-loop servo value control, and (3) the existing strong reinforced concrete floor of the STE Lab. The facility has the capability to perform various experimental seismic tests on near-full-scale structural models, such as quasi-static tests, cyclic loading tests, and pseudodynamic tests. The facility has been used intensively by many master and doctoral students in STE Field of Study.

Boundary Layer Wind Tunnel Laboratory

This wind tunnel laboratory is a state-of-the-art research facility for the study of wind loads and several complex wind-induced effects on buildings and structures. The laboratory was developed by a joint effort between School of Engineering and Technology at AIT and Faculty of Engineering at Thammasat University. The laboratory, located in Thammasat, is the longest and largest wind tunnel in Thailand. It is

capable of simulating atmospheric boundary layer wind as well as smooth and uniform wind in its 2.5m x 2.5m tunnel section with wind speeds varying from 0.5 m/s to 20 m/s. The wind tunnel is well equipped with hot-wire anemometers, pressure transducers with rotary scanning system, multi-component dynamic force sensors, dynamic motion sensors, turn tables, rotary side frames, and several other instruments. With this facility, various types of advanced experimental research study, student training, and industrial aerodynamic tests can be realized. The construction of the wind tunnel was completed in 2003, and it has been used intensively since then by graduated students of AIT and Thammasat University.

3.9.3 Faculty and Research Staff

Emeritus Professor

PISIDHI KARASUDHI, Ph.D., Northwestern Univ., USA; M.Eng., AIT, Thailand; B.Eng., Chulalongkorn Univ. Thailand. [Solid Mechanics]

Full-time Faculty

WORSAK KANOK-NUKULCHAI, Ph.D., Univ of California (Berkeley), USA. ; M.Eng., AIT, Thailand; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Professor [Computational Mechanics; Finite Element Methods; Tall Building Static and Seismic Analysis; Bridge Engineering; Microcomputer Software for Structural Engineering; Genetic Algorithms; Nonlinear Analysis of Structures and Continua; Plate/Shell Structures; Engineering Education; Nanomechanics]

PENNING WARNITCHAI, D.Eng., M.Eng., University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Associate Professor [Structural Dynamics; Wind and Earthquake Engineering; Wind Effects of Structures; Bridge Engineering; Control of Structural Vibration]

PUNCHET THAMMARAK, PhD, The Univ of Texas, Austin, USA; B.Eng. (Hon), Chulalongkorn Univ, Thailand;

Lecturer [Computer Methods of Structural Analysis; Finite Element Methods in Engineering (FE Programming; Dynamic problem & Wave Propagation Analysis; Absorbing Boundary Conditions; Material Nonlinearities; Soil-Structure Interactions; Structural Engineering (Reinforced-Concrete Design /Steel Design)]

Visiting/Adjunct/Affiliated Faculty

SOMNUK TANGTERMSIRIKUL, D.Eng., and M.Eng, University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Adjunct Professor [Modeling of concrete behavior, Durability evaluation and service life design of concrete structures, High performance cementitious based materials, Special concrete such as SCC and RCC, Use of wastes and recycled materials in cement and concrete, Health monitoring, Repair and maintenance of concrete structures]

AMORN PIMANMAS, Ph.D., and M.Eng, University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Adjunct Associate Professor [Evaluation of seismic performance of reinforced concrete buildings; Nonlinear finite element analysis of reinforced concrete; Inspection, repairing and strengthening of reinforced concrete]

THANAKORN PHEERAPHAN, Ph.D., and M.Sc., Massachusetts Institute of Technology USA. B.Sc., Virginia Military Institute, USA.

Adjunct Associate Professor [Advanced Concrete Technology; Forensic Engineering Structural Evaluation and Retrofitting of Structures; Dynamic soil-structure interaction; Seismic behavior of underground structure; Seismic behavior of earth structure; Multi-Agent simulation; Development of Virtual Clearinghouse for earthquake disaster reconnaissance]

RAKIPONG SAHAMITMONGKOL, D.Eng., M.Eng, University of Tokyo, Japan; B.Eng., Sirindhorn International Institute of Technology, Thailand.

Adjunct Faculty [Cracking Resistance of Expansive Concrete; Chemically Prestressed Concrete; Inspection on Concrete Structures & Performance Based Design; Non-Destructive Testing for Concrete Structures; Tension Stiffening Effect and Bonding Characteristic of Reinforced Concrete]

SONGSAK SUTHASUPRADIT, Ph.D., Konkuk University, Korea; M.Eng., AIT, Thailand; B.Eng., Srinakharinwirot University, Thailand.

Adjunct Faculty [Development of a Nonlinear Enhanced Assumed Strain Shell Element for Bridge Analysis; An Assumed Strain 4-Node Reinforced Concrete Shell Element Considering Geometric and Material Nonlinearity; Railway Bridge Inspection an Evaluation]

KITTIPOOM RODSIN, Ph.D., The University of Melbourne, Australia M.Eng., AIT, Thailand; B.Eng., Chulalongkorn Univ, Thailand.

Adjunct Faculty [Experimental Investigation of Socket-Type Connection for Pre-Cast Column-Footing Connection; Suppression of Pedestrian Bridge Vibration in Bangkok]

NAVEED ANWAR, D.Eng., M.Eng., AIT, Thailand; B.Sc.Eng., Univ. of Engineering & Tech., Lahore, Pakistan.

Affiliated Faculty [Advanced Concrete Structures; Tall Buildings; Structural Analysis and Design; Computational Mechanics; Computer Application; Bridge Engineering; Software Development]

BUI THANH TAM, D.Eng., M.Eng., AIT, Thailand; B.Eng., HoChiMinh City University of Technology, Vietnam.

Senior Research Associate [Computational Mechanics; Finite Element Analysis; Structural Analysis;

Fluid-Structure Interaction; Parallel Computing; Software Development]

3.9.4 Grants and Sponsored Research Completed in 2013

Investigation of HOPEWELL Structure near Wat Samian Nari that Collapsed on March 1st, 2012

Duration: 31-Oct-12 to 30-Apr-13
Project Investigator(s): Dr. Punctet Thammarak
Sponsor: State Railway of Thailand
Total Contracted Amount (THB): 785,000

A study on Seismic design and Retrofit of Buildings in Thailand

Duration: 1-Jun-11 to 31-May-13
Project Investigator(s): Pennung Warnitchai
Sponsor: The Thailand Research Fund
Total Contracted Amount (THB): 5,181,000

3.9.5 On-going Grants and Sponsored Research

Structural Integrity Evaluation of the Burapa Withi Expressway (EXAT)

Duration: 1-Jun-10 to 28-Feb-14
Project Investigator(s): Pennung Warnitchai
Sponsor: Expressway Authority of Thailand
Total Contracted Amount (THB): 26,980,000

A Study on Seismic Design and Retrofit of Buildings in Thailand (TRF III)

Duration: 1-Jun-11 to 31-May-14
Project Investigator(s): Pennung Warnitchai
Sponsor: The Thailand Research Fund
Total Contracted Amount (THB): 5,181,000

Seismic Hazard and Risk Assessment of Six Cities in Bangladesh (CDMP II)

Duration: 1-Aug-12 to 31-Aug-14
Project Investigator(s): Pennung Warnitchai
Sponsor: The Thailand Research Fund
Total Contracted Amount (THB): 5,800,000

3.9.6 Publications

International Journal Articles with Impact factor

Munir A. and Warnitchai, P. (2013), "Optimal Reduction of Inelastic Seismic Demands in Highrise RC Core Wall Buildings using Energy Dissipating Devices", *The Structural Design of Tall and Special Buildings*, Vol. 22, No. 7, pp. 543-568. (SCOPUS citation: 0, Journal's impact factor: 0.829, Publisher: John Wiley & Sons)

3.9.7 Doctoral Students' Dissertation

A Finite Point Method to Solve Tsunami Wave Simulation
By Chinapat Buachart
Supervisor: Prof. Worsak Kanok-Nukulchai

An Enhancement of Finite Element Method with Moving Kriging Shape Functions
By Kittiputh Plengkhom
Supervisor: Prof. Worsak Kanok-Nukulchai

3.9.8 Masters Students' Theses

Earthquake Resistant Design of High-rise Buildings in a Moderate Seismic Hazard Region
By Rachut Rattanameechai
Supervisor: Dr. Pennung Warnitchai

Seismic Evaluation of Mid- to High-Rise Reinforced Concrete Buildings by the Modal Pushover Analysis Procedure with the Displacement Coefficient Method
By Mira K. Hadiwijaya
Supervisor: Dr. Pennung Warnitchai

A Study of Vibration Characteristics of Single-Walled Carbon Nanotubes
By Sumet Supprasert
Supervisor: Dr. Pennung Warnitchai

The Effect of Aerodynamic Interference on the Dynamic Response of Tall Buildings

By Boworn Chutipatwipa
Supervisor: Dr. Pennung Warnitchai

Effects of Zone Based Detailing on Performance of Shear Walls
By Cho Thi Thi Wai
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Naveed Anwar

Seismic Fragility Analysis of High-Rise Structures
By Muhammad Zain
Supervisor: Dr. Pennung Warnitchai

The Effect of Ground Motion Selection Procedure and Hazard Spectra on Design Seismic Demand of Near-Fault Tall Buildings
By Mandeep Pokhrel
Supervisor: Dr. Pennung Warnitchai

Investigation of Crack in Concrete Structure of an Elevated Expressway due to Expansion from Chemical Reactions in Concrete
By Natdanai Burakitpachai
Supervisor: Dr. Pennung Warnitchai

A Case Study of Effects from Soil-Pile Interactions to Dynamic Response of a Structure under Earthquake
By Phongthorn Songdet
Supervisor: Dr. Pennung Warnitchai

Predicting the Moment Capacity of Corroded Reinforced Concrete Beams
By Supakit Wongtripo
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Thanakorn Pheeraphan

Prediction of Compressive Strength of Fly Ash Concrete Using Ultrasonic Pulse Velocity and Electrical Resistivity Measurement
By Seree Wiriyasumon
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Thanakorn Pheeraphan

A Comparison between HFFB and HFPI Techniques for Determining Wind-Induced Response of Tall Buildings
By Cheepchanok Srinamngoen
Supervisor: Dr. Pennung Warnitchai

A Study of Durability Properties of Repairing Concrete
By Akachai Preeda
Supervisor: Dr. Pennung Warnitchai

A Study on the Improvement of Bond Strength between Concrete Substrate and Repairing Concrete
By Pirawat Changyaem
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Thanakorn Pheeraphan

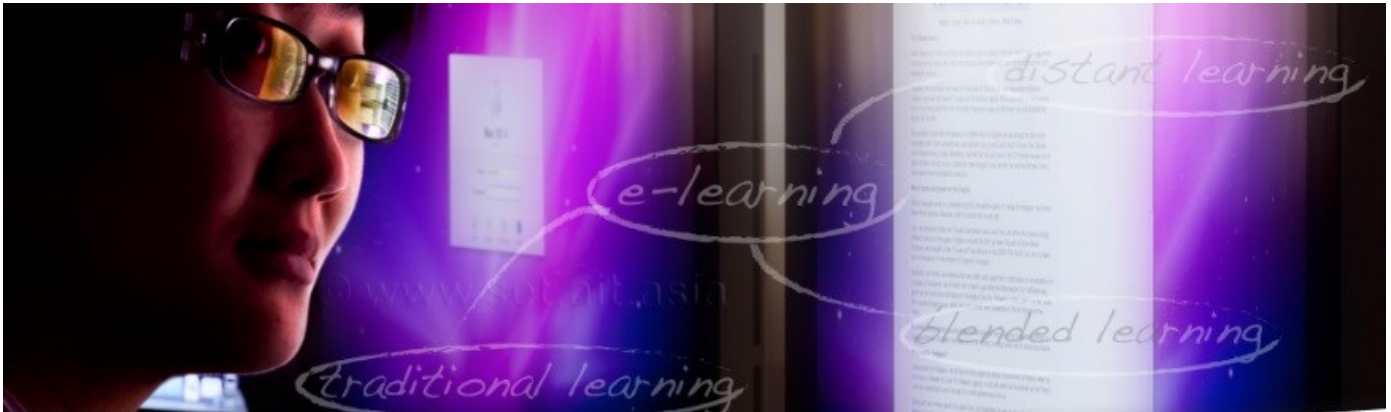
Experiment on Performance of Side-Installation Beam-Column Precast Concrete Connection
By Mr. Yothin Krudnak
Supervisor: Dr. Punctet Thammarak

A Finite Element Model to Simulate the RC Beam Strengthened with NSM FRP by Shear Capacity
By Dipak Bor Saikia
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Raktipong Sahamitmongkol

Predicting the Remaining Service Life of a Reinforced Concrete Structure: Time to Corrosion Initiation
By Dante Ian Moso Detera
Supervisor: Dr. Pennung Warnitchai
Co-chairperson: Dr. Thanakorn Pheeraphan

An Experimental Study of Flexure-Shear Interection in Reinforced Concrete Wall Subjected to Cyclic Loading
By Kashfia Hussain
Supervisor: Dr. Pennung Warnitchai

3.10: SET – TELECOMMUNICATIONS FIELD OF STUDY



3.10.1 Introduction

The **Telecommunications Field of Study** offers areas of specialization in transmission systems; switching systems; telematics; network planning, and in collaboration with the School of Management telecommunications management. The courses offered emphasize modern telecommunications skills in systems planning and engineering, telecommunications software development, and administrative and financial aspects of telecommunications management.

Graduates from the master's program form the nucleus for effective high-level technical planning and management operations at their employer organizations. Some of the graduates are engaged in planning, development, and service activities leading to the installation, commissioning, management, design, etc. of value-added systems. Given the important role of our graduates in the development of the telecommunications sector, the learning is of significant benefit to the users of telecommunications services within the region. Graduates of the doctoral program play key roles in enhancing the level of education and research in the national universities of the region, and promote and strengthen the R&D potential of emerging regional manufacturing industries.

3.10.2 Research Facilities and Laboratories

Today's fast-booming world of Telecommunications and Computer networking plays a significant leadership role. To support this achievement the Telecommunications field of study puts the effort to continue the development of telecommunications technologies and systems. It covers a wide variety of research in telecommunications ranging from modeling, analysis wire line and wireless systems to application and protocol development. Its research subjects are in coherent optical communications; congestion control, ATM, and B-ISDN networks; error correction and detection methods; mobile and Internet traffic studies; multiple access strategies for cellular mobile, satellite systems, and cabled networks; network performance analysis, planning and design; and speech processing. Its research specializations are in broadband networks; network planning; Switching systems; telecommunications management in collaboration with the School of Management; telematics; and transmission systems.

Transmission and Switching Lab (TSL)

The Transmission and Switching lab is equipped with Nokia Digital Switching Exchange DX200 (DX220, DX210) that supports PSTN and ISDN. There are also

several telephone switches, traffic simulators, protocol analyzer, PDH/SDH (STM1 & STM4) transmission systems, fiber optic line equipment, transmission line analyzer, error rate meter which are available for experiment in switching, transmission and internetworking. The switching and transmission systems are integrated as real telecommunications network. Among the applications whose study has been made possible by these systems are Operation and Maintenance, performance measurements of real narrowband and broadband telecommunication networks, as well as new services.

Network Planning Lab (NPL)

High performance computer aided network planning tools are supported by several workstations at the Network Planning lab. This lab provides hands-on experience design and optimization in radio network, fixed network and fiber optical network.

Wireless Lab (WL)

The main purpose of the Wireless laboratory is for measurement and performance analysis. It is equipped with Modulation and Error rate measurement meters, Simulation software like SATSIM, which was developed by the students, is a simulation package to calculate the sub-satellite points of a LEO/ MEO/GEO and its orbital parameters. It also displays

graphically on a two-dimensional earth map the instantaneous position and path traced by the satellite (Multi orbit and Multi satellite). Another is NMS/X, is a measurement system for GSM, DCS and NMT networks tracing, capable of measuring up to four networks simultaneously. The results are used for benchmarking service quality of operational cellular networks. These results can be analyzed and can be used for tuning the network parameters in NPS/X.

Communications Labs (CL)

The Communications lab is used to perform experiments courses under Signal and Systems, Communications Electronics, Digital Transmission Technology and Digital Signal Processing. Test bench equipment includes analog and digital oscilloscopes, function generators, analog and digital Spectrum analyzers, Digital sampling oscilloscopes and DSP cards and workstations which have simulation applications like MATLAB.

Computer Laboratory (PCL)

There are two Computer Laboratories in Telecommunications Program. One is for Senior students and one is for Junior Students. All computers are latest powerful computers.

TC Library

In Telecommunications Program, there is a small library, from where students can borrow telecommunication related journals, manuals and reference books.

3.10.3 Faculty and Research Staff

Full-time Faculty

TEERAPAT SANGUANKOTCHAKORN, BEng, Chulalongkorn Univ, Thailand; MEng, DEng, Tokyo Institute of Technology, Japan.

Associate Professor (*Data Communications; Broadband Integrated Services*)

Digital Networks; Multimedia Communications and Systems; Network Quality of Service

Visiting and Adjunct Faculty

R M A P RAJATHEVA, B.Sc. Hons. (Eng), Moratuwa Univ, Sri Lanka; M.Sc., Ph.D. (Electrical and Computer Eng), Univ of Manitoba, Canada.

Associate Professor (*Digital and Mobile Communications, Cooperative Diversity, Relay Systems, OFDMA Resource Allocation, Cognitive Radio: Detection /Estimation Techniques, Space Time Processing-MIMO Systems, Distributed Video Coding (DVC)*)

POOMPAT SAENGUDOMLERT, BSE, Princeton Univ; MS, PhD, Massachusetts Inst of Tech, USA

Assistant Professor [*Communication theory, optical networks, resource allocation problems, and array processing; Recent research activities have focused on optical network designs based on existing infrastructure networks and communications for disaster management*]

ATTAPHONGSE TAPARUGSSANAGORN, B.Eng, Chulalongkorn University, Thailand, M.Sc., Technische Universitat Kaiserslautern, Germany, D.Tech., University of Oulu, Finland.

[Smart energy grids: optimal energy scheduling, smart grid communications using cognitive radio based, spectrum sensing for cognitive radio systems, MIMO-OFDMA cooperative relay systems, cognitive radio based wide coverage rural broadband on TV white spaces, Resource allocation for MIMO-OFDMA systems, Digital image processing.]

3.10.4 Publications

International Journal Articles with Impact factor

Bokhari, M., and P. Saengudomlert (2013). "Analysis of Mean Packet Delay

for Upstream Transmissions in Passive Optical Networks with Sleep Mode", *Optical Switching and Networking 10(3)* pp 195-210.

Farooqui, M.Z., and P. Saengudomlert (2013). "Transmit Power Reduction through Subcarrier Selection for MCD-CDMA A-based Indoor Optical Wireless Communications with IM/DD", *Eurasip Journal on Wireless Communications and Networking 2013(1)*

Herath, P., U. Gunawardana, R. Liyanapathirana and N. Rajatheva (2013). "Outage Probability Analysis of Multi Antenna Dual-hop Networks with Interference-Limited Relay", *IEICE Transactions on Communications, E96-B (2)* pp 577-584.

Iqba, A., and K.M. Ahmed (2013). "Integrated Satellite-terrestrial System Capacity over Mix Shadowed Rician and Nakagami Channels", *International Journal of Communication Networks and information Security, 5(2)* pp 104-109.

Yuttachai, W., P. Saengudomlert and W. Kumwilaisak (2013). "Detection and Localization of Link Quality Degradation in Transparent WDM Networks", *IEICE Transactions on Communications E96-B(6)* pp 1412-1424.

Conference Publications

Farahbakhsh, R., N. Crespi, A. Cuevas, N. Shrestha, M. Mani and P. Saengudomlert (2013). "Improved P2P Content Discovery by Exploiting User Social Patterns", *2013 International Conference on Computing, Networking and Communication, ICNC2013* pp 444-448.

Poungmanee, M. and T. Sanguankotchakorn (2013). Multiple Constraints QoS Routing using Priority Metrics with Control Variables, *The 19th IEEE International Conference on Networks (ICON2013), Orchard Hotel, Singapore, December 11-13, 2013.*

Sanguankotchakorn, T., A. Gopalingham and N. Sugino (2013). Adaptive Channel Access Mechanism for Real-

time Traffic over IEEE802.11e Wi-Fi Networks, The 4th IEEE Intelligent System, Modeling and Simulation (ISMS2013), Bangkok, Thailand, pp. 486-491, January 29th-31st, 2013.

Saguanpuak, T., N. Rajatheva, A. Taparugssanagorn and P. Saengudomlert (2013). "Performance Analysis of OSTBC for Fixed Gain Relay Network over Nakagami-m-Fading with Correlated Antennas", IEEE Vehicular Technology Conference.

Sanguankotchakorn, T., S.K. Wijaya-sekara and N. Sugino (2013). A Cross-layer Design Approach in OLSR MANET using BER and Weighted Connectivity Index, The 19th IEEE International Conference on Networks (ICON2013), Orchard Hotel, Singapore, December 11-12, 2013.

Sanguankotchakorn, T., S. Maneepong and N. Sugino (2013). A Relaxing Multi-constraint Routing Algorithm by Considering QoS Metrics Priority for Wired Network, The 5th IEEE International Conference on Ubiquitous and Future Networks (ICUFN2013), Da Nang, Vietnam, pp. 738-743, July 2nd-5th, 2013.

3.10.5 Doctoral Students' Dissertation

Performance Analysis of One-Way and Two-Way Amplify-Forward Relaying in

Rayleigh, Mixed Rician and Nakagami-m Fading Channels
By Muhammad Hasanain Chaudary
Supervisor: Dr. R.M.A.P. Rajatheva

Detection and Localization of Link Quality Degradation in Transparent WDM Networks
By Wissarut Yuttachai
Supervisor: Dr. Poompat Saengudomlert

Improving Energy Efficiency in Optical Access Networks
By Syed Muzamil Ali Bokhari
Supervisor: Dr. Poompat Saengudomlert

Design Based Routing with Waveband and Wavelength Assignments in WDM Networks Using Multi-granular Optical Cross-Connects
By Akhtar Nawaz Khan
Supervisor: Dr. Poompat Saengudomlert

Transmit Power Reduction in Multi-carrier Optical Wireless Communications
By Muhammad Zubair Farooqui
Supervisor: Dr. Poompat Saengudomlert

3.10.6 Masters Students' Theses and Research Studies

Interference and Performance Analysis of Filter-Bank Multicarrier Modulation with Precoding
By Udaya Upul Jayasinghe
Supervisor: Dr. R.M.A.P. Rajatheva

Improving the Average Battery Lifetime Based on Uplink Multiuser MIMO-OFDM Transmissions with Subcarrier and Power Allocation
By Tahia Fahrin Karim
Supervisor: Dr. Poompat Saengudomlert

Bulk Information Dissemination in Vehicular Ad-hoc Networks
By Dibya Khatiwada
Supervisor: Dr. Teerapat Sanguankotchakorn

Self Optimizing Preemption-based Call Admission Control for LTE Networks
By Sudha Lohani
Supervisor: Prof. Kazi Mohiuddin Ahmed

Efficient Probing for Fault Detection and Localization of a Link Failure in Transparent WDM Networks
By Saurav Nepal
Supervisor: Dr. Poompat Saengudomlert

Channel Dependent Precoding for MIMO-OFDM with Insufficient Cyclic Prefix
By Apisak Janta
Supervisor: Dr. Poompat Saengudomlert

Investigation of Energy Consumption of Game Theoretic OLSR
By Supattra Wiriya-punt
Supervisor: Dr. Teerapat Sanguankotchakorn

3.11: SET – TRANSPORTATION ENGINEERING FIELD OF STUDY



3.11.1 Introduction

Industrialization and population growth have tremendous impacts in the movement of people and goods. Everyday, movement is hampered by congestion, insufficiency of public transport facilities, traffic accidents, and other conditions. Moreover, as manufacturing expands globally, businesses want to reduce transportation costs by limiting the number of distribution nodes. Concerns over congestion on highways, increasing pollution and hazardous materials all emphasize the need to effectively maximize transportation systems. Thus, the issue of transportation is obviously crucial, not only now but in the future.

The Transportation Engineering field exposes students to the process of alleviating transportation problems. The coursework and research in the area provide advanced knowledge in transportation planning and economics, traffic engineering and safety, and the design of highways/pavements and other transportation facilities. Transportation Engineering students acquire advanced skills concerning the planning, design, operations, maintenance, rehabilitation, performance, and evaluation of transportation systems, including their economic and public policy aspects. The field imbues in each student the development of analytic, problem-solving, design, and management skills

suitable for public and private sector professional work.

3.11.2 Faculty and Research Staff

Emeritus Professor

JOHN HUGH JONES, B.S., B.Eng., University of California, USA (*Highway Engineering, Transportation Engineering*)

Full-time Faculty

KUNNAWEE KANITPONG, Ph.D., University of Wisconsin- Madison; M.Sc., University of Maryland at College Park, USA; B.S., Chulalongkorn University, Thailand.

Associate Professor (*Road Traffic Safety, Accident Data Analysis, Highway Materials and Construction, Pavement Design and Analysis, and Pavement Management System*)

Visiting / Adjunct Faculty

HIRONORI KATO, D.Eng, M.Eng, B.Eng., University of Tokyo, Japan

Visiting Associate Professor (*Transportation planning and policy; travel behavioral analysis; transportation project evaluation*)

HIRONORI KATO, D. Eng., M.Eng., B.Eng., University of Tokyo, Japan

Visiting Associate Professor (*Transportation planning and policy; travel behavioral analysis; transportation project evaluation*)

KAZUSHI SANO, D.Eng., M.Eng., B.Eng., University of Tokyo, Japan

Visiting Associate Professor (*Transportation Planning, Traffic Engineering, and Logistics*)

TAKASHI NAKATSUJI, D. Eng., M. Eng., B. Eng., Hokkaido University, Japan.

Visiting Professor (*Traffic Engineering, Traffic Flow Simulation, Winter Maintenance, Traffic Accident Reconstruction*)

PIYAPONG JIWATTANAKULPAISARN, Ph.D., Imperial College London, United Kingdom; M.Eng., Asian Institute of Technology, Thailand; B. Eng., Chulalongkorn University, Thailand.

Adjunct Faculty (*Wider Economic Impacts of Transport Infrastructure, Highway Development and Land Use, Financing Transport Infrastructure, Econometric Modeling for Policy Analysis, Statistical and Quantitative Methods for Transportation Analysis, Fuel Demand Modeling, Accident Risk Behaviours of Road Users, Traffic Safety Engineering and Evaluation of Road Safety Interventions*)

THIRAYOOT LIMANOND, Ph.D., University of California, Davis, USA; M.S., Arizona State University, USA; B. Eng., Chulalongkorn University, Thailand

Adjunct Faculty (*Sustainable transport, travel demand, transportation planning, traffic engineering, transport energy planning, intelligent transportation system*)

Ampol Karoonsoontawong, Ph.D., M.S., The University of Texas at Austin, USA; B.Eng. (2nd Class Honors), Chulalongkorn University, Thailand

Adjunct Faculty (*Transportation Network Modeling, Transportation Logistics, Public Transportation Scheduling, Applied Operations Research*)

Research Staff

Research Assistant

Miss Kanwalai Nachaisit, M.A. (Major: History of Southeast Asia); B.A. (Major English), Silpakorn University, Thailand

Srivarang jendupakarn, Bachelor of Nursing Science, Burapha University, Chonburi, Thailand

Pathumporn Dabsomsri, B.Eng. (Transportation Engineering), Suranaree University of Technology, Nakhon Rachasima, Thailand

Research Associate

Auearree Jensupakarn, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering), Suranaree University of Technology, Nakhon-Ratchasima, Thailand

Jetpan Wetwitoo, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering), King Mongkut's University of Technology North Bangkok, Bangkok, Thailand

Santosh Baral, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering,

Nepal Engineering College, Changunarayan, Bhaktapur, Nepal

Napong Bubanpong., M.Eng. (Transportation Engineering, Asian Institute of Technology; B.Eng. (Civil Engineering), King Mongkut's Institute of Technology, Bangkok, Thailand

Ratthapong Meesit, M.Eng. (Transportation Engineering), Asian Institute of Technology; B. Eng. (Civil Engineering), Prince of Songkla University, Songkla, Thailand

Mr. Ridwan B.A. Quaium, M.Sc (Civil engineering), Texas A&M University; B.Sc. (Civil Engineering), Virginia Tech, Blacksburg, Virginia, USA

3.11.3 Grants and Sponsored Research Completed in 2013

Road Safety Improvement in Five Regions: Toyota 50th Anniversary Project

Duration: 15-Jun-12 to 31-Dec-13
Project Investigator(s): Dr. Kunnawee Kanitpong

Sponsor: Toyota Motor Thailand Co. Ltd.
Total Contracted Amount (THB): 2,321,472

Road Safety-Outer Ring Road

Duration: Mar-12 to Dec-13.
Project Investigator(s): Dr. Kunnawee Kanitpong

Sponsor: Expressway Authority of Thailand
Total Contracted Amount (THB):

Sustainable Improvement of Road Traffic Safety by Establishment of the EU-Asia Road Safety Centre Excellence in Thailand

Duration: 1-May-11 to 31-Oct-13
Project Investigator(s): Dr. Kunnawee Kanitpong

Sponsor: Commission of the European Communities
Total Contracted Amount (THB): 549,780

Improvement of Roadside safety Design Standard for Thai National Highways

Role in Project: Principal Investigator
Duration: Mar-11 to Dec-13

Sponsor: Department of Highways, Thailand

Total Contracted Amount (THB): 13,040,500

3.11.4 On-going Grants and Sponsored Research

Motorcycle Accident Analysis: Phase 1

Duration: 15-Jul-13 to 31-Jan-14
Project Investigator(s): Dr. Kunnawee Kanitpong
Sponsor: Yamaha Motor, Co., Ltd
Total Contracted Amount (THB): 612,000

Road Safety Watch-Central 2013

Duration: 15-Jul-13 to 14-May-14
Project Investigator(s): Dr. Kunnawee Kanitpong
Sponsor: ThaiRoads Foundation
Total Contracted Amount (THB): 1,707,750

3.11.5 Publications

International Journal Articles with Impact factor

Charoentham, N., Kanitpong, K., and Bahia, H.U., "Asphalt Binder Grading System by Indirectly Estimated Parameters and Relationship to Performance Related Properties of Asphalt Mixture," the International Journal of Pavement Research and Technology, Vol.6, No.3, pp. 205-216, 2013.

Jiwattanakupaisarn, P., Kanitpong, K., Ponboon, S., Boontob, N., Aniwattakulchai, P., and Samranjit, S., "Does Law Enforcement Awareness Affect Motorcycle Helmet Use? Evidence from Urban Cities in Thailand," the Global Health Promotion, Vol.20, Issue 3, September 2013. (IF = 0.729)

Kanitpong, K., Jiwattanakupaisarn, P., and Yaktawong, W., "Speed Management Strategies and Drivers' Attitude in Thailand," the International Association of Traffic and Safety Sciences (IATSS) Research, Vol.37, Issue 1, pp.39-48, July 2013.

3.11.6 Doctoral Students' Dissertation

Development of Pedestrian Simulation Model for Emergency Evacuation: Tsunami Case Study
 By Chalut Tipakornkiat
 Supervisor: Dr. Kunnawee Kanitpong
 Co-chairperson: Dr. Thirayoot Limanond

Analysis of Motorcycle Use Behavior in Nepal: An Application and Extension of Theory of Planned Behavior
 By Sangita Gautam
 Supervisor: Dr. Kunnawee Kanitpong

An Optimal Distribution Center Model for Flooding Risks in Northern Region of Thailand
 By Jessada Pochan
 Supervisor: Dr. Kunnawee Kanitpong

Optimization on Single-Track Train Dispatching in Thai Railways
 By Jetpan Wetwitoo
 Supervisor: Dr. Kunnawee Kanitpong
 Co-chairperson: Dr. Thirayoot Limanond

Analysis on Attitudes and Mode Choice Behavior of Inter-City Van Users in Thailand
 By Tharadol Punlop
 Supervisor: Dr. Kunnawee Kanitpong

3.11.7 Masters Students' Theses and Research Studies

Factors Influencing Red Light Running Behavior: A Study of Socio-Economic Characteristics and Geometry of Intersections
 By Auearree Jensupakarn
 Supervisor: Dr. Kunnawee Kanitpong

The Value of Time and Reliability in Freight Transport
 By Napong Subanpong
 Supervisor: Dr. Kunnawee Kanitpong

Public Transport Accessibility and Its Effect on Motorcycle Users in Municipality Areas
 By Suharit Masmek
 Supervisor: Dr. Kunnawee Kanitpong

Factors Influencing Parking Behavior in Kathmandu City
 By Bijay Man Suwal
 Supervisor: Dr. Kunnawee Kanitpong

Evaluation on the Performance of Non-intrusive Traffic Detectors for Traffic Data Collection
 By Santosh Baral
 Supervisor: Dr. Kunnawee Kanitpong

Effects on Laem Cha Bang Port in Thailand after Completion of Dawei Port in Myanmar
 By Pongrit Sothikulnun
 Supervisor: Dr. Kunnawee Kanitpong

Distribution and Impacts of Public Transport Subsidy: The Case of Free Train Policy in Thailand
 By Tithiwach Tansawat
 Supervisor: Dr. Kunnawee Kanitpong

3.12: SET – WATER ENGINEERING AND MANAGEMENT FIELD OF STUDY



3.12.1 Introduction

Today's major challenges for water engineers and managers include securing water for people and for food production, protecting vital ecosystems, and dealing with climate variability and change and uncertainty of water in space and time. The Water Engineering and Management (WEM) field of study imparts education and training towards an understanding of the complexity of water cycle, utilization, and management. It offers a balanced curriculum covering both engineering and management aspects of water resources. Students acquire knowledge and hands-on practice in tools and techniques to come up with viable and sustainable water management for water, food, energy, and environmental security. Students conduct research on country-specific water related problems, and have opportunities to join research and internship programs with industries and partners.

The WEM field of study covers five focal areas: Agricultural Water, Coastal Water, Urban Water, Water Resources, and Extreme Events and Risk Management. The curriculum is designed in such a way that students can specialize according to their interests. Courses on Watershed Hydrology, Hydrodynamics, Water Resources Systems, and Concepts in Water Modeling provide the solid foundation to the advanced courses. The curriculum emphasizes tools and

techniques in water resources planning and management.

Agricultural Water

Courses impart knowledge and skills necessary for the development and management of water resources for agriculture. They address various multi-disciplinary issues in the planning, design, implementation, operation and maintenance of irrigation and drainage projects and land and water conservation programs. Current researches in the area include irrigation and drainage system management, cropping systems, erosion and water quality problems, soil conservation and land-use, and watershed management. The management and design of sound engineering works for the control and effective use of coastal zones require in-depth knowledge of hydrodynamics and the understanding of coastal zone phenomena. Coursework and research in Coastal Water cover studies of wave characteristics and their action on beaches, coastal sedimentation, estuarine hydraulics and the applied aspects of coastal zone engineering and management.

Urban Water

Courses relate to water supply and sanitation, storm water, and domestic wastewater and urban drainage for sustainable management of urban areas. The research in relation to urban water

focuses on application of state-of-the-art theory in water demand forecasting and management, design and management of water distribution systems in urban and rural areas, real-time hydrological information systems for urban flooding and drainage. Given the ever-growing importance of water quality, an integrated water quantity-quality approach is essential. Courses in Water Resources focus on techniques to assess the occurrence and availability of surface and groundwater. Students acquire a sound understanding of basic principles in river engineering and modeling, water resources planning, conjunctive use of surface and groundwater; integrated water resources management and social and environmental impact assessment of water resources projects.

Climate change impact and adaptation in water sector is an active area of research and education at WEM. In-depth knowledge and hands-on practice on mathematical modeling of water resources systems is provided. Flooding is a natural phenomenon and various human activities as well as climatic changes have aggravated the problem causing economic losses. Students are exposed to an understanding of the behavior of rivers, and to design appropriate structural and non-structural alternatives for the effective management of rivers and waterways. Research in the area of Extreme Events and Risk Management includes drought

analysis and management, river flow analysis, and flood control and mitigation, flood modeling and forecasting, flood plain development and management. Research in the area of climate change and water resources include downscaling of climatic variables at local scale and impact and adaptation studies of future climate on water resources and on water use sectors.

In addition, WEM offers the following Double Degree Masters programs with renewed institutions under which students are awarded two Master degrees: one from AIT and one from AIT's partner institution.

- Urban Water Engineering and Management (UWEM) in collaboration with UNESCO-IHE, The Netherlands and Environmental Engineering and Management field of study at AIT
- Agricultural Water Management for Enhanced Land and Water Productivity (DD-AWELWP) in collaboration with UNESCO-IHE, The Netherlands
- Hydroinformatics and Water Management (HWM) in collaboration with The University of Nice, Sophia Antipolise, France

WEM also offers e-learning programs on:

- Integrated Water Resources Management (IWRM) in collaboration with UNU-INWEH, Canada
- Service Oriented Management of Irrigation Systems (SOMIS) in collaboration with UNESCO-IHE, The Netherlands

WEM also encourages students to undertake internship program and receive students from partner institutions under exchange and dual degree program.

3.12.2 Faculty and Research Staff

Emeritus Professor

ASHIM DAS GUPTA, BEng, Gauhati Univ, India; MEng, DEng, AIT, Thailand.

Visiting Professor [*Integrated water resources management; Groundwater development and management; Modeling and monitoring*]

Full-time Faculty

MUKAND SINGH BABEL, BEng, Rajasthan Agr Univ, India; MEng, DEng, AIT, Thailand.

Associate Professor [*Hydrologic and water resources modeling as applied to integrated water resources management; Watershed modeling and management; Water resources allocation and management; Water resources and socio-economic development; Water supply system and management; Climate change impact and adaptation; Groundwater resources management; and Flood and drought analysis, forecasting and management*]

SANGAM SHRESTHA, MSc., Institute of Agriculture and Animal Science, Tribhuvan University, Nepal; MSc., Asian Institute of Technology, Thailand; PhD., University of Yamanashi, Japan.

Assistant Professor [*Climate change and adaptation, Integrated water resources management, Hydrology and water quality modeling, Groundwater development and management, Sustainable water management policy*]

Visiting Faculty

ASHIM DAS GUPTA, BEng, Gauhati Univ, India; MEng, DEng, AIT, Thailand.

Visiting Professor [*Integrated Water Resources Management; Groundwater Development and management; Modeling and monitoring*]

ROBERTO CLEMENTE, BSAE, Univ of the Philippines at Los Baños; MEng, AIT, Thailand; PhD, McGill Univ, Canada.

Associate Professor [*Focal areas related to irrigation/ drainage, and land and water resource assessment and management; Studies on the impacts of fertigation on water quality, modeling surface/subsurface transport of water and solutes, performance evaluation of irrigation and drainage systems, and assessment of soil erosion hazard and soil quality dynamics in agricultural watersheds; Joint research on water harvesting and management and soil hydraulic characterization in sloping agricultural lands; Future research focuses on evaluation and optimization of soil, water, chemical and crop management schemes to enhance agricultural productivity without jeopardizing environmental quality*]

AKIYUKI KAWASAKI, BEng, MEng, DEng., Yokohama National University, Japan

Visiting Associate Professor [*Geographic Information System / City and regional planning / Transboundary river / Benefit sharing / Land-use modeling / Disaster management (Landslide and flood)*]

TAWATCHAI TINGSANCHALI, BEng, Chulalongkorn Univ, Thailand; MEng, DEng, AIT, Thailand.

Visiting Professor [*Flood Control Engineering and Management; Flood Forecasting, Warning and Flood Disaster Management; River Engineering and Hydropower; Water Resources Project System Optimization*]

SYLVAIN PERRET, MS and PhD, University of Montpellier II, France; DSc, Ecole Polytechnique de Lorraine, Nancy, France.

Visiting Associate Professor [*Water economics and governance, with special interest onto valuation approaches of rural and environmental water uses, irrigation systems' performances and evaluation, environmental assessment of production systems, governance in irrigation systems, integrated water resource management and governance at the river basin level, social participation in the water sector*]

DAMIEN JOURDAIN, BEng, MSc, Ecole

Nationale Supérieure Agronomique Montpellier, France; PhD, University of Montpellier I, France

Visiting Assistant Professor [*Agricultural & Natural Resources Economics / Farm Modeling / Water and Watershed Management / Payment for Environmental Services*]

H. RAMESH, M.Tec., The National Institute of Engineering, Mysor, Ph.D., National Institute of Technology Karnataka, Kurathkal, India.

Visiting Assistant Professor [*Water Resources Engineering, Hydraulic, and Civil Engineering*]

SANTOSH G. THAMPI, M Tech., IIT.Madras, Ph. D., IISc, Bangalore, India
Visiting Professor [*Hydraulics, Water Resources Engineering, Soil and Civil Engineering*]

Affiliated Faculty

SUTAT WEESAKUL, D.Eng, M.Eng, Asian Institute of Technology; BEng, Chulalongkorn University, Thailand
[Numerical computation in sea and coastal area including flood propagation using developed computer programs; Application in solving urban drainage problem using both engineering and management approaches; the on-line urban flood warning system at Sukhumvit, Bangkok, Thailand providing useful information in daily life during rainy season are disseminated in <http://www.wap.ait.ac.th>; Improvement of hydraulic design using physical hydraulic model test in hydropower; hydropower development projects in Lao and Myanmar and improvement in design of intake, diversion tunnel, riparian outlet, energy dissipater, spillway and head pond]

3.12.3 Grants and Sponsored Research Completed in 2013

An Enhancing the use of Science in International Water (IW) project to improve results

Duration: 1-Sep-11 to 31-Dec-13
Project Investigator(s): Mukand S. Babel
Sponsor: UNEP Nairobi
Total Contracted Amount (THB): 870,000

Training Course on GIS and Remote sensing in Irrigation planning for Participants from Afghanistan

Duration: 1-Feb-11 to 31-Dec-13
Project Investigator(s): Mukand S. Babel
Sponsor: The Ministry of Energy and Agriculture (MEW) Afghanistan
Total Contracted Amount (THB): 1,660,200

Post Doctoral Research Programme on Adaptation to Climate change (PRoACC) in Water Resources Management and Governance

Duration: 1-Apr-10 to 30-Jun-13
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCO-IHE Delft Netherlands
Total Contracted Amount (THB): 1,504,800

Optimization of water allocation between off stream and in stream competing demands

Duration: 1-Sep-09 to 30-Dec-13
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCO-IHE Delft Netherlands
Total Contracted Amount (THB): 1,430,680

Support to Capacity Building at the Water Resources University, Hanoi, Vietnam

Duration: 1-Sep-01 to 31-Jun-13
Project Investigator(s): Mukand S. Babel
Sponsor: Danish International Development Assistance (Danida)
Total Contracted Amount (THB): 6,257,249

Assessment of Water Availability and Demand Under Different Climate Change Scenarios in Thailand

Duration: 1-Sep-12 to 31-Aug-13
Project Investigator(s): Sangam Shrestha
Sponsor: IGES, Japan
Total Contracted Amount (THB): 481,000

Curriculum Development for Undergraduate Program in Water

Resources and Environmental Engineering in Kandahar University, Afghanistan

Duration: 1-Sep-12 to 31-Aug-13
Project Investigator(s): Sangam Shrestha
Sponsor: CIDA, Canada
Total Contracted Amount (THB): 3,052,000

Establishment of Overseas Collaboration center at AIT

Duration: 1-Jun-10 to 31-Dec-13
Project Investigator(s): Sangam Shrestha
Sponsor: ICRE University of Yamashiro Japan
Total Contracted Amount (THB): 2,988,466

3.12.4 On-going Grants and Sponsored Research

Capacity Development of Higher Education on IWRM at CUET

Duration: 1-Sep-13 to 31-Aug-16
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCO-IHE, the Netherlands
Total Contracted Amount (THB): 3,816,280

Capacity Development on Adaptation and Disaster Management of the Water Section related to Climate Change

Duration: 1-Mar-13 to 31-Dec-15
Project Investigator(s): Mukand S. Babel
Sponsor: Wageningen University (WU), The Netherlands
Total Contracted Amount (THB): 2,529,280

Adaptation to Global Change in Agricultural practices

Duration: 1-Aug-10 to 31-Dec-14
Project Investigator(s): Mukand S. Babel
Sponsor UNESCO IHE Delft Netherlands
Total Contracted Amount (THB): 1,455,840

Post-doctoral Research Programme on Adaptation to Climate Change (PRoACC2)

Duration: 1-Mar-13 to 28-Feb-15
Project Investigator(s): Prof. Mukand S. Babel
Sponsor: UNESCO-IHE, Delft, The Netherlands
Total Contracted Amount

(THB): 1,086,800

Hydology Measurement and Analysis

Duration: 1-Oct-13 to 30-Sep-14

Project Investigator(s): Dr. Sangam Shrestha

Sponsor: Ministry of Energy and Water, Afghanistan

Total Contracted Amount

(THB): 1,033,286

Enhancing the Groundwater management Capacity in Asian Cities through the Development and Application of Groundwater Sustainability Index in the context of Global Change

Duration: 1-Sep-13 to 31-Dec-14

Project Investigator(s): Dr. Sangam Shrestha

Sponsor: APN, Japan

Total Contracted Amount

(THB): 1,338,970

3.12.5 Publications

International Journal Articles with Impact factor

Babel, M.S., Fakhruddin, S.H.M., Kawasaki, A. (2013) A decision support framework for flood risk assessment: an application to the Brahmaputra River in Bangladesh, *Floods: From Risk to Opportunity (IAHS Publ.)*, 357, 263-272.

Bhatt, D., Maskey, S., Babel, M. S., Uhlenbrook, S., and K. C. Prasad (2013). Climate Trends and Impacts on Crop Production in the Koshi River Basin of Nepal, *Regional Environmental Change*, DOI 10.1007/s10113-013-0576-6, Publisher: Springer, Impact factor: 1.945 (2012). Citation: -

Divakar, L., Babel, M.S., Perret, S.R., Das Gupta, A. (2013) Optimal water allocation model based on satisfaction and economic benefits. *International Journal of Water*, 7(4): 363-381.

Divakar, L., Babel, M. S., Perret, S. R, and A. Das Gupta (2013). Optimal Water Allocation Model Based on Satisfaction and Economic Benefits, Special Issue on "The Effectiveness and Reform of Water Resource Research and Management",

International Journal of Water, Vol. 7 N4, 363-381. Publisher: Inderscience, Impact Factor: -. Citation: -

Gheewala, S.H., Silalertruksa, T., Nilsalab, P., Mungkung, T., Perret, S.R., Chaiyawannakarn, N. (2013) Implications of the biofuels policy mandate in Thailand on water: the case of bioethanol. *Bioresource Technology*, 150(2013): 457-465.

Harada, H., Fujii, S., Tanaka, S., Shivakoti, B.R. and Shrestha, S. (2013). Microbial water contamination at sources and point of use in Nepal. Proceedings of 47th Annual Conference of Japan Society on Water Environment, 11-13 March, 2013, Osaka Institute of Technology, Japan.

Henry, M., Kawasaki, A., Meguro, K. (2013) Information collection of disadvantaged populations during the 2011 Thai flood. *Journal of Social Safety Sciences*, 21, 241-250.

Islam, Md. S. and M. S. Babel (2013). Economic Analysis of Leakage in the Water Distribution System of Bangkok, *Journal of Water Resources Planning and Management*, 139(2), 209-216. Publisher: ASCE, Impact factor: 1.252 (2010). Citation: -

Kawasaki, A., Berman, L.B., Guan, W. (2013) Emerging web and geospatial technology revolutionizes disaster response with public involvement. *Disasters*, 37(2), 201-221.

Kawasaki, A., Henry, M., Meguro, K. (2013) Advisories by foreign governments and the behavior of foreigners residing in Japan after the 2011 Great East Japan Earthquake. *Journal of Social Safety Sciences*, 21, 219-227.

Kawasaki, A., Takamatsu, M. (2013) Developing a forecasting tool of land use for local water resources policy: Case of water demand forecast in the 3S sub-basins of the Mekong. *Theory and Applications of GIS*, 21(1), 65-76.

Kodaka, A., Kawasaki, A., Ohara, M., Komori, D., Sarawut, N. (2013) A study

on the possibility of mobile phone use as a disaster information dissemination mean for rural mountainous areas in Thailand. *Journal of Social Safety Sciences*, 21, 189-198.

Kodaka, A., Kawasaki, A., Ohara, M., Kondo, S., Komori, D., Sunthararuk, A. (2013) A survey on the possibility of SMS introduction into disaster information dissemination systems in rural mountainous areas in the northeastern Thailand. *Journal of Social Safety Sciences*, 19, 9-16.

Mahmood, R. and M. S. Babel (2013). Evaluation of SDSM developed by annual and monthly sub-models for downscaling temperature and precipitation in the Jhelum basin, Pakistan and India, *Theoretical and Applied Climatology*, Vol. 113(1-2), 27-44. Publisher: Springer, Impact factor: 1.942 (2011). Citation: -

Mishra, B., Babel, M. S., and N. K. Tripathi (2013). Analysis of climatic variability and snow cover in higher Himalayas, Nepal, *Theoretical and Applied Climatology*, DOI 10.1007/s00704-013-0966-1, Publisher: Springer, Impact factor: 1.942 (2011). Citation: -

Mullick, M.R.A., Babel, M.S., Perret, S.R. (2013) Marginal benefit based optimal water allocation: case of Teesta River, Bangladesh. *Water Policy*, 15(2013): 126-146

Mullick, M. R. A., Babel, M. S., and S. R. Perret (2013). Marginal benefit based optimal water allocation: case of Teesta River, Bangladesh, *Water Policy*, 15, 126-146. Publisher: IWA Publishing, Impact Factor: 0.903 (2010). Citation: -

Mullick, M.R.A., Perret, S.R., Babel, M.S. (2013) Benefit functions for instream water uses – a case of Teesta River, Bangladesh. *Journal of Applied Water Engineering and Research*, 1(2): 118-128

Nakamura, S., Komori, D., Kiguchi, M., Nishijima, A., Yamazaki, D., Suzuki, S., Fernandez, J., Kakehashi, J., Mateo, C.,

- Okaney, M., Oikawa, T., Yutani, Y., Kawasaki, A., Oki, K., Oki, T. (2013)** An analysis of hydrology and flooding in Chao Phraya River in Thailand in 2011, *Journal of Japan Society of Hydrology and Water Resources*, 26(1), 38-46.
- Pandey, V.P., Shrestha, S., Kazama, F. (2013)**. A GIS-based ARC model to delineate potential areas for groundwater development. *Applied Water Science*, 3:453–465. Publisher: Springer.
- Perret, S., Saringkarn, P., Jourdain, D. and M. S. Babel (2013)**. Can rice farmers pay irrigation costs? An investigation of irrigation supply costs and use value in a case study scheme in Thailand, *Cahiers Agricultures*, Vol. 22, 1-8. doi : 10.1684/agr.2013.0660 Publisher: John Libbey, Impact Factor: 0.597 (2012). Citation: -
- Piman, T. and M. S. Babel (2013)**. Prediction of Rainfall-Runoff in an Ungauged Basin Using Weather Radar and Hydrologic Modeling, *Journal of Hydrologic Engineering*, 18(2), 285-296. Publisher: ASCE, Impact factor: 1.024 (2011). Citation: -
- Plangoen, P., Babel, M. S., Clemente, R.S., Shrestha, S., and N. K. Tripathi (2013)**. Simulating the Impact of Future Land Use and Climate Change on Soil Erosion and Deposition in the Mae Nam Nan Sub-Catchment, Thailand, *Sustainability*, Vol. 5, 3244-3274. Publisher: MDPI AG, Impact factor: -. Citation: -
- Perret, S.R., Saringkarn, P., Jourdain, D., Babel, M.S. (2013)** Can rice farmers pay irrigation costs? An investigation of irrigation supply costs and use value in a case study scheme in Thailand. *Cahiers Agriculture*, 22(5): 385-392
- Perret, S.R., Thanawong, K., Basset-Mens, C. (2013)**. The environmental impacts of lowland paddy rice: A case study comparison between rainfed and irrigated rice in Thailand. *Cahiers Agriculture*, 22(5): 369-377
- Plangoen, P., Babel, M.S., Clemente, R. S. & Shrestha S. (2013)**. The impacts of climate and land use change on soil erosion risk in the Mae Nam Nan Catchment, Thailand. Proceedings of 12th International Symposium on River Sedimentation (ISR 2013), 02-05 September, 2013, Kyoto, Japan.
- Sharma, D. and M. S. Babel (2013)**. Application of downscaled precipitation for hydrological climate-change impact assessment in the Upper Ping River Basin of Thailand, *Climate Dynamics*, 41:2589–2602. Publisher: Springer, Impact factor: 4.602 (2011). Citation: -
- Sharma, D. and M. S. Babel (2013)**. Trends in Extreme Rainfall and Temperature Indices in the Western Thailand, *International Journal of Climatology*, doi:10.1002/joc.3846. Publisher: Wiley, Impact factor: 2.886 (2012). Citation: -
- Shrestha, B., Babel, M. S., Maskey, S., van Griensven, A., Uhlenbrook, S., Green, A., and I. Akkharath (2013)**. Impact of Climate Change on Sediment Yield in the Mekong River Basin: A Case Study of the Nam Ou Basin, Lao PDR, *Hydrology and Earth System Sciences*. 17, 1-20. Publisher: Copernicus Publications, Impact factor: 2.462 (2010). Citation: -
- Shrestha, S., Gyawali, B and Bhattarai, U. (2013)**. Impacts of Climate Change on Irrigation Water Requirements for Rice-Wheat Cultivation in Bagmati River Basin, Nepal. *Journal of Water and Climate Change*, 4 (4):422–439. Publisher: International Water Association (IWA), Impact factor: 2.16 (2011). SCOPUS citation: - [doi:10.2166/wcc.2013.050]
- Shrestha, S., Nakamura, T., Hiraga, Y., Shrestha, S., Kazama, F. (2013)**. Identification of nitrate sources in rainwater of the Kathmandu valley: a chemical and stable isotopic approach. *Journal of Water and Environmental Technology*, Volume 11, No. 5: 377-389, Publisher: Japan Society on Water Environment, Impact factor:-
- Shrestha, S., Pandey, V.P., Chanamai, C., Ghosh, D.K. (2013)**. Green, blue and grey water footprint of primary crop production in Nepal. *Water Resources Management*, 27:5223-5243. Publisher: Springer, Impact factor: 2.259 (2012). [DOI: 10.1007/s11269-013-0464-3]
- Shrestha, Sujan, Pandey, Vishnu Prasad, Yoneyama, Yuki, Shrestha, Sangam and Kazama, Futaba. (2013)**. An evaluation of rainwater quality in Kathmandu Valley, Nepal. *Sustainable Environment Research*, 23(5):341-350. Publisher: Chinese Institute of Environmental Engineering (CIEnvE), Impact factor: 0.675 (2012).
- Stoecker, F., Babel, M. S., Das Gupta, A., Rivas, A. A., Evers, M. and F. Kazama (2013)**. Hydrogeochemical and isotopic characterization of groundwater salinization in the Bangkok Aquifer System, Thailand. *Environmental Earth Sciences Journal*, 68(3), 749-763. Publisher: Springer. Impact factor: 0.678 (2010). Citation: -
- Tahira, Y., Kawasaki, A., Ichihara, N. (2013)** Disaster management system of the Myanmar central government after shifting to civilian rule and its challenges. *Journal of Social Safety Sciences*, 21, 241-250.
- Takamatsu, M., Kawasaki, A., Malakie, J., Rogers, P., (2013)** Development of a land-use and water demand forecast tool for future water resources planning: Case study for the Mekong River 3S sub-basins. *Sustainability Science*. DOI 10.1007/s11625-013-0225-5
- Yuerlita, Perret, S.R., Shivakoti, G.P. (2013)**. Fishing farmers or Farming fishers? Fishing typology of inland small-scale fishing households and fisheries management in West Sumatra, Indonesia. *Environmental Management*, 52(1): 85-98.

Conference publications

- Abunada, M., Trifunovic, N., Kennedy, M. and M. S. Babel (2013)**. Optimization and Reliability Assessment of Water Distribution Networks Incorporating

Demand Balancing Tanks. In *12th International Conference on Computing and Control for the Water Industry, CCWI2013*.

Agarwal, A., Babel, M. S. and S. Maskey (2013). Uncertainty in climate change projections over the Koshi River basin for 21st Century. In: *Proceedings of the International Conference on Climate Change, Water Resources and Disasters in Mountainous Regions: Building Resilience to Changing Climate*, 27-29 November, 2013, Kathmandu, Nepal.

Bhagabati S.S., Kawasaki A. Comparing benefits of hydropower development in two boundary systems in the Mekong. *3rd International Conference on International Relations and Development (ICIRD 2013)*, 740-749, Bangkok, Thailand, Aug. 2013.

Bhagabati, S.S., Kawasaki, A. Comparing benefits of hydropower development in two boundary systems in the Mekong, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, xx-xx, Hanoi, Vietnam, Oct. 2013.

Bhatt, D., Maskey, S., Uhlenbrook, S., Babel, M. S. and K. C. Prasad (2013). Impact of Climate Trends on Crop Production and Potential Adaptation Options in a Himalayan River Basin of Nepal. In: *Proceedings of the International Conference on Climate Change, Water Resources and Disasters in Mountainous Regions: Building Resilience to Changing Climate*, 27-29 November 2013, Kathmandu, Nepal.

Dang, A.N., Kawasaki, A. The integration approach for broad-scale land-use change prediction modelling, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, xx-xx, Hanoi, Vietnam, Oct. 2013.

Deb, P. and M. S. Babel (2013). Assessment of Impacts of Climate Change and Adaptation Measures for Maize Production in East Sikkim, India. In: *Proceedings of the International*

Conference on Climate Change, Water Resources and Disasters in Mountainous Regions: Building Resilience to Changing Climate, 27-29 November 2013, Kathmandu, Nepal.

Fakhruddin, S. H. M., Babel, M. S., and A. Kawasaki (2013). Ensembles Flood Forecasting Application at the Community Level (2013). AGU Bakner Award. *2013 Meeting of the Americas*, 14-17 May 2013, Cancun, QR, Mexico.

Henry, M., Kawasaki, A., Meguro, K. Information collection and vulnerability of foreign students during the 2011 Tohoku Earthquake and 2011 Thai Flood, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, xx-xx, Hanoi, Vietnam, Oct. 2013.

Kondo, S., Kawasaki, A., Ohara, M. Development of simulation exercise for emergency response headquarters focused on management by objectives, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, xx-xx, Hanoi, Vietnam, Oct. 2013.

Hong, P.T, Warnitchai, P., Kawasaki, A. Increasing community awareness of earthquake risk through children education: A case study of Dien Bien City in Vietnam, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, xx-xx, Hanoi, Vietnam, Oct. 2013.

Jourdain, D., Boere, E., van den Berg, M., Dang Dinh Quang, Cu Phuc Thanh, Affholder, F., (submitted). Water for forest to restore environmental services and alleviate poverty in Vietnam: a farm modeling approach to analyze alternative PES programs. *Land Use Policy*.

Kawasaki, A., Henry, M., Takigawa, I., Meguro, K. Effect of foreign government advisories on foreigners' post-disaster action after the 2011 Great East Japan Earthquake, *Proceedings of the Twelfth International Symposium on New Technologies for Urban Safety of Mega*

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Plangoen, P., Babel, M. S., Clemente, R. S., and S. Shrestha (2013). The Impacts of Land Use and Climate Change on Soil Erosion in the Mae Nam Nan Sub-Catchment, Thailand. In: *Proceedings of the 12th International Symposium on River Sedimentation (ISRS2013)*. Kyoto, JAPAN. Publisher: Taylor & Francis, pp. 2075-2083.

Perret, S.-R., Saringkarn, P., Jourdain, D., Babel, M.S., 2013. Can rice farmers pay irrigation costs? An investigation of irrigation supply costs and use value in a case study scheme in Thailand. *Cah. Agric.* 22, 1-8.

Santikayasa, I.P., Babel, M. S., and S. Shrestha (2013). Sustainable Water Management of Agricultural Water Uses under Climate Change. In: *Proceedings of the Second EnvironmentAsia International Conference on Human Vulnerability and Global Change*, 15-17 May 2013, Thailand.

Santikayasa, I.P., Babel, M.S., Shrestha, S., Jourdain, D., Clemente, R.S., (submitted). Evaluation of water use sustainability under future climate and irrigation management scenarios in Citarum River Basin, Indonesia. *International Journal of Sustainable Development & World Ecology*

Sapkota, L.M., Shrestha, R., Shivakoti, G., Jourdain, D., Submitted. Factors affecting collective action for forest fire management: a comparative study of community forest user groups in Central Siwalik, Nepal. *Journal of Environmental Management*

Srisopaporn, S., Jourdain, D., Perret, S., Shivakoti, G., (Submitted). Adoption and continued participation in a public Good Agricultural Practices program: the case of rice farmers in the Central Plains of Thailand. *Technol. Forecast Soc. Change*.

Edited book

Babel, M.S., Fakhruddin, S.H.M., and A. Kawasaki (2013). A Decision Support Framework for Flood Risk Assessment: An Application to the Brahmaputra River in Bangladesh. *Floods: From Risk to Opportunity*. IAHS Publication no. 357, pp 263-272

Kawasaki, A., Yoshida, S. (2013) *Practical ArcGIS 10: Step up for GIS utilization (Zukai ArcGIS10 Part 2)*. Tokyo, Japan: Kokon Shoin Inc., 182 pages.

Prize

Excellent Research Award (Sep. 2013), The Kurita Water and Environment Foundation (KWEF), Japan.

3.12.6 Doctoral Students' Dissertation

Assessment of Climate Change Impact on Water Resources and Hydropower in the Jehlum Basin, Pakistan
By Rashid Mahmood
Supervisor: Dr. Mukand S. Babel

3.12.7 Masters Students' Theses and Research Studies

WEM

Crop Production and Factor Productivities of Cotton under Rain-fed and Irrigated Conditions in Kyaukse area in Myanmar
By Ye Win Ko
Supervisor: Dr. Sylvain Roger Perret

Impact of Climate Change on Future Yield and Net Irrigation Water Requirement for Rice Production in Myanmar
By Naw May Mya Thin
Supervisor: Dr. Sangam Shrestha

Flood Impact Assessment and Formulation of Coping Strategies in Pak Ngum District, Vientiane Capital, Lao PDR
By Somphone Phone Khongsab
Supervisor: Dr. Sutat Weesakul

Assessment of Potential Impacts of Climate and Landuse Change on Local Streamflow: A Case Study of the Nam Xong Watershed in Lao PDR
By Rattykone Sayasane
Supervisor: Dr. Akiyuki Kawasaki

Investigating Future Yield and Adaptation Measures in Rice Production Under Climate Change Scenarios in Quang Nam Province, Vietnam
By Bui Thi Thu Trang
Supervisor: Dr. Sangam Shrestha

Performance Evaluation and Benchmarking of the Water Supply System in Ho Chi Minh City, Vietnam
By Tran Hung Thanh
Supervisor: Prof. Mukand S. Babel

Water Resource Allocation Trade-offs Among Hydropower, Irrigation and Environmental Flows: A Case Study of the Kinda Dam in Myanmar
By Nyein Thandar Ko
Supervisor: Dr. Damien Jourdain

Hydro-economical Modeling of Water Flow Allocation in West Rapti Basin, Nepal
By Ojha Bibhuti
Supervisor: Dr. Sylvain Roger Perret
Co-chairperson: Prof. Mukand S. Babel

Impact of Land Use Change on Hydrology and Power Production: A Case of Kulekhani Project, Nepal
By Harshana Shrestha
Supervisor: Prof. Mukand S. Babel

Development and Application of an Index to Quantify Water, Energy and Carbon Nexus
By Kshitij Parajuli
Supervisor: Dr. Sangam Shrestha

Analytical and Numerical Approaches for Computing Downcoast Erosion of the Breakwater in Cha-am, Thailand
By Piyarut Klinsukhonthip
Supervisor: Prof. Mukand S. Babel
Co-chairperson: Dr. Sutat Weesakul

Investigating the Relationship Between Surface Water Resource Availability and Irrigation Needs in Central Arghandab Valley in Afghanistan

By Rahmatullah Dost
Supervisor: Dr. Sylvain Roger Perret

Asset Management Approach of a Multipurpose Water Project: A Case Study of Kinda Dam in Myanmar
By Thin Thin Swe
Supervisor: Dr. Damien Jourdain

Investigating Socio-economic Impacts of Flood on the People Affected by Poverty: A Case Study in Bago, Myanmar
By Htoo Htoo Shwe
Supervisor: Dr. Akiyuki Kawasaki

Hydrological and Hydraulic Analyses of Great Flood of 2011 in Thailand
By Kanjanawan Nilklud
Supervisor: Dr. Mukand S. Babel
Co-chairperson: Dr. Sutat Weesakul
Impact of Climate Change on Hydropower Production: A Case Study of the Kulekhani Hydropower Project in Nepal
By Medha Khatiwada
Supervisor: Dr. Sangam Shrestha

Investigating Water Resources Availability and Rice Water Requirement in Xedone River Basin, Lao PDR
By Khamsone Philavong
Supervisor: Dr. Damien Jourdain

A Preliminary Study of Groundwater Potential in Binh Tan and Binh Chanh Districts in Ho Chi Minh City, Vietnam
By Le Bui Thien Huu
Supervisor: Dr. Akiyuki Kawasaki

Evaluation of Land and Water Productivity of Rubber Plantation using the WaNuLCAS Model in South Sumatra, Indonesia
By Andi Nur Cahyo
Supervisor: Prof. Mukand S. Babel

LCA-Based Environmental Impact Assessment of Potable Water Production and Distribution: A Case Study of Bangkok, Thailand
By Mohd Aidi Rusli
Supervisor: Dr. Sylvain Roger Perret

Analysis of Land Use Change and River Water Quality in the Mun Basin, Thailand
By Shweta Yadav

Supervisor: Prof. Mukand S. Babel	Assessment of Hydropower Potential using GIS and Hydrological Modeling under Current and Future Climate in Dudh Koshi Basin, Nepal By Jaya Ram Pudashine Supervisor: Prof. Mukand S. Babel	Flexible Engineering Designs for Urban Water Management By Lucy Tembo Supervisor: Prof. Chris Zevenbergen
Bhumibol Reservoir Performance Analysis and Optimal Reservoir Operation for Flood Control By Supitcha Thaikeaw Supervisor: Dr. Sangam Shrestha	Forecasting of Long-term Seasonal Rainfall using Artificial Neural Network: An Application to the Ping River Basin, Thailand By Thotapitiya Arachchillage Jeewanthi Gangani Sirisena Supervisor: Prof. Mukand S. Babel	Optimization and Reliability Assessment of Water Distribution Networks Incorporating Demand Balancing Tanks By Mohanad Abunada Supervisor: Prof. Maria Dolores Kennedy
Analysis of Climate Change Impact on Rainwater Harvesting in South Central Coast Vietnam By Nguyen Minh Vuong Supervisor: Prof. Mukand S. Babel	Impact Assessment of Land Use Change on River Flow in a Small Watershed: A Case Study in Central Java, Indonesia By Welly Eka Charisma Supervisor: Dr. Damien Jourdain	Performance Assessment of Improved Decentralized Waste Management System for Southeast Asian Cities By Dedduwa P. M. P. Priyankara Supervisor: Dr. Oleg Shipin
Monitoring and Modeling of Metribuzin Fate and Transport in Subsurface Soil Environment of a Soybean Field in Pathumthani, Thailand By Shankar Shrestha Supervisor: Dr. Sangam Shrestha	UWEM	Impact of Climate Change on Urban Flooding in Sukhumvit Area of Bangkok By Ashish Shrestha Supervisor: Dr. Sutat Weesakul Co-chairperson: Prof. Mukand S. Babel
Flood Risk Assessment and Management Options for AIT, Thailand By Vichet Amnouypon Supervisor: Dr. Sangam Shrestha	Evaluation of Effectiveness of Urban River Rehabilitation Projects By Suneet Vasant Manjavkar Supervisor: Prof. Damir Brdjanovic	Performance Indicators and Benchmarking in Wastewater Utility: Case Studies in Bangkok By Jibok Chatterjee Supervisor: Dr. Sylvain Roger Perret
Effect of Rainfall and Land Use Change on Future Stream Flow: A Case of Inle Watershed in Myanmar By Aung Kyaw Hmuu Supervisor: Dr. Akiyuki Kawasaki	Measures of Water Quality Reliability and their Relation to Hydraulic Performance of Water Distribution Networks By Sosina Getachew Fisseha Supervisor: Prof. Maria Dolores Kennedy	Towards the Methodology for Flood Risk Assessment on Cultural Heritage Sites: A Case Study of Ayutthaya World's Heritage Site By Sergio Gabriel Munoz Vazquez Supervisor: Prof. Damir Brdjanovic
Development of Integrated Flood Risk Index and its Application to Riverine Flood in Sirajganj, Bangladesh By Md. Abdulla Hel Kafi Supervisor: Dr. Mukand S. Babel	Investigation on Energy Conservation Potentials and Benchmarking for Drinking Water Supply Schemes By Lalith Wijesinghe Supervisor: Prof. Chettiyappan Visvanathan	Simplified Sewerage Design Tool Development and Application By Nensi Mitre Supervisor: Prof. Damir Brdjanovic
Integrated Assessment of Sustainable Urban Drainage Systems in Ho Chi Minh City, Vietnam By Ho Huu Loc Supervisor: Dr. Mukand S. Babel Co-chairperson: Dr. Sutat Weesakul		

3.13: SET – INFORMATION AND COMMUNICATIONS TECHNOLOGIES AREA OF STUDY



3.13.1 Introduction

Information and Communications Technologies field is a newly established area of study in response to the needs for the offering of a curriculum selectively drawn from the curricula of Telecommunications (TC), Computer Science, and Information Management (CSIM). With strong emphasis on communications aspects rather than on the aggregation of hardware, software, networks, equipment and related industries - ICT recognizes the important role of information services and applications in the creation of a complete ICT infrastructure.

3.13.2 Research Facilities and Laboratories

There is a rapidly growing and constantly evolving interest in ICT throughout the academia and society. To support this, the evolution and the benefits of ICT in our lives, the ICT field of study at AIT continues to research and develop of ICT. The field of study covers a wide variety of research supported by the body of faculty consisting of a multi-

professional team of international experts in telecommunication, computer science, educational technology and related fields.

The faculty has a strong academic background ranging from wireless and optical networks, through hardware and software, to web education and other e-services.

Research subjects include those on ICT applications (e-services such as e-learning, e-health, e-governance, rural development, knowledge creation and knowledge dissemination); on the information technologies (e.g. operating systems, programming languages, information storage and retrieval); on the communication infrastructure (e.g. networks, transmission technologies, switching and routing). Research specializations are in adaptive technologies; computer-supported collaboration; Home networking; ICT security; online communities; and voice over IP. The ICT area of study shares the research facilities and laboratories of the Telecommunications field of study.

3.13.3 Faculty and Research Staff

The ICT Field of Study draws from the faculty and research staff of the Computer Science, Information Management, Remote Sensing & Geographic Information Systems, and Telecommunications Fields of Study.

Adjunct Faculty

TEERAWAT ISSARIYAKUL, B.Eng. Thammasart University, Thailand, M.Eng. Asian Institute of Technology, Thailand, Ph.D. University of Manitoba, Canada.

Assistant Professor [*Markov-based modeling and Analysis; Markov Decision Process, protocol optimization, Cross-layer analysis in cognitive radio networks, scheduling algorithms centralized wireless networks, medium access control protocols in single-hop and multi-hop distributed wireless networks, model analysis using stochastic domination and supermodularity properties*]

From Telecommunications Field of Study

TEERAPAT SANGUANKOTCHAKORN, Associate Professor

R M A P RAJATHEVA, Visiting Faculty

**POOMPAT SAENGUDOMLERT, Adjunct Faculty
From Computer Science and Information Management Fields of Study**

KANCHANA KANCHANASUT, Professor

PHAN MINH DUNG, Professor

SUMANTA GUHA, Professor

MATTHEW N. DAILEY, Associate Professor

VATCHARAPORN ESICHAIKUL, Associate Professor

PAUL JANECEK, Visiting Faculty

From Remote Sensing and Geographic Information Systems Field of Study

NITIN KUMAR TRIPATHI, Professor

KIYOSHI HONDA, Associate Professor

SARAWUT NINSAWAT, Lecturer

3.13.4 Doctoral Students' Dissertation

Development of Argument-Based Proof Procedures and Translation of Preferred Sub-Theories into Argumentation: Towards Integrated Reasoning with Incomplete and Inconsistent Information
By Phan Minh Thang
Supervisor: Huynh Trung Luong

3.13.5 Masters Students' Theses and Research Studies

A Study on the Critical Success Factors for e-Rural Development Projects in Sri Lanka
By Helawikum Athauda Seneviratne
Supervisor: Prof. Kazi Mohiuddin Ahmed
Co-Chairperson: Dr. Mokbul Morshed Ahmad

Network Selection Algorithm in Heterogeneous Wireless Networks Using Utility Function
By Thananan Wongsirikajorn
Supervisor: Dr. Teerapat Sanguankotchakorn

Channel Quality and Class-of-Service Aware Uplink Scheduling Algorithm in HOWAN
By Tuanjai Sirihongthong
Supervisor: Dr. Poompat Saengudomlert

QoS Enabled Scheduling for Multiclass m-Health Traffic Mix in WiMAX Networks

By Samrat Gyawali
Supervisor: Prof. Kazi Mohiuddin Ahmed

Improving the Performance of MANETs using Mobile Relay Nodes
By Usa Wachirapornpan
Supervisor: Dr. Poompat Saengudomlert

Investigation on OLSR Performance in Real MANET/VANET Environments
By Sadok Bouraoui
Supervisor: Prof. Kanchana Kanchanasut

Data Mining Techniques for Earthquakes Study
By Abdulrahman Otman
Supervisor: Prof. Sumanta Guha

Design and Implementation of an OFDM VLC Transmitter under MathWorks Environment
By Eric Sauvage
Supervisor: Dr. Poompat Saengudomlert

MANET Formation using Small Robotic Rovers for Disaster Emergency Communication Networks
By Nunthaphat Weshsuwannarugs
Supervisor: Prof. Kanchana Kanchanasut

Implementation of a Multi-Cost Extended DNS System
By Hasin Shakya
Supervisor: Dr. Poompat Saengudomlert

3.14: SET – OFFSHORE TECHNOLOGY AND MANAGEMENT PROGRAM



3.14.1 Introduction

Rationale

Oil and Gas resources in the Southeast Asian region have been explored for several decades, especially following the global slump in oil and gas production during the early 1970's. Since then, the region has become one of the most productive oil and gas areas in the world. However, the global demand for skilled human resources of the upstream oil and gas industry greatly exceeds the supply and, therefore, regional companies are required to seek contract overseas worker to fill job vacancies; a situation that continues to exist after more than three decades of E&P activity in the region. The shortage of skilled manpower has recently become critical due to the tremendously high level of oil and gas exploration and production activity around the world that has occurred to meet the increasing global demand for energy, especially since China's becoming the "world's factory", and the move towards deep water exploration and production.

Mission Statement

AIT's Offshore and Technology & Management Program (OTM) is the first of its kind to provide regional post-graduate study in upstream oil and gas education, and is designed to combine application-oriented course work, field studies and internships into a curriculum from which graduates are equipped with the skills and knowledge-and-practice-

readiness to mitigate the shortages of skilled manpower in the upstream sector of oil and gas industry. As an industrial application-oriented program, OTM's unique characteristics offer a flexible study structure which allows students to build their own area of specialization in addition to the areas formally offered in the program, those areas being: Offshore Structural Design and Construction (OSDC), Oil and Gas Management (OGM). With the available teaching expertise; library and laboratory facilities; multitude of courses from AIT's different schools; skilled and professional faculty members and staff; strong collaborations with overseas partner universities in Europe, Asia, Australia and North America; and strongly supported by oil and gas industries, AIT's OTM post-graduate program has become one of the most suitable post-graduate study for engineers and young managers to pursue higher professional careers in both the oil and gas industry and government bodies.

3.14.2 Faculty and Research Staff

Full-time Faculty

GREGORY L.F. CHIU, M.S. Civil Engineering, Columbia University, New York, USA; Ph.D. Civil Engineering, Stanford University, California, USA

Professor of Practice

Adjunct Faculty

L.F. BOSWELL, Doctor of Philosophy, University of Leeds; Doctor of Science, Technical University of Isai; Doctor of Science, Technical University of Cluj Napoca

POOVADOL SIRIRANGSI, Master of Business Administration, University of Central Oklahoma the United State; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

PORNONG ASAVADORNDJEJA, Master of Engineering, Asian Institute of Technology, Bangkok, Thailand; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

SARUNPHONG ARTICHARTE; Master of Science, Texas A&M University, USA

THITISAK BOONPRAMOTE, Master of Science, Colorado School of Mines, USA; Ph.D., Colorado School of Mines, USA

WINAI OUYORNPRASERT, Master of Engineering, Chulalongkorn University, Bangkok, Thailand; Ph.D., University of Insbruck, Austria

APISIRI SOOKSAEN, Master of Engineering, Chulalongkorn University, Bangkok, Thailand

3.14.3 Publications

International Journal Article with Impact factor

3.14.4 Masters Students' Theses and Internships

A Study of an Application of Managed Pressure Drilling in a Sandstone Formation in the Gulf of Thailand using Constant Bottom Hole Pressure Technique
By Saenee Wongmontol
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-chairperson: Mr. Sarunphong Articharte

Economic Evaluation for an Offshore Development Plan using Real Option Methods
By Elga Anita Pereira
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Thitisak Boonpramote

Perforation Strategy for Multi-Layered Oil Reservoirs
By Poramet Bansuk
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Suwat Athichanagorn

An Investigation into FE Modeling Techniques for Simulation of Subsea Pipeline under High Pressure High Temperature Condition
By Somkiat Katanyoowongcharoen
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Pornpong Asavadorndeja

Hinge-Type Energy Dissipating Element for Low to Medium Rise Buildings
By Supachai Jaingam
Supervisor: Dr. Punchet Thammarak

Conceptual Design of Removable Fixed Platform in Gulf of Thailand
By Nattakarn Wongrod
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Pornpong Asavadorndeja

Finite Element Modeling Techniques for Submarine Pipeline Lateral Buckling on Even Seabed
By Noppapat Tamnanjit
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Pornpong Asavadorndeja

Subsea Pipeline Risk Assessment Using Formal Safety Assessment Method: Application in Decision Making and Determining Effective Capital Cost
By Yarlindra Juliardi
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Feasibility Study of Mini-Seastar Spar Buoy of Gulf of Thailand and Andaman Sea
By Adisak Kongchang
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-Chairperson: Dr. Joko Harsono Widjaja

Possible Solution to Mitigate Well Stability and Lost Circulation Problems in Sirikit Oilfield
By Tattep Thiantong

Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co- chairperson: Mr. Sarunphong Articharte

Development of a Two Dimensional Horizontal Subsea Jumper: Design Guidelines in a Deepwater Environment
By Adithep Thamrongdulpak
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-chairperson: Dr. Pornpong Asavadorndeja

An Experimental Study of Slender Dropped Objects onto Seabed
By Pichaya Sa-ardjit
Supervisor: Assoc. Prof. Gregory L. F. Chiu
Co-chaitperson: Dr. Pornpong Asavadorndeja

Deepwater Well-planning and Challenges
By Md. Rabiul Awal Khan
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Chapter 4: SCHOOL OF ENVIRONMENT, RESOURCE AND DEVELOPMENT



4.1.1 Mission, Vision, and Core Values

SERD Mission

The School of Environment, Resources and Development is committed to excellence in graduate education as well as research and outreach activities. Through its academic programs and outreach units, SERD has been working towards capacity building and human resource development in the areas of resource management, development studies, and energy and environmental management.

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

SERD Vision

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

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

SERD outreach will be community service oriented.

SERD Programs will be consolidated and financially viable. The School activities including the students, staff, faculty and curricula, will be subject to quality assessment.

SERD Core Values

- Interdisciplinarity
- Innovativeness
- Excellence
- Responsiveness

4.1.2 Field of Study and Multidisciplinary Programs

Fields of Study

- Agricultural Systems and Engineering
- Aquaculture and Aquatic Resources Management
- Energy
- Environmental Engineering and Management
- Food Engineering and Bioprocess Technology
- Gender and Development Studies
- Natural Resources Management
- Pulp and Paper Technology

- Regional and Rural Development Planning
- Urban Environmental Management

Interdisciplinary Programs

- Agri Business Management
- Disaster Preparedness, Mitigation and Management
- Integrated Coastal Management
- Urban Water Engineering and Management
- Climate Change and Sustainable Development
- MBA in Energy Business

Professional Master Programs (1 Year)

- Environmental Engineering and Management (in Vietnam)
- Urban Management (with HCMUARC)
- Energy Business Management (SERD and SOM)

4.1.3 Research Facilities and Laboratories

SERD provides laboratory, computer and information technology (IT) facilities for education and learning for graduate students, and research activities of graduate students, faculty, and sponsored and contracted projects.

SERD has six research laboratories in Agricultural Systems and Engineering, Aquaculture and Aquatic Resources Management, Food Engineering and Bio-process Technology, Environmental Engineering and Management,

Energy, and Pulp and Paper Technology, and each laboratory is unique with modern equipment, excellent guidance and assistance, and provides safe working facilities and environments to carry out experimental studies and research.

IT facilities are provided for everyone to attend their academic and research related activities. There are three computer centers maintained by the SERD at the SERD Main building (two computer laboratories), Agriculture and Food Engineering building and Energy Building which provides convenient working environment, with all the necessary facilities. These are open twenty four hours a day for use by students, staff and faculty. Full internet access is available to these PCs through a high speed network backbone which connects all academic buildings including the residence halls. A large number of PC software packages for applications such as word-processing, spreadsheets, network communications, and multimedia and file transfer utilities are available. High quality laser printers, scanning and CD writing facilities are available for students' uses.

Furthermore, laboratories also have computer facilities, which enhance the productivity of the teaching and research activities of the school.

4.1.4 School Governance

Dean of School

PROF. CHETTIYAPPAN VISVANATHAN Ph.D in Chemical/Environmental Engineering, Institute de Genie Chimique, Institut National Polytechnique, Toulouse, France, 1988 (Government of

France, Ministry of External Affairs Scholarship)

M. Engg in Environmental Engineering, Asian Institute of Technology, Bangkok, Thailand, 1984 (Government of Switzerland, Scholarship).

Professor

4.1.5 Grants and Sponsored Research Completed in 2013

Conduct, Development Reporting and Training Activities: Smart Grid Simulation Modeling in Thailand

Duration: 22-Sep-2012 to 30-Dec-2013

Project Investigator(s): Weerakorn Ongsakul

Sponsor: World Alliance for THAI Decentralized Energy Association (WADE THAI)

Total Contracted Amount (THB): 414,704

Pilot scale study on maximum recovery of the filter backwash water by using pilot scale ceramic membrane filter (CMF)

Duration: 1-Jan-2012 to 31-Dec-2013

Project Investigator(s): Prof. C. Visvanathan

Sponsor: The University of Tokyo

Total Contracted Amount (THB): 634,400

Review, improve, extend and augment the functions and contents of the 3RKH website

Duration: 13-Jan-2012 to 31-Mar-2013

Project Investigator(s): Prof. C. Visvanathan

Sponsor: Mitshubishi Research Institute, Japan

Total Contracted Amount (THB): 634,400

Pilot Scale study on maximum recovery of the filter backwash water by using pilot ceramic membrane filter (CMF)

Duration: 1-Jan-2012 to 31-Jan-2013

Project Investigator(s): Prof. C. Visvanathan

Sponsor: University of Tokyo Japan

Total Contracted Amount (THB): 414,704

4.1.6 On-going Grants and Sponsored Research

Development of a Membrane Based Treatment of TEG for Gas Separation Plant's Wastewater

Duration: 20-Feb-2012 to 31-Oct-2014

Project Investigator(s): Prof C. Visvanathan

Sponsor: Ptt Public Company Limited, Thailand

Total Contracted Amount (THB): 2,287,500

Characterization of Municipal Solid Waste in Phetchaburi Province, Thailand

Duration: 1-Oct-2012 to 31-May-2014

Project Investigator(s): Prof C. Visvanathan

Sponsor: Phetchaburi Green Energy Co. Ltd., AMC Power PCL, Thailand

Total Contracted Amount (THB): 450,000

Zero Waste Discharge in Industries- Training program

Duration: 1-Oct-2012 to 31-Mar-2014

Project Investigator(s): Prof C. Visvanathan

Sponsor: Participants

Total Contracted Amount (THB): 150,000

4.1.7 Masters Students' Theses and Research Studies

Climate Change and Sustainable Development (CCSD)

Climate Change Adaptation to Rice Production by Small Farmers in Yasothon Province, Thailand

By Suparat Phranoret

Supervisor: Mokbul Morshed Ahmad

Greenhouse Gas Mitigation Potential of Biogas Generation from Municipal Solid Waste and Domestic Wastewater in Thailand

By Supa Tanprasertkun

Supervisor: Abdul Salam

4.2 SERD – AGRICULTURAL SYSTEMS AND ENGINEERING FIELD OF STUDY



4.2.1 Introduction

This field of study emphasizes on sustainable agricultural and related technologies development through holistic approach for efficient food production for small holder agriculture.

4.2.2 Research Facilities and Laboratories

Agricultural Systems and Engineering (ASE) Laboratory caters to researchers, which address sustainability in agricultural production. The facilities are capable for implementing excellent agronomic and engineering researches on soils, water and plant, such as, plant growth and development, soil fertility and management, integrated pest management, plant water requirement, etc. Facilities to conduct researches on terramechanics, ergonomics and tillage are also available. The engineering aspects of agricultural production are dealt with through innovations and development of machines and equipment to enhance productivity and reduce human drudgery. These innovations are constructed at the ASE workshop.

Major laboratory equipment include a Spectra UV- VIS double PC double beam (scanning) flame photo meter; Digestion block; Trinocular Microscope MBL 2100; Stereo zoom microscope Model MSZ 5400; Porometer type AP4 Light meter WP4 Dewpoint Potential Meter; Mini-disk Infiltrometer Soil hydraulic conductivity; Tensio- Meter; Soil bin carriage system; Sony CXC- 390 1/3" 3 CCD Camera; Spider 8 data logger; National Instrument DAQ; NI Vision Module; Dynamic strain amplifier; and an SC-900 Soil compaction meter.

The SERD Computer Lab III in the Agricultural and Food Engineering Building has various kinds of software packages for system analysis and simulation, including DSSAT (Decision Support System for Agrotechnology Transfer), Arc View etc. A Computer-Aided Design (CAD) workstation is also available for training the design of agricultural equipment. There is a machine workshop with facilities for fabricating various types of laboratory and experimental apparatus and models. Consultation and fabrication of different types of transducers can be provided. About 20 high-end PCs connected to the campus-wide Ethernet and ATM network and a high quality laser printer,

scanning and CD writing facilities are available for students' uses.

4.2.3 Faculty and Professional Staff

Full-time Faculty

GANESH P. SHIVAKOTI; BS, MS, (Udaipur Univ., India); PhD, Michigan State Univ., USA.

Professor (Agricultural Development and Policy Analysis; Resource Development; Farming Systems; Natural Resources Management)

PEEYUSH SONI; BEng (MPUAT, India); MS, DEng (AIT, Thailand)

Assistant Professor (Instrumentation and Measurement Techniques; Design & Testing of Agricultural Machinery; Precision Agriculture; Agricultural Systems Analysis; Analytical Techniques & Decision Tools for Agribusiness)

AVISHEK DATTA; B.Sc, M.Sc. (B.C. State Agri. Univ., India); PhD, University of New England, Australia

Assistant Professor (Agricultural Environments, Crop Productivity Management, Crop Eco-physiology and

Modeling, Advanced Agricultural Experimentation) (THB): 1,941,360

Visiting, Adjunct Faculty/Affiliated Faculty

ALEXANDER KEEN; PhD

Adjunct Faculty (Agricultural Soil Mechanics; Tillage and Traction; Machine Design)

CHAIYAPHOL KAEWPRAKAISAENGKUL; PhD

Adjunct Faculty (Agricultural Machinery Design & Testing; Instrumentation & Measurement; Quality Control & Assurance)

ANUCHIT CHAMSING; PhD

Adjunct Faculty (Agricultural Machinery Design & Testing; Agricultural Power & Machinery Management; Agricultural Systems Engineering)

Professional Staff

WATTANAPORN MESKUNTAVON, DTechSc

Senior Laboratory Supervisor (Crop Modeling; Farm Management; Laboratory Analyses of Soil and Plants)

4.2.4 Grants and Sponsored Research Completed in 2013

Short term Training visit and international internship on Agribusiness and Agro industries in Thailand

Principal Investigator: Peeyush Soni
Duration: Jul 2010 – Dec 2013
Donor: Joseph School of Business Studies India
Total Contracted Amount (THB): 548,873

Development of an Instrumentation and Data Acquisition System for Agricultural Tractor

Duration: 1–Feb-12 to 31-Dec-2013
Project investigator(s): Peeyush Soni
Sponsor: Tractor DAQ-JD
Total Contracted Amounts

Sustainable Agricultural Mechanization in Asia and the Pacific

Duration: 1-Jan-13 to 31-Dec-2013
Project Investigator(s): Peeyush Soni
Sponsor: FAO, United Nations
Total Contracted Amount (THB): 1,381,000

4.2.5 On-going Grants and Sponsored Research

Enhancing Productivity and Market Linkages – Improving the Livelihoods and Food Security of Smallholders in Asia

Duration: May 2013 to April 2016
Project Investigator(s): Gopal B. Thapa, Ganesh P. Shivakoti, Peeyush Soni, Avishek Datta
Sponsor: USAID/RDMA
Total Contracted Amount (US\$): 899,337

Horticulture Collaborative Research Support Program (Ph.D.)

Duration: 15-Nov-2011 to 15-May-2014
Project Investigator(s): Ganesh P. Shivakoti
Total Contracted Amount (US\$): 96,051

4.2.6 Publications

International Journal Articles with Impact factor

Abbadi Girmay Reda, Nitin K. Tripathi, Peeyush Soni, Taravudh Tipdecho, and Aparna Phalke (2013). “Temporal climate trend of Ping Basin of Thailand and implications for Mekong Region”. Journal of Earth Sciences and Climatic Change, 4(4): 1-8. Publisher: OMICS Group. [IF: 1.0]. ISSN: 2157-7617 doi:10.4172/2157-7617.1000146
GoogleScholar citations = 1

Arpaphan Pattanapant and Ganesh P. Shivakoti (2013). Factors influencing the Adoption of organic agriculture in Chiang Mai Province, Thailand, Vol 11 (3&4). WFL Publisher ISSN :1459-0255

Bambang Marhaenanto, Peeyush Soni, and Vilas M. Salokhe (2013).

“Development of an Internet Based Greenhouse Control System.”

International Agricultural Engineering Journal. Publisher: Asian Association for Agricultural Engineering, 22(2): 72-83. ISSN: 0858-2114.

Chakkrapong Taewichit, Peeyush Soni, Vilas M. Salokhe, and H.P.W. Jayasuriya (2013). “Optimal Stochastic Multi-States First-Order Markov Chain Parameters for Synthesizing Daily Rainfall Data using Multi-Objective Differential Evolution in Thailand.” Meteorological Applications, 20(1):20-31. Publisher: John Wiley & Sons. ISSN: 1350-4827. [IF: 1.411]
GoogleScholar citations = 2

Datta A, Rapp RE, Scott JE, Charvat LD, Zawierucha J, Knezevic SZ. (2013). Spring-applied saflufenacil and imazapic provided longer lasting *Euphorbia esula* L. control than fall applications. Crop Protection 47:30–34. Publisher: Elsevier, [IF: 1.303]

Datta A, Stepanovic S, Nedeljkovic D, Bruening C, Gogos G, Knezevic SZ. (2013). Impact of single and repeated flaming on yield components and yield of maize. *Organic Agriculture* 3:141–147. Publisher: Springer

Hena Imtiyaz and Peeyush Soni (2013). Supply Chain Analysis of Fresh Guvava (A Case Study). International Journal of Management and Business Research, 3(4): 373-382. ISSN 2228-7019

Knezevic SZ, Elezovic I, Datta A, Vrbnicanin S, Glamoclija D, Simic M, Malidza G. (2013). Delay in the critical time for weed removal in imidazolinone-resistant sunflower (*Helianthus annuus*) caused by application of a pre-emergence herbicide. International Journal of Pest Management 59:299–235. Publisher: Taylor & Francis, [IF: 0.718]

Knezevic SZ, Rapp RE, Datta A, Irmak S. (2013). Common reed (*Phragmites australis*) control is influenced by the timing of herbicide application. International Journal of Pest Management 59:224–228. Publisher: Taylor & Francis, [IF: 0.718]

Knezevic SZ, Stepanovic S, Datta A, Nedeljkovic D, Tursun N. (2013). Soybean yield and yield components as influenced by the single and repeated flaming. *Crop Protection* 50:1–5. Publisher: Elsevier, [IF: 1.303]

Nalavade, P., Peeyush Soni, Salokhe, V.M., and Tanya Niyamapa (2013). "Development of a Powered Disc Harrow for on-farm Crop Residue Management". *International Agricultural Engineering Journal*, 22(1):49-60. Publisher: Asian Association for Agricultural Engineering. ISSN: 0858-2114

Nita Kuswardhani, Peeyush Soni, and Ganesh P. Shivakoti (2013). "Energy Input-Output and Financial Analyses of Selected Vegetables Production in West Java, Indonesia" *Energy*, 53: 83-92. Publisher: Elsevier. ISSN: 0360-5442. [IF: 3.651] SCOPUS citations = 2, GoogleScholar citations = 5

Makky, M., and Peeyush Soni (2013). "Towards Sustainable Green Production: Exploring Automated Grading for Oil Palm Fresh Fruit Bunches (FFB) Using Machine Vision and Spectral Analysis". *International Journal on Advanced Science, Engineering and Information Technology*. Vol. 3(1):1-6. Publisher: Indonesian Society for Knowledge and Human Development. ISSN: 2088-5334 GoogleScholar citations = 1

Muhammad Makky and Peeyush Soni (2013). "Development of an Automatic Grading Machine for Oil Palm Fresh Fruits Bunches (FFBs) based on Machine Vision." *Computers and Electronics in Agriculture*, 93:129-139. Publisher: Elsevier [IF: 1.766]. ISSN: 0168-1699 SCOPUS citations = 1, GoogleScholar citations = 3

Peeyush Soni, Chakkrapong Taewichit, and Vilas M. Salokhe (2013). "Energy Consumption and CO₂ Emissions in Rainfed Diversified Agricultural Production Systems of Thailand". *Agricultural Systems*, 116(1):25-36. Publisher: Elsevier. [IF=2.899]: DOI j.agsy.2012.12.006. ISSN: 0308-521X SCOPUS citations = 4, GoogleScholar

citations= 7 Top25 Most Downloaded Article rank 24 during Jan-Mar 2013

Robertoes Koekoeh K. Wibowo, Peeyush Soni, and Vilas M. Salokhe (2013). "Anthropometric Dimensions, Hand and Isometric Strength of Farmers in the East Java, Indonesia." *International Agricultural Engineering Journal*, 22(2): 54-64. Publisher: AAEE. ISSN: 0858-2114.

Yuwadee Leeven, Peeyush Soni, and Ganesh P. Shivakoti (2013). "Indicators of Sustainable Development for Assessing Performance of Pineapple Canneries: Conceptual Framework and Application" *Journal of Food, Agriculture and Environment*, 11(2):100-109. Publisher: WFL [IF: 0.517]. ISSN: 1459-0255

Conference Publications

Robertoes Koekoeh K. Wibowo and Peeyush Soni (2013). "Anthropometry and Agricultural Hand Tool Design for Javanese and Madurese Farmers in East Java, Indonesia." In: CAAS 2013: November 23-24, 2013 Phuket, Thailand. APCBEE Procedia 00 (2013) 000–000, Publisher: Elsevier. ISSN: 2212-6708 <http://www.journals.elsevier.com/apcbee-e-procedia/>.

Book Chapter

Datta A, Knezevic SZ. (2013). *Flaming as an alternative weed control method for conventional and organic agronomic crop production systems: A Review*. In D. L. Sparks (Ed.), *Advances in Agronomy* (Volume 118, pp. 399–428). Elsevier Inc. ISBN: 9780124059429. Academic Press

PAPERS IN WORKSHOPS/CONFERENCES

Badrul Masood and Peeyush Soni (2013). *Spatio-temporal changes of climate extremes over North Thailand during 1960-2100*. Paper No. 2C2.6; ID: 6412. In: "Joint Scientific Conference 2013: CMOS, CGU, CWRA". Saskatoon, Saskatchewan CANADA, May 26-30,

2013.<http://www.cmos.ca/congress2013/en/index.shtml>

Jannatul Ferdous, Peeyush Soni, Alex Keen, Madhav D. Gholkar (2013). *Performance Evaluation of a Small Agricultural Tractor on Bangkok Clay Soil*. Paper No. CSBE13-124. In: CSBE/SCGAB 2013 Annual Conference. The Canadian Society for Bioengineering, University of Saskatchewan, Saskatoon, Saskatchewan, CANADA, 7-10 July 2013. Pp. 1-10.

Knezevic SZ, Datta A, Bruening C, Gogos G, Scott JE. (2013). *Manual for propane-fueled flame weeding in corn, soybean, and sunflower*. Proceedings of the 68th North Central Weed Science Society (NCWSS) Conference, Columbus, OH, USA, 68:38.

Knezevic SZ, Scott JE, Datta A. (2013). *Giant ragweed resistance to glyphosate in Nebraska*. Proceedings of the 68th NCWSS Conference, Columbus, OH, USA, 68:77.

Muhammad Makky and Peeyush Soni (2013). *Towards Sustainable Green Production: Exploring Automated Grading for Oil Palm Fresh Fruit Bunches (FFB) using Machine Vision and Spectral Analysis*. Submitted to: "International Conference on Sustainable Agriculture, Food, and Energy (SAFE) - 2013". Padang, INDONESIA, May 12-14, 2013 <http://safetainability.org/>

4.2.7 Doctoral Students' Dissertation

Design and Evaluation of a Smart Greenhouse Control System with Remote Interface over the Internet
By Bambang Marhaenanto
Supervisor: Dr. Peeyush Soni

Opportunities and constraints of Organic Agriculture In Chaing Mai Province, Thailand
By Arpaphan Pattanapant
Supervisor: Prof. Dr. Ganesh P. Shivakoti

Potential and Constraints for Protected Cultivation of Selected Vegetables in West Java Province, Indonesia
By Nita Kuswardhani
Supervisor: Dr. Peeyush Soni
Co-chairperson: Prof. Dr. Ganesh P. Shivakoti

4.2.8 Masters Students' Theses

Land Suitability Planning for Rice combines Harvesters using the Theory of Planned Behavior and an Integrated GIS Fuzzy Analytic Hierarchy Process
By Farid Rakhmat Abadi
Supervisor Dr. Peeyush Soni

Development of Geodatabase and Web GIS for Coffee Pests and Diseases as a Decision Support System (DSS)
By Bayu Taruna Widjaja Putra
Supervisor Dr. Peeyush Soni

Climate Change Effects on Crop Suitability in South Cotabato, Philippines using GIS
By Jane Borces Samejon Malasador
Supervisor Dr. Peeyush Soni

Energy Balance, Energy Benefit-Cost Analysis and Global Warming Potential of Rice Production systems: A Case Study in Ayeyarwaddy Region, Myanmar
By May Nwe Soe
Supervisor Dr. Peeyush Soni

GHG Emissions and Energy use of Paddy-Wheat and Paddy-Potato Cropping Systems in Middle Indo-Gangetic Plains, India

By Rajeev Ranjan Sinha
Supervisor Dr. Peeyush Soni
Assessing the Effects of Climate Change on Sugarcane Production in Kanchanaburi Province, Thailand
By Anuchit Chalee
Supervisor Dr. Peeyush Soni

An impact assessment of farmers' perception and participation in opium production in the northern Shan State of Myanmar
By Htoi Hkawng Li Maran
Supervisor Dr. Avishek Datta

4.3: SERD – AQUACULTURE AND AQUATIC RESOURCES MANAGEMENT FIELD OF STUDY



4.3.1 Introduction

AARM promotes research and development through aquaculture and small-scale capture fisheries. The Field of Study has a wide spectrum of activities enabling it to address poverty, constraints facing the promotion of sustainable management and utilization of aquatic resources. The central theme is capacity building: the advancement of individuals and institutions creating indigenous capacity in education, research and development within the region.

4.3.2 Research Facilities and Laboratories

Aquaculture Laboratory serves the academic and research programs of aquaculture and aquatic resources management (AARM) field of study. It is equipped with modern equipment to analyze water quality, nutrients in food and feedstuffs, and soil classification and their problems identification. Some of its major laboratory equipment includes a Distillation Unit; Extraction Unit; Incubator; UV/Vis Spectrophotometer;

Soxtec, Fibertec and Kjeltec system, microscope with camera, etc. The field facilities include a hatchery, outdoor tanks and earthen ponds for field research.

The SERD Computer Lab III in the Agricultural and Food Engineering Building has various kinds of software packages for system analysis and simulation, including DSSAT (Decision Support System for Agrotechnology Transfer), ArcView etc. A Computer-Aided Design (CAD) workstation is also available for training the design of agricultural equipment. There is a machine workshop with facilities for fabricating various types of laboratory and experimental apparatus and models. Consultation and fabrication of different types of transducers can be provided. About 20 high-end PCs connected to the campus-wide Ethernet and ATM network and a high quality laser printer, scanning and CD writing facilities are available for students' uses.

4.3.3 Faculty and Research Staff

Emeritus Professor

PETER EDWARDS, BSc, University of Liverpool, UK; PhD, University of Texas, USA.

(General aquaculture with emphasis on recycling organic wastes (human, animal, agro-industrial); small-scale aquaculture; integrated farming; aquaculture for poverty alleviation; and systems approaches to education, research and development; curriculum development; project formulation, management and evaluation.

Full-time Faculty

AMARARATNE YAKUPITIYAGE, BSc, Univ of Kelaniya, Sri Lanka; MSc, AIT, Thailand; PhD, Univ of Stirling, Scotland.

Associate Professor *(Aquaculture, Bioenergetics, Fish Nutrition, Statistics, Database Systems Development)*

WENRESTI GLINO GALLARDO, BSc, Master of Aquaculture, University of the Philippines; MSc, PhD, Nagasaki University, Japan;

Associate Professor *(Aquaculture - Seed Production and Grow-out, Fisheries*

Management, Integrated Coastal Management) **Journal**

LIONEL DABBADIE, MSc, Montpellier SupAgro (France), DSc (PhD), University of Paris 6, France;

Cirad Visiting Faculty (*Pond dynamics, Quality and Food Safety, Systemic Approach, Research for Development Knowledge Management*)

Research Staff and Affiliated Faculty

RAM C. BHUJEL, BSc, Institute of Agriculture and Animal Sciences, IAAS, Chitwan, Nepal; MSc and PhD, AIT, Thailand;

Senior Research Scientist and Affiliated Faculty (*Biostatistics and Research Design, Curriculum Development, Women in Aquaculture, Broodstock Nutrition/Management and Fry Production, Technology Transfer/ Extension*)

4.3.4 Grants and Sponsored Research Completed in 2013

Support to Households and Women for Livelihood Improvement in Myanmar

Duration: 1-Jan-2013 to 30-Jun-2013
Project Investigator Dr. Ram C. Bhujel
Sponsor: Ministry of Foreign Affairs, the Government of Italy, in partnership with the University of Tuscia (UoT)- Italy and the Environmental and Economic Research Institute (EERI) - Myanmar
Total Contracted Amount (THB): 4,583,803

4.3.5 On-going Grants and Sponsored Research

Internship in Aquaculture and Aquatic Resources Conservation

Duration: 1-Sep-10 to 31-Dec-14
Project Investigator(s): Ram C. Bhujel
Sponsor: Multi donors
Total Contracted Amount (THB): 6,000,000

4.3.6 Publications

Jumnongsong, S., Gallardo, W.G., Ikejima, K., Cochard, R., 2013. Factors Affecting Fishers' Perceptions of Benefits, Threats, and State, and Participation in Mangrove Management in Pak Phanang Bay, Thailand. *Journal of Coastal Research*. <http://dx.doi.org/10.2112/JCOASTRES-D-12-00257.1>

Milali Ernest Machumu & Amararatne Yakupitiyage (2013) Effectiveness of Marine Protected Areas in Managing the Drivers of Ecosystem Change: A Case of Mnazi Bay Marine Park, Tanzania. *Ambio* 42(3): 369-380

Mosha, E.J. and Gallardo, W.G., (2013). Distribution and size composition of penaeid prawns, *Penaeus monodon* and *Penaeus indicus* in Saadan estuarine area, Tanzania. *Ocean and Coastal Management* 82: 51-63.

Pavarot Noranarttragoon, Piyachok Sinanan, Nantachai Boonjohn, Pakjuta Khemakorn and Amararatne Yakupitiyage (2013) The FAD fishery in the Gulf of Thailand: time for management measures. *Aquatic Living Resources*, DOI: 10.1051/alr/2013045

Yakupitiyage, A. (2013). On-farm feed and feeding management strategies in tropical aquaculture. In M.R. Hasan and M.B. New (eds.). *On-farm feeding and feed management in aquaculture*. FAO Fisheries and Aquaculture Technical Paper. No. 583. Rome, FAO. pp. xx-xx (In press)

Conference/workshop proceedings:

Bhujel, R.C. (2013). On-farm feed management practices for Nile tilapia (*Oreochromis niloticus*) in Thailand. In M.R. Hasan and M.B. New (eds.). *On-farm feeding and feed management in aquaculture*. FAO Fisheries and Aquaculture Technical Paper No. 583. Rome, FAO. p 159-189.

Bhujel, R.C.(2013). Tilapia business for income, employment and food security. In *Positioning for Profits*. World

Aquaculture Society (WAS)-APC Conf. Dec 10-13, 2013. HCM City, Vietnam.

Bujel, R.C., MK Shrestha, HR Devkota3 and AP Nepal (2013). AwF-Nepal program: a model for rural aquaculture development. In *Positioning for Profits*. World Aquaculture Society (WAS)- APC Conf. Dec 10-13, 2013. HCM City, Vietnam.

Little, D.C and R.C. Bhujel, (2013). Tilapia hatchery strategies in Asia - Spanning the intensity continuum. World Aquaculture Society (WAS) Conference. February 21-25, 2013, Nashville, USA.

Pantabella, E., Bhujel, R.C. and J.E. Rakocy2 (2013). Saline Aquaponics: bringing fish and profits out of the sea. In *Positioning for Profits*. World Aquaculture Society (WAS)- APC Conf. Dec 10-13, 2013. HCM City, Vietnam.

Pantabella, E., Cola, G., Bhujel, R.C. and J.E. Myint, W. 2 (2013). The role of integrated aquaculture in improving livelihoods through entrepreneurship in women (e-women) in Myanmar. In *Positioning for Profits*. World Aquaculture Society (WAS)- APC Conf. Dec 10-13, 2013. HCM City, Vietnam.

4.3.7 Doctoral Students' Dissertation

Assessment of mangroves and fishers' livelihoods, perceptions, and participation in Pak Phanang Bay, Thailand.

By Sirisuda Jumnongsong
Supervisor: Dr. Wenresti G. Gallardo
Reduction and management of commercial fishing effort in the Gulf of Thailand by using bio-economic modeling.

By Pavarot Noranarttragoon
Supervisor: Dr. A. Yakupitiyage

Distribution and size composition of penaeid prawns, *penaeus monodon* and *penaeus indicus* in Saadan Estuarine Area, Tanzania.

By Erastus J. Mosha
Supervisor: Dr. Wenresti G. Gallardo

4.3.8 Masters Students' Theses and Research Studies

Culture of *Microcystis aeruginosa* in a chicken manure fertilized culture system for biodiesel production.
By Suntree Pumpuang
Supervisor: Dr. A. Yakupitiyage

Assessment of local fish seed production in Takeo and Kampong Speu province, Cambodia.

By Chin Leakhena
Supervisor: Dr. Lionel Dabbadie

Use of AIT cafeteria wastewater and pond water as alternative media for the culture of the Cyanobacteria *Nostoc paludosum* and conditions for optimizing biomass and lipid production.

By Siska Mellisa
Supervisor: Dr. Lionel Dabbadie

Potential for culturing *Nostoc muscorum* and *Synechococcus elongates* in Tofu wastewater as a biodiesel feedstock source.

By Rachmawati Rusydi
Supervisor: Dr. A. Yakupitiyage

Interactive effects of high temperature and hormone feeding duration on sex reversal of Nile Tilapia (*Oreochromis niloticus*).

By Ms. Aulia Rahma
Supervisor: Dr. Wenresti G. Gallardo

4.4: SERD – ENERGY FIELD OF STUDY



4.4.1 Introduction

Energy related academic program at AIT was established in 1979. So far, over 1,134 students have graduated in the Energy studies. As of September 2012, about one hundred students are enrolled in Energy Field of Study. About thirty percent of the current students are at doctoral level. Apart from teaching and student research, faculty at Energy FoS is involved in a number of research projects. Some of the current research focuses of Energy FoS are Energy, environment and climate change, Energy for sustainable development, Renewable Energy and Energy efficiency, Electric power system management, and Energy economics and planning.

Student admitted to Energy Field of Study can specialize in one of the three areas.

- Electric Power System Management (EPSM)
- Energy Technology (ET)
- Energy Economics and Planning (EEP)

Details regarding Energy field of study activities are available at www.serd.ait.ac.th/energy

4.4.2 Research Facilities and Laboratories

Energy Laboratory serves as a facility for conducting experimental studies for courses, carrying out students and sponsored research, and testing of energy equipments as well as providing hands-on training. Laboratory functions are focused mainly on solar thermal energy, photovoltaics, biomass energy, energy management, thermodynamics and heat transfer, and electrical measurement and analysis. The laboratory facilities include two indoor laboratories, an energy park and a meteorological station. The indoor laboratories are equipped with experiment setups, testing apparatus and measuring equipment for thermal and electrical management studies, thermodynamics, fluid mechanics and heat transfer, and electrical power supply management. Energy Park covers 3980-m² outdoor research and demonstration facility equipped with photovoltaic systems, solar thermal (air and water) systems, biomass research and daylighting setups. The meteorological station records solar radiation and other meteorological data. Energy laboratory continues to carry out testing services such as fuel quality tests, gas

composition tests, tests for heating value of fuels, solar thermal collector performance tests, solar water heater system performance tests and stove efficiency tests.

Among its major equipment include a Gas Analyzer; Campbell data logger; Ultrasonic flow-meter; Bomb calorimeter; and a Gas chromatography.

The SERD Computer Lab IV in the Energy Building has a large number of computers modeling software for energy planning and policy analysis. These include Model for Analysis of Energy Demand and Environmental Impacts (MAED, MEDEE-S/ENV, LEAP), Electricity System Planning (WASP-III Plus, ENPEP, DECPAC), Energy-Environmental Flow Optimization Model (EFOM-ENV), Wood Energy Planning Models, Energy-Environmental Models for estimation of impacts of energy externalities, air pollution emission and dispersion and climate change (CO₂ DB, RAINS, TEMIC, ECOSENS, ISC) and Energy-Environmental Database Management Software (DBAVOID). An energy-environment database for Asia is maintained in this computer lab.

4.4.3 Faculty and Research Staff

Full-time Faculty

SIVANAPPAN KUMAR, BE, Univ of Madras, India; MEng, AIT, Thailand; PhD, InstNatlPolytechnique, Toulouse, France.

Professor [*Renewable energy resources and technologies: Climate change and green house gas mitigation: energy and sustainable development*]

WEERAKORN ONGSAKUL, B.Eng, Chulalongkorn Univ, Thailand; MS, PhD, Texas A&M Univ, USA.

Associate Professor and Dean, School of Environment, Resources and Development (*Artificial Intelligence Applications to Power Systems; Parallel Processing Applications; Power System Operation & Control; Power System Deregulation & Restructuring*)

ABDUL SALAM PAKKEERTHAMBY, BSc.Eng (Hons.) University of Peradeniya, Sri Lanka; M.Eng., D.Eng., AIT

Assistant Professor (*Bioenergy, Renewable energy; Energy conservation and efficiency*); *climate change mitigation*)

JAI GOVIND SINGH, Ph.D. in Electrical Engineering, Indian Institute of Technology, Kanpur, India

Assistant Professor (*Power system planning; Operation and control; FACTS controllers; Re-structuring of Electric Industry, Demand side management; Grid integration of renewable energy resources; Power distribution systems*)

SHOBHAKAR DHAKAL, B.e., nit, Surat; M.E., AIT, P.HD. Tokyo.

Associate Professor (*Modeling of Energy and carbon Emission, Scenarios Policy Analyses*)

Visiting Faculty

BRAHMANAND MOHANTY, BSc, SAICE, India; MSc, AIT, Thailand; PhD, Institut

National Polytechnique of Toulouse, France

Visiting Faculty [*Demand-side management, Energy auditing and management, Energy Efficiency policies; and Rational use of technology*]

CHARLES O. P. MARPAUNG, Ms.c, Statistics, Bogor Agricultural University, Indonesia; D. Eng, AIT

Visiting Faculty [*Generation expansion planning; Energy economics and environmental modeling*]

Research Staff

Ms. Neriza Cabahug, *Research Assistant GNESD*

Ms. Watcharathorn Chantinmathorn, *Secretary* (GMSARN Project)

Ms. Maria Kathrina Gratuito, *Research Associate* (RERIC)

Ms. Parichart Kammeerak, *Secretary* (RERIC)

Ms. Sireesha Bantu, *Research Associate*, EBARA & PM-EBM

Ms. Pujan Shrestha, *Research Associate UPEA III Project*

4.4.4 Grants and Sponsored Research Completed in 2013

Bangkok Greenhouse Gas Emissions Study

Duration: 1-Jan-2010 to 31-Sep-2013
Investigator: Prof. S. Kumar and Dr. Charles P.O. Marpaung
Sponsor: Tongji University China
Total contracted amount (THB): 495,000

Actions towards Resource-efficient and Low carbon Cities in Asia

Duration: Dec-2009 to Apr-2013
Investigator: Prof. S. Kumar, Prof. C. Visvanathan, Dr. Ranjith Perera, Dr. P. Abdul Salam, Dr. Charles O.P. Marpaung and Dr. Kyoko Kusakabe
Sponsor: ADEME (French Environment and Energy Management Agency)

Total contracted amount (THB): 11,052,979

Micro hydro – PV hybrid system. (Ebara Project)

Duration: 1-Feb-2010 to 28-Feb-2013
Investigator: Prof. S. Kumar, Dr. P. Abdul Salam, Dr. Jai Govind Singh and Dr. Charles O.P. Marpaung
Sponsor: Ebara Katayema Memorial Fund, Japan
Total contracted amount (THB): 1,440,000

Technology Needs Assessments in Asia for Climate Change Mitigation (TNA)

Duration: 1-Jul-2010 to 30-May-2013
Investigator: Prof. S. Kumar, Dr. P. Abdul Salam and Dr. Charles O.P. Marpaung and Dr. R. Shrestha
Sponsor: UNEP Riso Centre
Total contracted amount (THB): 11,068,470

Indicator for Low Carbon Green Growth/Green (GDP)

Duration: Sept-2011 to Mar-2013
Investigator: Prof. S. Kumar
Sponsor: Asian Development Bank Institute (ADBI), Japan
Total contracted amount (THB): 750,000

Sustainable Urban Tourism through Low Carbon Initiatives: Experiences from Hue and Chiang Mai

Duration: 26-Sep-2011 to 31-Jan-2013
Investigator: Prof. S. Kumar and Kyoko Kusakabe
Sponsor: Sumernet Climate Development and Knowledge Network (CDKN)
Total contracted amount (THB): 2,250,000

Promoting Renewable Energy, Clean Fuels, and Energy Efficiency in the Greater Mekong Subregion

Duration: Aug-2011 to Jun-2013
Investigator: Prof. S. Kumar
Sponsor: Lahmeyer/ADB
Total contracted amount (THB): 2,640,000

King HRD Scholarship Project

Duration: 1-Oct-2009 to Sep-2013
Investigator: Dr. Weerakorn Ongsakul

Sponsor: Energy Planning and Policy Office (EPPO), Thailand
Total contracted amount (THB): 12,753,200

Gender Inclusive Capacity Development for Electricity Distribution Loss Reduction in Rural Madhya Pradesh

Duration: 1-Jul-12 to 31-Jan-13
Project Investigator(s): J G Singh
Sponsor: Energy Division, South Asia Department, ADB
Total Contracted Amount (THB): 244,900

4.4.5 On-going Grants and Sponsored Research

Preparation of the country specific issue papers on renewable-powered micro-grid/minigrid generation system

Duration: 24-Dec-12 to 30-Jun-14
Project Investigator(s): J G Singh, P Abdul Salam
Sponsor: IRENA
Total Contracted Amount (THB): 294,400

Capacity Development of the Assam Power Sector Utilities, Overseas Study Tour in Bangkok

Duration: 1-Oct-12 to 30-Jun-14
Project Investigator(s): J G Singh
Sponsor: Energy Division, South Asia Department, ADB
Total Contracted Amount (THB): 294,900

Provincial Electricity Authority (PEA)-AIT Cooperation Project

Duration: Jan-2009 to Dec-14
Investigator: Dr. Weerakorn Ongsakul
Sponsor: Provincial Electricity Authority (PEA), Thailand
Total contracted amount (THB): 27,374,000

Partnership for Market Readiness

Duration: 1-Mar-2013 to 31-May-2014
Investigator: Prof. S. Kumar and Dr. Abdul Salam
Sponsor: TGO (Thailand Greenhouse Gas Management)
Total contracted amount (THB): 180,000

Energy Publications Project

Duration: 1-Jan-2013 to 31-Dec-2017

Investigator: Dr. P. Abdul Salam, Prof. S. Kumar, Dr. Weerakorn Ongsakul, Dr. Jai Govind Singh, Dr. Charles O.P. Marpaung and Dr. Shobhakar Dhakal
Sponsor: AIT
Total contracted amount (THB): 4,185,824

ICUE 2014-Green Energy for Sustainable Development International Conference

Duration: 1-Jun-2013 to 31-Dec-2014
Investigator: Dr. Shobhakar Dhakal
Sponsor: Registration revenues/sponsorships/grants
Total contracted amount (THB): 1,859,790

Sustainable Mekong Research Network II

Duration: 10-Aug-2013 to 31-Jan-2014
Investigator: Prof. Sivanappan Kumar and Dr. Kyoko Kusakabe
Sponsor: Stockholm Environment Institute (SEI)
Total contracted amount (THB): 232,000

AIT's Green Campus Initiatives

Duration: 1-Dec-2013 to 30-Jun-2015
Investigator: Prof. Sivanappan Kumar and Prof. C. Visvanathan
Sponsor: ADEME, France
Total contracted amount (THB): 2,200,000

Subnational Climate Compatible Development Project

Duration: 1-Jun-2013 to 30-Jun-2014
Investigator: Prof. Sivanappan Kumar and Dr. Kyoko Kusakabe
Sponsor: CDKN-ICLEI Secretarial GmbH
Total contracted amount (THB): 665,400

Urban Energy Access in Myanmar: Knowledge and Outreach

Duration: 4-Nov-2013 to 31-Jan-2015
Investigator: Prof. S. Kumar and Dr. Abdul Salam
Sponsor: Global Network on Energy for Sustainable Development (GNESD)
Total contracted amount (THB): 960,000

Understanding and Quantifying the Water-Energy-Carbon Nexus for Low Carbon Development in Asian Cities

Duration: 3-Jun-2013 to 30-Jun-2015
Investigator: Dr. Shobhakar Dhakal
Sponsor: APN, Japan

Total contracted amount (THB): 2,337,400

4.4.6 Publications

Journals

Adeel Waqas and S. Kumar (2013). Phase change material (PCM) based solar air heating system for residential space heating in winter, International Journal of Green Energy, 10, 1-25, 2013.

Agha Mohammad, Pujan Shrestha and S. Kumar(2013). Urban residential energy use in Kandahar, Afghanistan, Cities, 32, 135-142, 2013.

Boonrit Prasartkaew and S. Kumar (2013). Design of a Renewable Energy Based Air-conditioning System, Energy and Buildings, accepted for publication.

Boonrit Prasartkaew and S. Kumar(2013). Experimental study on the performance of a solar-biomass hybrid air-conditioning system, Renewable energy, 57, 86-93, 2013.

Chanamon Chantana and S. Kumar (2013). Experimental and theoretical investigation of air-steam condensation in a vertical tube at low inlet steam fractions, Applied Thermal Engineering, 54, 399-412, 2013.

Jakkapong Udomsirichakorn, Prabir Basu, P.Abdul Salam and Bishnu Acharya (2013). Effect of CaO on tar reforming to hydrogen-enriched gas with in-process CO2 capture in a bubbling fluidized bed biomass steam gasifier. International Journal of Hydrogen Energy. Vol.38 (34), 2013. Pp. 14495-14504

Jutamane Martchamadol and S. Kumar (2013). An aggregated energy security performance indicator, Applied Energy, 103, 653-670, March 2013.

Kumar S., A. Salam, C. Marpaung, K. Kusakabe, R. Perera and C. Visvanathan (2013). Action Towards Resource-efficient and Low Carbon Cities in Asia, February 2013.

- Kumar S., K. Kusakabe (2013).** Policy Brief: Towards Green Pathways for Chiang Mai Municipality, January 2013.
- Kumar S., K. Kusakabe (2013).** Policy Brief: Preservation of Garden House for Sustainable Urban Tourism in Hue City, January 2013.
- Kumar S., Kyoko Kusakabe, Pravakar Pradhan, Pujan Shrestha, Srujana Goteti, Tran Anh Tuan, Ekawit Meteejaroenwong, Trinnawat Suwanpririk, Khanh Linh (2013).** "Greenhouse Gas Emissions from Tourism Service Providers: Case Studies in Chiang Mai, Thailand and Hue, Vietnam", in "Livelihoods, Ecosystem Services and the Challenges of Regional Integration in the Mekong Region", edited by Louis Lebel, Chu Thai Hoanh, Chayanis Krittasudthacheewa and Rajesh Daniel, and published by Strategic Information and Research Development Centre (SIRD), Selangor, Malaysia. (in press)
- Kumar S., P. Abdul Salam, Pujan Shrestha and Emmanuel Kofi Ackom (2013).** An Assessment of Thailand's Biofuel Development, Sustainability, 5, 1577-1597, 2013.
- Kumar S., P. Abdul Salam and Pujan Shrestha (2013).** A Review of Biofuel Policies in the Major Biofuel Producing Countries of ASEAN: Production, Targets, Policy Drivers and Impacts. Renewable & Sustainable Energy Reviews, Vol. 26, pp. 822-836, October 2013.
- Kumar S., P. Abdul Salam, Pujan Shrestha and Emmanuel Kofi Ackom (2013).** An Assessment of Thailand's Biofuel Development. Sustainability. Vol 5, pp. 1577-1597, 2013.
- Kumar S., Pujan Shrestha and P. Abdul Salam (2013).** A Review of Biofuel Policies in the Major Biofuel Producing Countries of ASEAN: Production, Targets, Policy Drivers and Impacts. Renewable and Sustainable Energy Review, Vol.26 (2013), pp 822-836.
- MOHANTY B. (2013),** An integrated approach to reducing the carbon footprint of the industry, Conference on Sustainable Development through Innovations in Energy Management and Technology, The Institutions of Engineers and The Institutions of Engineering and Technology, Malaysia, Kuala Lumpur, 20-21 November 2013
- MOHANTY B. (2013),** Obstacles et leviers à la mise en place d'une politique d'efficacité énergétique, ID4D Conférence: L'efficacité énergétique: dynamiques dans les pays du Sud et réflexions sur la coopération Nord – Sud, Agence Française de Développement, Paris, 5 April 2013
- MOHANTY B. (2013),** Green buildings: features, barriers and policy options, Energy Efficiency Manager, Vol. 6, No2, April-June, pp.6-13
- MOHANTY B. (2013),** Planning and monitoring city climate actions: Learning from the low carbon cities in Asia, Ecocity World Summit, Nantes, France, 25-27 September 2013
- MOHANTY B. (2013),** Reducing the carbon footprints through sustainable production practices, AIT Technology Event, Asian institute of Technology, Bangkok, Thailand, 9-11 July 2013
- MOHANTY B. (2013),** Sharing Asian experiences of eco-industrial complexes, Sa Dec Industrial Park Sensitization Workshop, Dong Thap Housing and Industrial Zones Development Joint Stock Company (HIDICO), Dong Thap, Vietnam, 15 April 2013
- MOHANTY B. (2013),** Sustainable ISO certifications for global business opportunities, European Green Business Solutions for Vietnam Green-Biz 2013, Eurocham/Vietnam, Melia Hanoi, Vietnam, 19-20 September 2013
- MOHANTY B. (2013),** Sustainability, affordability and south-south cooperation, EGM on Regional Assessment on Increasing the Affordability of Sustainable Energy Options, Organized by the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Bangkok, Thailand, 19-20 February 2013
- MOHANTY B. (2013),** The way forward for cities to address climate change, Towards Low Carbon Cities: Experience Sharing Workshop, Organized by the Asian Institute of Technology, Rangsit, Thailand, 11-12 February 2013
- MOHANTY B. (2013),** What makes buildings green and sustainable? AIT Technology Event, Asian institute of Technology, Bangkok, Thailand, 9-11 July 2013
- Muhammad Khalid Farooq and S. Kumar (2013).** An assessment of renewable energy potential for electricity generation in Pakistan, Renewable and Sustainable Energy Reviews, 20, Pages 240-254, 2013.
- Muhammad Khalid Farooq, S. Kumar and Ram M. Shrestha (2013).** Energy, environmental and economic effects of Renewable Portfolio Standards (RPS) in a Developing Country, Energy Policy, 62, 989-1001, 2013.
- Najmul Hoque and S. Kumar (2013).** Performance of Photovoltaic microutility systems, Energy for Sustainable Development, 17, 424-430, 2013.
- Shazib Md. Uddin and S. Kumar (2013),** Energy, Emissions and Environmental Impact Analysis of Wind Turbine Using Life Cycle Assessment Technique, Journal of Cleaner Production, accepted for publication.
- Sachin K. Jain, S. N. Singh, and J. G. Singh (2013),** "An Adaptive Time-Efficient Technique for Harmonics Estimation of Non-stationary Signals", IEEE Transactions on Industrial Electronics, Vol. 60, No. 8, August 2013, pp. 3295-3303.
- Wartana I Made, Jai Govind Singh, Weerakorn Ongsakul, and Sasidharan Sreedharan (2013),** "Optimal Placement of FACTS Controllers for Maximizing System Loadability by PSO", Int. J. of Power and Energy Conversion, Vol. 4, No.1, 2013, pp. 9 - 33.

Kumar S. (2013), Action towards resource efficient and low carbon cities in Asia Eco city 2013 World Summit, 25-27 September 2013, Nantes, France.

Kumar S. (2013), Energy Health and Sustainable Development, presented at the Asia-Pacific Leadership Programme on Environment for Sustainable Development 3-7 June 2013, Shanghai, China

Kumar S. (2013), Thematic Case Studies on Sustainability Science in the Asia Pacific Region: Case study on Energy, Sustainability Science, 4-5 April 2013, Kuala Lumpur, Malaysia.

Kumar S., A. Salam, C. Marpaung, K. Kusakabe, R. Perera and C. Visvanathan (2013). "Action towards resource efficient and low carbon cities: Experience sharing workshop ", 11 - 12 February 2013, Asia Airport hotel, Bangkok (55 participants).

Weerakon Ongsakul (2013). The 8th GMSARN International Conference 2013 on "Green Growth in GMS: Energy, Environment and Social Issues" 18-20 December 2013, Mandalay, Myanmar

Weerakon Ongsakul (2013). The conference Workshop on Smart Grid and Renewable Energy, 19 September 2013 Pullman King Power Bangkok, Thailand supported by Human Resource Development in Energy Project, Energy Policy and Planning Office, Ministry of Energy, Thailand.

4.4.7 Doctoral Students' Dissertation

Microgrid planning in distribution system
By Kittavit Buayai
Supervisor: Dr. Weerakorn Ongsakul

4.4.8 Masters Students' Theses and Research Studies

Impact of distributed generations on small signal stability in Power Distribution Networks

By Tipaporn Munkong
Supervisor: Dr. Jai G. Singh

Transport Energy Demand and CO2 Emission Analysis in a City: A Case Study of Bangkok

By Nattworadee Adirutthphatharasiri
Supervisor: Charles O. P. Marpaung

Assessment of Greenhouse Gas Emissions: The Case of a Sugar Factory

By Promthong Suvarnapradip
Supervisor: Dr. P. Abdul Salam

A Study on Embodied Energy of an Educational Building

By Wipa Loengbudnark
Supervisor: Prof. S. Kumar

A study of least energy pathways for microalgae based biodiesel in Thailand

By: Ratchanee Muangprasert
Supervisor: Dr. P. Abdul Salam

A Study on Greenhouse Gas Emission and Air Pollutant Emissions of the Thai Civil Aviation Sector

By: Nonthi Cherdangan
Supervisor: Prof. S. Kumar

Impact of Renewable Power Source Integration on Voltage Stability in Southern Power System Network of Afghanistan

By: Mujtaba Manavi
Supervisor: Dr. Jai G. Singh

Macroeconomic and Environmental Benefits Due to Wind Energy Policy: A Case Study of Gujarat Wind Energy Sector

By Alvin Jose
Supervisor: Dr. Charles O. P. Marpaung
Co-chairperson: Prof. S. Kumar

Time Series and Panel Data Analysis of Crude Oil Consumption for Indonesia, Malaysia and Thailand

By Wichien Tunyasrivorakul
Supervisor: Dr. Charles Marpaung

Integrated Audit in a Small Meat-Drying Enterprise in Cambodia

By Chheng Veng Ngov
Supervisor: Prof. S. Kumar

A Study on Energy Access in the Slum Areas of Dhaka, Bangladesh

By Molla Shahadat Hossain Lipu
Supervisor: Prof. S. Kumar

Study on Biogas production potential using TiFeCL₃ for wastewater preliminary treatment

By Tananun Pongchaipasert
Supervisor: Dr. P. Abdul Salam

Sustainable Extraction and Usage of Coal in Jamalganj Coal Field, Bangladesh

By Muhammad Ahad Rahman Miah
Supervisor: Dr. P. Abdul Salam

Panel Cointegration and Causality Analysis on CO₂ Emissions in Selected Asean Countries

By Perada Limloetmongkol
Supervisor: Dr. Charles Marpaung

A Study on Linear Fresnel Concentrating System for Heat and Electricity Applications

By Apinya Aksornkij
Supervisor: Prof. S. Kumar

A Generic Methodology for Geographical Assessment of Microalgae Potential

By Karabee Das
Supervisor: Dr. P. Abdul Salam

Life Cycle Analysis of Solar (Thermal and Photovoltaic) and Wind Technologies

By Md. Shazib Uddin
Supervisor: Prof. S. Kumar

A Multi-Objective Approach for Optimal Placement of DG to Enhance Power Distribution Network Performance Using NSPSO

By Hathaikan Mee-Kham
Supervisor: Dr. Jai G. Singh

Multi-objective service restoration in distribution system with DG using NSPSO

By Piyachai Sritunya
Supervisor: Dr. Weerakorn Ongsakul

Multi-Objective Power Distribution System Planning Considering PEVs by NSPSO

By Pok Palpibal
Supervisor: Dr. Weerakorn Ongsakul

Combustion of Mixed Fuel in Circulating Fluidized Bed Boiler

By Gunawan Damanik

Supervisor: Dr. P. Abdul Salam

A Study on Efficiency of Power Boiler
By Dedi Yandri

Supervisor: Dr. P. Abdul Salam

Hydro-Thermal Coordination Using
Pseudo-Gradient Particle Swarm
Optimization Considering Wind Power
Uncertainty: A case of Vietnam

By Le Hoang Nam

Supervisor: Dr. Weerakorn Ongsakul

Optimal Placement of Fault Current
Limiters to Reduce Short Circuit Current
Level in Vietnam's Power Transmission
Network

By Pham Tuan Ngoc

Supervisor: Dr. Jai G. Singh

Optimal Operation of Cascade
Hydropower Plants: A Case Study of IALY
Hydropower Company in the Central
Region of Vietnam

By Ta Nguyen Tan

Supervisor: Dr. Jai G. Singh

Design of Framework to Estimate Job
Co-Benefits of Renewable Energy
Technologies Using Life Cycle
Assessment

By Manisha Goteti

Supervisor: Prof. S. Kumar

A Study of Green Roof Technology

By Attapreecha Joranane

Supervisor: Prof. S. Kumar

A Study on Energy Efficiency in Campus
Buildings

By Elita Fidiya Nugrahani

Supervisor: Dr. P. Abdul Salam

4.5: SERD – ENVIRONMENTAL ENGINEERING AND MANAGEMENT FIELD OF STUDY



4.5.1 Introduction

Environmental Engineering at AIT began in 1964 with the need for sanitary engineering to address the problems of providing adequate water supplies and sanitation facilities. This pioneering environmental engineering program has grown into a range of fields needed to tackle the environmental issues facing Asia today.

Environmental Engineering and Management Field of Study is part of the School of Environment, Resources and Development. The overall program looks for solutions to environmental problems, water supply and sanitation, wastewater treatment and disposal systems, air pollution, solid and hazardous wastes, waste minimization, and life cycle assessment, environmental impact assessment and management and environmental toxicology. The three major focal areas are Environmental Technology and Management, Environmental Toxicology, Technology and Management, and Water and Wastewater Engineering.

4.5.2 Research Facilities and Laboratories

The Environmental Engineering (EE) Laboratory is housed with facilities to handle a wide range of knowledge and skills in problem solving for industrial needs and analytical works for physical, chemical, microbiological, and environmental parameters such as water and wastewater quality, air pollutants and noise level, and solid waste. For teaching, training and research purposes, the EE laboratory is categorized into three sub-laboratories namely, research, ambient, and environmental research station. For lab and pilot scale testing purposes, the ambient laboratory has furnished with facility to conduct experiments for treating sludge, sewage, air toxics and industrial wastes. It is also housed with advanced water and wastewater treatment units such different membrane bioreactors, and high rate anaerobic treatment processes with methane gas recovery. The Environmental Research Station consists of pilot scale aerobic and anaerobic biological wastewater treatment units, constructed wetlands, waste stabilization ponds, a lysimeters for solid waste treatment, a hazardous wastewater treatment plant and ambient air monitoring station.

Among its major equipment include Gas Chromatograph; High Performance Liquid Chromatograph; Atomic Absorption Spectrometer; Total Organic Carbon Analyzer; Ion Chromatograph, Induced Couple Plasma, UV Spectrophotometer; Supercritical Fluid Extractor; Microwave Digestion System; Primus Thermal Cyclers; Universal Mutation Detection System; Microscope; Microbalance; Microcentrifuge.

4.5.3 Faculty and Research Staff

Full-time Faculty

AJIT P. ANNACHHATRE, BTech, PhD, Indian Inst of Tech, Kanpur, India.

Professor (*Anaerobic Wastewater Treatment; Biofilm Processes; Environmental Biotechnology; Environmental Impact Assessment; Mathematical Modeling*)

CHETTIYAPPAN VISVANATHAN, BTech, IIT, Madras, India; MEng, AIT, Thailand; PhD, Inst Natl Polytech, Toulouse, France.

Professor (*Cleaner Production; Industrial Environment Management; Membrane Technology for Water and Wastewater Treatment and, Solid Waste Management*)

NGUYEN OANH THI KIM, Dip Eng, Odessa Hydrometeorology Inst, Ukraine; MEng, DEng, AIT, Thailand.

Professor (*Air Pollution Engineering and Management: Modeling, Monitoring, Exposure Assessment; Climate and Air Quality Interaction: Environment Co-Benefit of SLCP Emission Reduction; Industrial Environment Management: General Environment Management, Advanced Emission Control Techniques*)

OLEG SHIPIN, PhD, Inst of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

Associate Professor (*Ecological Engineering for climate change adaptation; Environmental Impact Assessment; Microbial biotechnology and nanotechnology; Natural systems (ponds and wetlands) as Wastewater treatment systems; Microbial aspects of Environmental Engineering; Health and Ecological Risk assessment*)

THAMMARAT KOOTATEP, BEng, Chiangmai Univ; MEng, DEng, AIT, Thailand.

Associate Professor (*Decentralized Waste and Wastewater Treatment Systems; Sustainable Sanitation; Eco-engineering Technology for Waste and Wastewater Treatment and Management; Environmental Health and Sanitation*)

Visiting and Adjunct Faculty

CHONGRAK POLPRASERT, BEng, Chulalongkorn Univ, Thailand; MEng, AIT, Thailand; PhD, Univ of Washington, USA.

Adjunct Faculty (*Hazardous Waste Engineering; Resources Recovery; Sanitation*)

DOULAYE KONÉ, MSc, Univ of Cocody, Côte d'Ivoire; MSc & M Advance Studies, Université de Liège, Belgium; PhD, Swiss Federal Institute of Technology Lausanne, Switzerland.

Adjunct Faculty (*Water and Sanitation*)

HUNG NGUYEN-VIET, BSc, Hanoi Univ of Education, Vietnam; MSc, PhD, Univ of Franche-Comté, France.

Adjunct Faculty (*Life and Environmental Sciences*)

KARE HELGE KARSTENSEN, BS, MS, Univ of Oslo; MBA, Heriott Watt Univ, UK; MLaw, Univ of Oslo; DrSc, Norwegian Univ of Science and Technology, Trondheim, Norway.

Visiting Faculty (*Sustainable Management of Industrial and Hazardous Wastes; Management of Hazardous Chemicals, POPs and Obsolete Pesticides; Sustainable Production of Cement and Co-Processing of Alternative Fuel and Raw Materials and Hazardous Wastes; Control and Minimization of Unintentionally Produced POPs (dioxins, furans, PCBs and HCB) and Application of Best Available Technologies & Best Environmental Practices (BAT/BEP)*)

KIMBERLY NEIL IRVINE, BSc, Toronto Univ, Canada; MSc, PhD, McMaster Univ, Canada.

Adjunct Professor (*Hydrology and Water Resource Management, with specific emphasis on evaluating water quality in urban-impacted water bodies*)

PREEDA PARKPIAN, BSc, Kasetsart Univ, Thailand; MSc, Mississippi State Univ; PhD, Texas A&M Univ, USA.

Adjunct Faculty (*Ecotoxicology; POPs; Heavy Metals; Micronutrient Chemistry; Remediation of Polluted Soil and Water*)

SHINICHI OKAMOTO, BEng, MEng, DEng, Waseda Univ, Japan.

Visiting Professor (*Statistics and Environmental Management Systems*)

SIDDHARTH K. JABADE, BE and ME, Univ of Pune, India; PhD, IIT Bombay, India.

Adjunct Professor (*Intellectual Property Specialist*)

Affiliated Faculty

JUTAMAAD SATAYAVIVAD, PhD, Mahidol Univ, Thailand.

Affiliated Faculty (*Pharmacology*)

KHUNYING MATHUROS RUCHIRAWAT, PhD, Massachusetts Institute of Technology, USA.

Affiliated Faculty (*Nutrition Biochemistry and Metabolism*)

SKORN MONGKOLSUK, PhD, Univ of Maryland, USA.

Affiliated Professor (*Biological Science*)

AIRADA POMPANWONG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

ARAYA WICHEANSAN, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

AROSHA S. KUMARAGE, BA

Research Assistant (Financial management and assist the team in regular research project and training activities) Manages research projects, prepares technical reports and presentations)

ATITAYA PANUVATVANICH, DEng

Research Specialist (Manages research projects; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)

CHACHSAKHOL THANADILOK, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHAIYAPORN IMSAPSANGWORN, MSc

Laboratory Supervisor (Supervises instrumenttation and data acquisition, calibration and maintenance of analytical instruments, assistant to senior laboratory supervisor for such as teaching, lab management)

CHALOEMCHAI SAENTIP, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHANYA LEENASEN, BSc

Secretary (Provide administrative support to faculty, staff and students through conducting and organizing administrative duties and activities)

CHAWALIT CHAIWONG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHUTHATHIP SIRIPONG, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

ILADA PHUAKMOOL, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

JARUWAT WATANATANACHART, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

JIRAPA DATHONG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

JIRARUT PHUANGNUI, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

KANOKWAN WANGCHINA, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

KIM WON KWON, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

MINGKWAN WANITCHOW, BSc

Secretary (Provide administrative support to faculty, staff and students through conducting and organizing administrative duties and activities)

MUNU PRADHAN, MBA

Research Associate (Manages research projects, prepares technical reports and presentations)

NAN KHAM SYNE, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

NATTAPONG PROYSURIN, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

NAWATCH SURINKUL, Deng

Research Specialist (Manages research projects; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)

NGUYEN PHAN DONG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

NGUYEN THANH HANG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

NIMITR BUNRUANG, BTech (Mech.)

Senior Technician (Responsible for the repair and maintenance of related machines, assists students in laboratory experimental work and experimental set-up, carry out routine maintenance and repair of laboratory equipment and facilities)

NUTNICHA TAJAI, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

ORATHAI KLUBBARNKOH, BSc

Senior Technician (Chemistry and environmental analysis for environmental samples as well as prepare for chemical and glassware for laboratory courses and research projects)

PANNAWEE MEKWICHAI, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

PANNITA SUTTISAWAD, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PANUPONG BOONYANUN, BTech (Mech.)

Senior Technician (Responsible for the repair and maintenance of related machines, assists students in laboratory experimental work and experimental set-up, carry out routine maintenance

and repair of laboratory equipment and facilities)

PAUL JACOB, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

PHANWATT PHUNGSAL, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

PIYANAD AKSORNPIM, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PONGSAKORN CHAICHAI, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PRAKRITI KASHYAP, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

QIUSHI XU, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

RARI CHONTONG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SALAYA PHUNSIRI, MSc

Senior Laboratory Supervisor (Administrative for Environmental Engineering Laboratory as well as supervise for experimental and research projects on water, wastewater, air pollution, and solid wastes analysis)

SANIRAT SANGMUANG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

SAROJ KUMAR CHAPAGAIN, PhD

Senior Research Engineer (Manages research projects, assists in project coordination, prepares project reports, assist team leader in training activities)

SITA CHAIHENG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SOMCHAI AREMSUM-ANG, BSc

Research Assistant (Wastewater and soil analysis, field survey and data collection, testing and other laboratory sessions)

SOMPOKE KINGKAEW, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

SUCHITRA PIEMPINSEST, BEd

Senior Administrative Officer (Overall strategy, planning, coordination and management of academic activities and overall administration of the program)

SUMETH WONGKIEW, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

SUPAPORN PIROMSRI, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SUPUSANEE DULYAKASEM, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

SURADANAI AUNGSORNTUNG, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

T.D.W. RATHNAYAKE, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

TIPPAWAN SINGHOPON, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

UNCHANA SUKJAROEN, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

VAIDEHI A. DEOSTHALI, MBA

Research Associate (Manages research projects, prepares technical reports and presentations)

WARAPHORN KHAJORNFUNG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

WITCHUDA TASSANASUWAN, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

4.5.4 Grants and Sponsored Research Completed in 2013

3R Knowledge Hub II

Duration: 1-Oct-11 to 31-May-13
Project Investigator(s): C. Visvanathan
Sponsor: Asian Development Bank
Total Contracted Amount (THB): 2,117,969

Affordable Sanitation as an adaptive strategy to emerging waterborne diseases due to Climate change

Duration: 1-Jul-11 to 31-Dec-13
 Project Investigator(s): Thammarat Koottatep
 Sponsor: Asia Pacific Network for Global Change Research (APN)
 Total Contracted Amount (THB): 1,291,950

Environmental Sanitation and Urban Agriculture

Duration: 25-Sep-02 to 30-Jun-13
 Project Investigator(s): Thammarat Koottatep
 Sponsor: Department of Water and Environmental Sanitation in Developing Countries (SANDEC), Switzerland
 Total Contracted Amount (THB): 23,387,417

Permeable Reactive Barrier for Remediation of Acid Mine Drainage

Duration: 1-Nov-09 to 1-Dec-13
 Project Investigator(s): Ajit P. Annachhatre
 Sponsor: UNESCO-IHE, the Netherlands
 Total Contracted Amount (THB): 972,270

Pilot Scale study on maximum recovery of the filter backwash water by using pilot ceramic membrane filter (CMF)

Duration: 1-Jan-12 to 31-Jan-13
 Project Investigator(s): C. Visvanathan
 Sponsor: University of Tokyo, Japan
 Total Contracted Amount (THB): 390,920

Reuse of Treated Effluent from Bangkok Wastewater Treatment Plants

Duration: 22-Aug-11 to 31-Oct-13
 Project Investigator(s): Thammarat Koottatep
 Sponsor: Kasetsart University (KU), Thailand
 Total Contracted Amount (THB): 600,000

Review and improve extend and augment the functions and contents of the 3RKH website

Duration: 13-Jan-12 to 30-Sept-13
 Project Investigator(s): C. Visvanathan
 Sponsor: Mitsubishi Research Institute, Japan

Total Contracted Amount (THB): 634,400

Strategic Environmental Assessment for North and Central Afghanistan to ensure sustainable use of water resources

Duration: 1-Aug-10 to 31-Aug-13
 Project Investigator(s): Oleg Shipin
 Sponsor: British Council UK
 Total Contracted Amount (THB): 2,328,000

Sustainability Workshops: Integrative Approaches in Sustainable Water and Food Management through Intensive Program on Sustainability (IPoS) – 2012

Duration: 1-Jul-12 to 30-Jun-13
 Project Investigator(s): Thammarat Koottatep
 Sponsor: University of Tokyo, Japan
 Total Contracted Amount (THB): 1,241,350

4.5.5 On-going Grants and Sponsored Research

Assessment of Impacts of the Emission Reduction Measures of Short-lived Climate Forcers on Air Quality and Climate in Southeast Asia

Duration: 1-Jun-12 to 1-Oct-14
 Project Investigator(s): Nguyen Thi Kim Oanh
 Sponsor: NAS-USAID
 Total Contracted Amount (THB): 5,542,800

Green Hotel

Duration: 25-May-10 to 31-Jan-14
 Project Investigator(s): Thammarat Koottatep
 Sponsor: French Development Agency
 Total Contracted Amount (THB): 1,123,409

Outreach on Environmentally sound treatment of Hazardous chemicals in Asia

Duration: 1-Jul-11 to 30-Jun-14
 Project Investigator(s): Nguyen Thi Kim Oanh
 Sponsor: The Norwegian Ministry of Foreign Affairs
 Total Contracted Amount (THB): 9,291,686

Pollution Mitigation in Coastal Communities via the Multi-functional Wetland (Mangrove) approach with Biodiversity and Sustainable Agri-Business Co-benefit

Duration: 10-Mar-12 to 9-Feb-14
 Project Investigator(s): Oleg Shipin
 Sponsor: UNEP
 Total Contracted Amount (THB): 900,000

Research Mission Trips of AIT Faculty

Duration: 1-Sep-10 to 31-Aug-14
 Project Investigator(s): Ajit P. Annachhatre
 Sponsor: SDCC AIT France Network
 Total Contracted Amount (THB): 288,000

Stimulating Local Innovation on Sanitation for the Urban Poor in Sub-Saharan and Southeast Asia

Duration: 8-Feb-12 to 16-Jun-16
 Project Investigator(s): Thammarat Koottatep
 Sponsor: Bill & Melinda Gates Foundation
 Total Contracted Amount (THB): 26,124,360

Study of Ground-level Ozone in Bangkok Metropolitan Region by Advance Mathematical Modeling for Air Quality Management

Duration: 1-Oct-12 to 1 Oct-14
 Project Investigator(s): Nguyen Thi Kim Oanh
 Sponsor: PTT Public Company Limited
 Total Contracted Amount (THB): 1,797,600

Sustainability Issues due to Coal Ash from Coal fired Power plants

Duration: 1-Sep-10 to 31-Aug-14
 Project Investigator(s): Ajit P. Annachhatre
 Sponsor: SDCC AIT France Network
 Total Contracted Amount (THB): 1,800,000

Sustainable Decentralized Wastewater Management in Developing Countries

Duration: 15-Oct-11 to 16-Jun-16
 Project Investigator(s): Thammarat Koottatep
 Sponsor: Bill & Melinda Gates Foundation
 Total Contracted Amount

(THB): 149,991,660

The National Centre of Competence in Research (NCCR) North-South

Duration: 2002 to 30-Jun-14

Project Investigator(s): Thammarat Koottatep

Sponsor: NCCR North-South Center for Development and Environment, Switzerland

Total Contracted Amount (THB): 40,817,025.79

Development of a Membrane Based Treatment of TEG for Gas Separation Plant's Wastewater

Duration: 20-Feb-13 to 31-Oct-14

Project Investigator(s): C. Visvanathan

Sponsor: Petroleum Authority of Thailand (PTT) Public Company Limited

Total Contracted Amount (THB): 2,287,500

Evaluation of Two Technologies for Heavy Metals Removal under Tropical Condition

Duration: 1-Oct-12 to 31-May-14

Project Investigator(s): Ajit P. Annachhatre

Sponsor: UNESCO-IHE Partnership Research Fund (UPaRF), The Netherlands

Total Contracted Amount (THB): 487,500

Impact, Treatment and Management of Acid Mine Drainage

Duration: 1-Apr-13 to 30-Jun-14

Project Investigator(s): Ajit P. Annachhatre

Sponsor: UNESCO-IHE Partnership Research Fund (UPaRF), The Netherlands

Total Contracted Amount (THB): 156,000

Zero Waste Discharge in Industries- Training program

Duration: 1-Oct-13 to 31-Mar-14

Project Investigator(s): C. Visvanathan

Sponsor: Participants

Total Contracted Amount (THB): 150,000

Development of Innovative Technology and Integrate Management Systems for Sustainable Sanitation in ASEAN

Duration: 1-Dec-13 to 9-Dec-14

Project Investigator(s): Dr. Thammarat Koottatep

Sponsor: Korea Institute of Science and Technology (KIST)

Total Contracted Amount (THB): 2,420,000

Technical Assistance for the setup of a Credit Facility to support Ecosystems friendly Accommodations in Coastal areas of Thailand

Duration: 25-Mar-10 to 31-Jan-14

Project Investigator(s): Thammarat Koottatep

Sponsor: French Development Agency AFD

Total Contracted Amount (THB): 1,950,000

4.5.6 Publications

International Journal Articles with Impact factor

Abeynayaka, A., Visvanathan, C., Khandarith, S., Hashimoto, T. Katayama, H., Matsui, Y. and Werellagama, D.R.I.B (2013)., Long-term Studies on Hybrid Ceramic Microfiltration for Treatment of Surface Water Containing High DOM, *Water Science and Technology: Water Supply*, DOI:10.2166/ws.2013.194 (first Impact Factor to be announced in 2014).

Acheampong, M.A., Pakshirajan, K., Annachhatre, A.P. and Lens, P.N.L. (2013), "Removal of Cu (II) by biosorption onto coconut shell in fixed-bed column systems", *Journal of Industrial and Engineering Chemistry*, 19 (3) , 841-848 (Impact Factor: 2.145).

Binh, N.D., Kim Oanh, N.T. and Parkpian, P. (2013). Photodegradation of dioxin in contaminated soil in the presence of solvents and nanoscale TiO2 particles. *Environmental Technology*, 1-12. doi:10.1080/09593330.2013.861873. IF: 1.606 (Impact Factor: 1.106).

Danwittayakul, S., Jaisai, M., Koottatep, T. and Dutta, J., (2013). Enhancement of photocatalytic degradation of methyl orange by supported zinc oxide nanorods/zinc stannate (ZnO/ZTO) on

porous substrates, *Industrial & Engineering Chemistry Research*, doi: 10.1021/ie4019726 (Impact Factor: 2.206).

Engel-Cox, J., Kim Oanh, N.T., Donkelaar, van A., Martin, R.V. and Zell, E. (2013). Toward the next generation of air quality monitoring: Particulate Matter. *Atmospheric Environment*, 80, 584-590. Retrieved from <http://dx.doi.org/10.1016/j.atmosenv.2013.08.016>. IF: 3.11 (Impact Factor: 3.110).

Habib, H. Anceno, A.J., Fiddes, J., Beekma, J., Ilyuschenko, M., Nitivattananon, V., and Shipin, O.V. (2013). Jumpstarting strategic water resources protection from a changing global perspective: gaps and prospects in Afghanistan. *Journal of Environmental Management*, 129, 244-259 (Impact Factor: 3.057).

Jayaranjan, M.L.D. and Annachhatre, A.P. (2013), "Precipitation of heavy metals from coal ash leachate using biogenic hydrogen sulfide generated from FGD gypsum", *Water Science and Technology*, 67 (2) , 311-318 (Impact Factor: 1.102).

Karthikeyan, O.P. and Visvanathan, C. (2013). Bio-energy Recovery from High-Solid Organic Substrates by Dry Anaerobic Bio-Conversion Processes: A Review, *Journal of Reviews in Environmental Science and Bio/Technology*, 12, 257-284 (Impact Factor: 2.340)

Khan, M.Z.A. and Kim Oanh, N.T. (2013). Assessment of the relationship between satellite AOD and ground PM₁₀ measurement data considering synoptic meteorological patterns and Lidar. *Science of The Total Environment*, 473, 609-618. Retrieved from <http://dx.doi.org/10.1016/j.scitotenv.2013.12.058>. IF: 3.258 (Impact Factor: 3.258).

Khan, S.J., Ali, S., Visvanathan, C. and Pillay, V.L. (2013). Membrane fouling Characterization in membrane-based septic tank, *Desalination and Water Treatment*,

- DOI:10.1080/19443994.2013.796730, pp. 1-5 (Impact Factor: 0.852).
- Kijjanapanich, P., Annachatre, A.P., Esposito, G., van Hullebusch, E.D. and Lens, P.N.L. (2013).** Biological sulfate removal from gypsum contaminated construction and demolition debris, *Journal of Environmental Management*, 131, 82-91 (Impact Factor: 3.057).
- Kim Oanh, N.T., Kongpran, J., Hang, N.T., Parkpian, P., Hung, N.T.Q., Lee S.B. and Bae, G.N. (2013).** Characterization of gaseous pollutants and PM_{2.5} at fixed roadsides and along vehicle traveling routes in Bangkok Metropolitan Region. *Atmospheric Environment*, Retrieved from <http://dx.doi.org/10.1016/j.atmosenv.2013.06.001>. IF: 3.11 (Impact Factor: 3.110).
- Koottatep, T., Phuphisith, S., Pussayanavin, T., Panuvatvanich, A. and Polprasert, C. (2013).** Modeling of pathogen inactivation in thermal septic tanks. *Journal of Water, Sanitation and Hygiene for Development*, IWA Publishing, doi:10.2166/washdev.2013.190 (first Impact Factor to be announced in 2014).
- Körner, Ina and Visvanathan, C. (2013).** "Perspectives of Composting and Anaerobic Digestion Technologies for the treatment of organic fraction of Municipal Solid Waste in Europe and Asia", *International Journal of Environment and Waste Management (IJEWM)*, 11 (2), 193-212.
- Reid, J.S., Hyer, E.J., Johnson, R.S., Holben, B.N., Yokelson, R.J., Zhang, J., Campbell, J.R., Christopher, S.A., Di Girolamo, L., Giglio, L., Holz, R.E., Kearney, C., Miettinen, J., Reid, E.A., Turk, F.J., Wang, J., Xian, P., Zhao, G., Balasubramanian, R., Chew, B.N., Janjai, S., Lagrosas, N., Lestari, P., Lin, N.-H., Mahmud, M., Nguyen, A.X., Norris, B., Kim Oanh, N.T., Oo, M., Salinas, S.V., Welton, E.J. and Liew, S.C. (2013).** Observing and understanding the Southeast Asian aerosol system by remote sensing: An initial review and analysis for the Seven Southeast Asian Studies (7SEAS) program (Review). *Atmospheric Research*, 122, 403-468. IF: 2.2 (Impact Factor: 2.200).
- Shrestha, S.R, Kim Oanh, N.T., Xu, Q., Rupakheti, M. and Lawrence, M.G. (2013).** Analysis of the vehicle fleet in the Kathmandu Valley for estimation of environment and climate co-benefits of technology intrusions. *Atmospheric Environment*, 81, 579-590. Retrieved from <http://dx.doi.org/10.1016/j.atmosenv.2013.09.050>. IF: 3.11 (Impact Factor: 3.110).
- Sukitpaneenit, M. and Kim Oanh, N.T. (2013).** Satellite monitoring for carbon monoxide and particulate matter during forest fire episodes in Northern Thailand, *Environmental Monitoring and Assessment*, doi: 10.1007/s10661-013-3556-x. IF: 1.59 (Impact Factor: 1.592).
- Thanh, B.X., Dan, N.P. and Visvanathan, C. (2013).** Low flux submerged membrane bioreactor treating high strength leachate from a solid waste transfer station, *Bioresources Technol - ogy*, 141, 25-28 (Impact Factor: 4.750).
- Thanh, B.X., Tina, N.T., Hai Van, P.T., Dieu Hien, V.T., Dan, N.P. and Koottatep, T. (2013).** Performance of wetland roof with *Melampodium paludosum* treating septic tank effluent. *Desalination and Water Treatment*, doi:10.1080/19443994.2013.826323 (Impact Factor: 0.852).
- Thanh, B.X., Visvanathan, C. and Ben Aim, R. (2013).** Fouling characterization and nitrogen removal in a batch granulation membrane bioreactor, *International Biodeterioration & Biodegradation*, 85, 491-498 (Impact Factor: 2.059).
- Tsuzuki, Y., Koottatep, T., Sinsupan T., Jiawkok, S., Wongburana C., Wattana-jira, S. and Sarathai, Y. (2013).** A concept in planning and management of on-site and centralised municipal wastewater treatment systems, a case study in Bangkok, Thailand I: Pollutant discharge indicators and pollutant removal efficiency functions, *Water Science and Technology*, 67 (9), doi:10.2166/wst.2013.053 (Impact Factor: 1.102).
- Tsuzuki, Y., Koottatep, T., Sinsupan T., Jiawkok, S., Wongburana C., Wattana-jira S., and Sarathai Y., (2013).** A concept in planning and management of on-site and centralised municipal wastewater treatment systems, a case study in Bangkok, Thailand I: Scenario-based pollutant load analysis, *Water Science and Technology*, 67 (9), doi:10.2166/wst.2013.024 (Impact Factor: 1.102).
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- Visvanathan, C., Khachonbun, P. Rattanaoudom, R. and Jacob, P. (2013),** " Potential Membrane based Separation of Triethylene Glycol Wastewater from Gas Separation Plant", 6th Annual Conference on the Challenges in Environmental Science & Engineering (CESE 2013), Daegu, Korea, 29 October-2 November 2013.
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- Jegatheesan, V. and Visvanathan, C. (2013).** "Process fundamentals: from conventional biological wastewater treatment to MBR", in *Membrane Biological Reactors*, IWA publication, pp. 29-52, ISBN: 9781780400655.
- Shipin, O.V. (contributor and reviewer). (2013).** Visual Afghanistan-Tajikistan Cooperation Atlas. Environment and Hydrology in the upper Amu Darya Basin. Zoi Environment Network and UNECE. pp. 101. Geneva, Switzerland.
- Papers in Workshops**
- Kashyap, P.K., Jacob, J. and Visvanathan, C. (2013),** "Integration of Informal Waste Sector for Promoting 3R Activities - From Conflict to Cooperation", World Vision Urban Forum, 13-15 March 2013, Bangkok, Thailand.
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- Visvanathan, C. (2013),** "AIT's Vision on: Faculty Exchanges and Education Driven Research", International Round Table on Sustainability – Leadership Education, University of Tokyo, 10 January 2013, Tokyo, Japan
- Non-refereed Publications**

Hotta, Y., Kojima, M. and Visvanathan, C. (2013), "Recycling Rate and Target", 3R Policy Indicators - Fact Sheet Series, Ministry of Environment Japan and IGES, March 2013.

Visvanathan, C. (2013), "Decentralized Approach to Treating the Organic Fraction of Municipal Solid Waste with Energy Recovery by Using Inclined Dry Anaerobic Digestion" published as engineering cases, in *engineeringcases.knovelblogs.com*.

Visvanathan, C. (2013), "Measuring Waste Reduction, Reuse and Recycling through Industrial Symbiosis", 3R Policy Indicators - Fact Sheet Series, Ministry of Environment Japan and IGES, March 2013.

Invited Lectures and Keynote Addresses

Visvanathan, C. (2013), "Achieving Water Security through Wastewater Reuse" 4th International Conference on Sustainable Science, Mediterranean Challenges Towards Sustainability, Marseille, France, 16-18 September, 2013.

Visvanathan, C. (2013), "Informal Sector in Waste Recycling", *Invited Plenary Speaker*, International Conference on Waste Management and Environment, University of Malaya, Kuala Lumpur, Malaysia, 26-27 August 2013.

Visvanathan, C. (2013), "Resource Efficient and Cleaner Production in Textile Sector" invited technical panel member, UNIDO Green Industry Conference, Guangzhou, China, 7-9 November 2013.

Visvanathan, C. (2013), "Waste Recycling Markets and Creating Green Jobs-Asian Perspective", IPLA Global Forum 2013 on Sustainable Waste Management for the 21st Century Cities", City of Borås, Sweden, 9-11 September 2013.

4.5.6 Doctoral Students' Dissertation

Assessment of Destruction Technologies of Hazardous Chemicals Applicable for Selected Asian Countries
By Thipsukon Khumsaeng
Supervisor: Prof. Nguyen Thi Kim Oanh

A Study of Respiratory Inflammation and Damages in Response to Particulate Matter Exposure
By Udomratana Vattanasit
Supervisor: Dr. Khunying Mathuros Ruchirawat
Co-chairperson: Prof. Herman Autrup
Co-chairperson: Prof. Chettiyappan Visvanathan

Assessment of Efficacy of Black Carbon Emission Reduction Measures and Co-Benefit On Climate Forcing Mitigation and Air Quality Improvement in Southeast Asia
By Didin Agustian Permadi
Supervisor: Prof. Nguyen Thi Kim Oanh

4.5.7 Masters Students' Theses

Appraisal of Community Water Systems in Tak Province, Thailand [Research Study]
By Josiah Bowles
Supervisor: Dr. Thammarat Koottatep

Relationship between Air Pollutions and Meteorology in Pathumthani Province of Thailand
By Kanchanok Noiwimon
Supervisor: Prof. Nguyen Thi Kim Oanh

Degradation of Fecal Sludge by using Earthworm Based-Wetlands
By Zin Myo Thet
Supervisor: Dr. Thammarat Koottatep

Investigation of Coastline Change in Relation to Climate Conditions and Human Activities: A Case Study of Ngoc Hien District in Vietnam
By Duong Thanh Thoi
Supervisor: Prof. Nguyen Thi Kim Oanh

Potential Causes of Filamentous Algae Blooms in the Mekong River in the Stung Treng Ramsar Site, Cambodia
By Ly Hong Chuyen
Supervisor: Dr. Oleg Shipin

Life Cycle Assessment of the Coal-based Synthetic Natural Gas Plant in Ili, Xinjiang, China
By Jarkhen Jumakhen (Jiaerkenjumaken) Aite
Supervisor: Prof. Ajit P. Annachhatre

Development of a Community Based Low Cost Domestic Wastewater System for Kandahar City, Afghanistan
By Ahmad Fawad Ehsas
Supervisor: Prof. C. Visvanathan

Biogas Generation from Cassava Pulp: Effect of Carbon to Nitrogen Ratio by Co-substrate Utilization
By Pornpimol Taengtang
Supervisor: Prof. Ajit P. Annachhatre

Emission Inventory for Residential Cooking Activity in Hanoi Capital Region for Assessment of Potential Co-benefits under Various Fuel-stove Scenarios
By Nhung Chu Phuong
Supervisor: Prof. Nguyen Thi Kim Oanh

Estimation of Greenhouse Gas Emissions under Different Scenarios of Decentralized Waste Management in Southeast Asian Cities
By Xie Ming
Supervisor: Dr. Oleg Shipin

Development of Thermophilic Anaerobic Membrane Distillation Bioreactor
By Phanwatt Phungsai
Supervisor: Prof. C. Visvanathan

Assessment of Surface Temperature Change in Relation to the Land Cover Change using Remote Sensing and GIS: A Case Study of Hanoi Metropolitan, Vietnam
By Le Anh Quan
Supervisor: Prof. Nguyen Thi Kim Oanh

Development of Spatial and Temporal Emission Inventory for Biomass Open Burning in Vietnam
By Nguyen Phan Dong
Supervisor: Prof. Nguyen Thi Kim Oanh

Public Health Risks Assessment of Decentralized Wastewater Treatment Systems in Port Harcourt City, Nigeria
By Peter Emmanuel Cookey
Supervisor: Dr. Thammarat Koottatep

Effects of Temperature on Pathogen Inactivation in a Thermophilic Septic Tank By Sarunnoud Phuphisith Supervisor: Dr. Thammarat Koottatep	By Narachan Pimsuca Supervisor: Prof. Nguyen Thi Kim Oanh	Methanogens Dynamics and Ascaris Inactivation in Thermal Septic Tank By Nan Kham Syne Supervisor: Dr. Thammarat Koottatep
Total Coliform and E.Coli Disinfection Using Silver-Coated Magnetite Nanoparticles By Sumeth Wongkiew Supervisor: Dr. Thammarat Koottatep	Waste Tyre Management in Thailand: A Material Flow Analysis Approach By Tasawan Suparat Supervisor Prof. C. Visvanathan	Treatment of Municipal Wastewater in a Surface Flow Wetland using Selected Aquatic Plant Species: A Case Study in Vientiane, Laos By Siwat Somboondamrongkul Supervisor: Dr. Oleg Shipin
Membrane Based Triethylene Glycol Separation and Recovery from Gas Separation Plant Wastewater By Pimchanok Khachonbun Supervisor: Prof. C. Visvanathan	Biodrying of Cassava Peel from Tapioca Strach Industry By Thitinun Chairassamee Supervisor: Prof. Ajit P. Annachhatre	Analysis of Faecal Sludge Emptying and Collection Services in Ho Chi Minh City, Vietnam By Nguyen Chi Toan Supervisor: Dr. Thammarat Koottatep
Evaluation of Plastic Waste Management in Thailand using Material Flow Analysis By Kamala Rewlutthum Supervisor: Prof. C. Visvanathan	Influence of Binder on Physical Properties of Fuel Briquettes from Cassava Rhizome Waste By Sujinda Wiwatpanyaporn Supervisor: Prof. Ajit P. Annachhatre	Improving Environmental Sanitation: A Case Study in Northern Cambodia By Sreymom Um Supervisor: Dr. Oleg Shipin
Biochemical Methane Potential Estimation of Feed Mixtures used for Dry Anaerobic Digestion By Siripong Manjanthrarat Supervisor: Prof. C. Visvanathan	Potential for Greenhouse Gas (GHG) Emission Reduction in The Palm Oil Sector: A Case Study in Thailand By Napat Tansiri Supervisor: Prof. Ajit P. Annachhatre	Vulnerability of sanitation technologies in threatening scenarios due to climate extremes By Zhang Yali Supervisor: Dr. Thammarat Koottatep
Life Cycle Assessment of Electricity Generation from Coal Utilized in Power Plants: A Case Study from Thailand By Lalita Tejavibulya Supervisor: Prof. Ajit P. Annachhatre	Effects of Arsenic Exposure on Inflammatory Responses in Human Lymphoblast Cell Line and Arsenic Exposed Children By Moh Moh Thant Zin Supervisor: Dr. Panida Navasumrit Co-chairperson: Dr. Oleg Shipin	Performance appraisal of the Provincial Waterworks Authority Water Supply System in PWA Region 10, Nakhonsawan, Thailand By Kiattisak Ratchanet Supervisor: Prof. C. Visvanathan
Atmospheric Deposition Fluxed of Selected Air Pollutions near the Songkhla Lake, Thailand By Kosin Incharoan Supervisor: Prof. Nguyen Thi Kim Oanh	Development of Solid-liquid Separator Applicable to Blackwater in Cistern Flush and Pour Flush Toilet By Thei Su Yee Supervisor: Dr. Thammarat Koottatep	Emission Inventory for Residential Combustion in Surabaya City, Indonesia By Vivin Setiani Supervisor: Prof. Nguyen Thi Kim Oanh
Application of Photochemical Smog Modeling for Ozone Air Quality Management in Bangkok Metropolitan Region under Alternative Transport Fuel Scenarios By Sompoke Kingkaew Supervisor: Prof. Nguyen Thi Kim Oanh	Selection of Solid Media in Permeable Reactive Barrier for Removal of Heavy Metals from Acid Mine Drainage By Nguyen Dan Bao Linh Supervisor: Prof. Ajit P. Annachhatre	Ontology Based Analysis of Eco-city Concept Approaches: A Case Study of Integrated Drainage Channel Management By Andreas Johannis Schmidt Supervisor: Dr. Oleg Shipin
Treatment of Domestic Wastewater by a Simulated Canal using Various Aquatic Plants: A Case Study in Vientiane, Laos By Athitaya Changduang Supervisor: Dr. Oleg Shipin	Effects of CeO ₂ and ZnO Nanoparticles on Anaerobic Digestion and Toxicity of Digested Sludge By Nguyen Minh Duc Supervisor: Prof. C. Visvanathan	
Modeling for Assessment of Acid Deposition over Southern Thailand with Focus on Songkhla Lake Basin	Quantification of Seasonal Variations in Contributing Sources to Particulate Pollution in Pathumthani using Receptor Modeling Tool By Manisa Tepbanchaporn Supervisor: Prof. Nguyen Thi Kim Oanh	

4.6: SERD – FOOD ENGINEERING AND BIOPROCESS TECHNOLOGY FIELD OF STUDY



4.6.1 Introduction

This field of study focuses on value addition of agricultural commodities by the application of bioconversion in various sectors of industry and agriculture. These include food processing, aquaculture, cosmetics and health care. BPT focuses on the application of microorganism and enzymes to meet the demands of the developing countries of the region. FE focuses on the systems for handling, processing and storage of both durable and perishable food products in developing of small- scale food processing technologies. Emphasis is also placed on the determination of material properties; design and development of new processes and related equipment; and computer modeling and simulation of postharvest and food processing operations.

4.6.2 Faculty and Research Staff

Full-time Faculty

ANIL KUMAR ANAL, DVM., University of Agriculture, Faisalabad, Pakistan; MSc. and PhD., AIT, Thailand

Assistant Professor (Food Engineering & Bioprocess Technology Field of Study (*Food and Pharmaceutical Biotechnology, Food safety and Risk Assessment; Dairy and Meat Process Technology, Food Colloids and Biopolymer, Functional Foods, Micro-/Nanoencapsulation, Bionanotechnology; Waste Valorization*))

Associate Dean for Research & Outreach, School of Environment, Resources & Development

ATHAPOL NOOMHORM, BSc, Kasetsart Univ, Thailand; MEng, Lamar Univ, Texas; PhD, Louisiana State Univ, USA.

Professor and Coordinator (*Agro-Industrial Development, Food Process Technology, Post Harvest Technology, Supply Chain; Waste Valorization.*)

SUDIP KUMAR RAKSHIT, BSc, Loyola College; BTech, JaavpurUniv, India; MTech, PhD, Indian Inst of Tech, India

Professor (*Biochemical Engineering and Biotechnology; Biopolymers and LipidBiotechnology; Fermentation and Enzyme Technology; Food Biotechnology; Functional Foods*)

Vice President for Research

MUANMAI APINTANAPONG, BSc, KMITL Ladkrabang, Thailand; MSc, AIT; Doctor of Technical Science, AIT, Thailand.

Adjunct Faculty (*Food Process Engineering, physical properties of food materials*)

Research & Lab. Supervisor

IMRAN AHMAD, B.Tech. (Hons.)- Agric. (Food Science and Technology) NWFP Agric. University Peshawar, Pakistan; M.Sc (Hons.)- Agric. (Food Science and Technology) NWFP Agric. University Peshawar, Pakistan; M.Sc. Postharvest and Food Process Engineering, AIT Thailand; Ph.D. Logistics and Supply Chain Management (Agri-Food), SIIT, Thammasat University, Thailand (Ongoing)

Research Staff

KSHITIJ PARAJULI, B.Eng. Civil Engineering, Tribhuvan University, Nepal; M.Eng. Water Engineering and Management, AIT, Thailand

Research Associate (SEA EU NET 2 Project, FEBT, SERD)

MEDHA KHATIWADA, B.Eng. Civil Engineering, Tribhuvan University, Nepal; M.Eng. Water Engineering and Management, AIT, Thailand

Research Associate (SEA EU NET 2 Project, FEBT, SERD)

KISHORE KRISHNA KUMAREE, B.Tech, Amity University, India; M.Eng, AIT, Thailand

Research Associate (Food Eng. & Bio-Process technology), SERD, AIT, Thailand

4.6.3 Grants and Sponsored Research Completed in 2013

Production of Bio-Ethanol and Biomaterials from Oil Palm Biomass: A study of feedstock sustainability, technological efficiency and social applicability

Duration: 1-Oct-2010 to 31-Oct-2013
Project Investigator(s): Sudip Rakshit & Anil Kumar Anal

Sponsor: SDCC AIT France Network
Total Contracted Amount (THB): 1,440,000

Facilitating the Bi Regional EU-ASEAN Science and technology Dialogue

Duration: 1-Nov-2010 to 31-Oct-2013
Project Investigator(s): Sudip K Rakshit, Anil Kumar Anal, P. Abdul Salam, Sangam Shrestha

Sponsor: SEA-EU-NET
Total Contracted Amount (THB): 3,586,212

Save Food Asia and the Pacific.

Duration: 1-Jan-2013 to 30-Dec-13
Project Investigator(s): Dr. Prabat Kumar, Dr. Abha Mishra, Dr. Anil K. Anal and Dr. W. Gallardo

Sponsor: FAO RAP Office, Bangkok, Thailand
Total Contracted Amount (THB): 4,605,000

4.6.4 On-going Grants and Sponsored Research

Taking Stock of How Smart Food Production Can Reduce Food Losses and GHG Emission (Smart Food Processing)

Duration: 1-Dec 13 – 30 June 14
Project Investigator(s): Dr. Anil Kumar Anal

Sponsor: FAO (Food and Agriculture Organization)
Total Contracted Amount (THB): 480,000

Laboratory Training Program in Food Engineering

Duration: 24-Sept-13 - 31-Jan-14
Project Investigator(s): Dr. Anil Kumar Anal and Mr. Imran Ahmad

Sponsor: Sultan Qaboos University, Oman
Total Contracted Amount (THB): 63,320

Sustain and Enhance Cooperation on Sustainable Development Research for Local Resource Utilization and Efficiency.

Duration: 1-Jul -13 – 30 June 16
Project Investigator(s): Dr. Anil Kumar Anal

Sponsor: SUSTAIN EU-ASEAN
Total Contracted Amount (THB): 2,469,810

The Effect of Shrimp Waste Fermented Products on Growth and Disease Protection of Rice and Chili.

Project Investigator(s): Dr. Anil Kumar Anal, Dr. Rostaman, Dr. Budi Prakoso and Dr. Trang Si Trung
Duration: April 2012- March 2015
Sponsor: Govt of Indonesia
Total Contracted Amount (THB): 900,000 (30,000 US\$)

Development of Anti Fungal Acrylic Fibre for Novel Applications

Duration: 1-Jan-2009 to 31-Dec-2013
Project Investigator(s): Sudip Kumar Rakshit & Anil Kumar Anal
Sponsor: Various
Total Contracted Amount (THB): 5,578,632

Asian Project Management support Programme

Duration: 1-Jan-2010 to 30-Jun-2013
Project Investigator(s): Sudip K Rakshit, S Venkatesh, Mokbul Ahmad, Kyoko Kusakabe, Philippe Doneys
Sponsor: IFAD

Total Contracted Amount (THB): 45,150,000

EU-ASEAN Science and Technology Cooperation to Jointly Tackle Societal Challenges (SEA-EU-NET2)

Duration: 1-Nov-2012 to 31-Oct-2016
Project Investigator(s): Anil Kumar Anal, P. Abdul Salam, Sangam Shrestha
Sponsor: European Union FP7
Total Contracted Amount (THB): 8,779,888

4.6.5 Publications

Patents

Anil Kumar Anal, Harjinder Singh, Kyong S. Han, Fang Yuan, Kennedy Breda (2013); ENCAPSULATION SYSTEM FOR PROBIOTICS DURING PROCESSING; EU Patent 12715287.4-1358, 2013.

Book

Athapol Noomhorm, Imran Ahmad, Anil K. Anal: Functional Foods and Dietary Supplements: Processing Effects and Health Benefits ISBN: 978-1-118-22787-9; 514 pages, Wiley-Blackwell (in press).

Book chapters

Alisha Tuladhar and Anil K. Anal (2013); Recent Advances in Applications of Encapsulation Technology for Bioprotection of Phytonutrients in Complex Food Systems; *In: Functional Foods and Dietary Supplements: Processing effects and Health Benefits*: A. Noomhorm, I. Ahmad and A.K. Anal (Eds) (In Press) Wiley-Blackwell, John Wiley and Sons. Ltd., 2013.

Anil K. Anal, Imran Ahmad, Jiraporn S, Athapol Noomhorm (2013); Chapter: Sustainable Food Grain Processing In book: Sustainable Food Processing, Edition: 1, Chapter: Sustainable Food Grain Processing, Publisher: Wiley - Blackwell, Editors: Tiwari et al, pp.269-294, 2013.

Anil K. Anal, Athapol Noomhorm and Punchira Vongsawasdi (2013), Protein Hydrolysates and Bioactive Peptides from Seafood and Crustacean Waste:

Chapter 36; Their Extraction, Bioactive Properties and Industrial Perspectives; Marine Proteins and Peptides: Biological Activities and Applications, by Se-Kwon Kim (Editor). ISBN-13: 9781118375068., Publisher: Wiley, John & Sons, Incorporated, Publication date: 5/13/2013, Pages: 816, 2013.

Anil K. Anal and Alisha Tuladhar (2013); Biopolymeric Micro-/Nanoparticles: Preparation, Characterization and Industrial Applications; In: *Multifaceted Development and Applications of Biopolymers towards Biology, Biomedical and Nanotechnology*; P.K. Dutta and J. Dutta (Eds.); Springer Ltd. (Publication: 2013) (Online available) DOI: 10.1007/12_2012-202.

Anil K. Anal, Imran Ahmad, Jiraporn S., and Athapol Noomhorm (2013); Sustainable Food Grain Processing; In: *Sustainable Food Processing*, Tomas Norton, Brijesh Tiwari, Nicholas Holden (Eds). Wiley-Blackwell, John Wiley and Sons Ltd, USA 2013.

Anil K. Anal (2013); Food Processing By-products; In: Brijesh Tiwari, Tomas Norton, Nicholas M. Holden (Eds). *Handbook of Plant Food Phytochemicals: Sources, Stability and Extraction*; Wiley Science Publishers Inc., ISBN: 9781444338102; pp 180-198, 2013.

Imran Ahmad, Chawalit Jeenanunta, Athapol Noomhorm (2013); Chapter: Recent Developments in Quality Evaluation, Optimization and Traceability System in Shrimp Supply Chain In book: *Seafood Science: Advances in Chemistry, Technology and Applications*, Edition: Recent Developments in Quality Evaluation, Optimization and Traceability System in Shrimp Supply Chain, Publisher: CRC, Editors: Se-Kwon Kim, 2013. (In press)

Imran Ahmad, Athapol Noomhorm (2013), Grain Processing Engineering In book: *Handbook of Farm, Dairy and Food Machinery Engineering*, 2nd Edition, Edition: 2nd, Chapter: Grain Processing Engineering, Publisher:

Academic Press, Elsevier, Editors: Myer Kutz, pp.760, 2013.

Jongyingcharoen J., I. Ahmad (2013) Processing Effects on the Functional Components in Product Development In: *Functional Foods, Dietary Supplements: Processing Effects and Health Benefits*; Wiley-Blackwell. Eds. Noomhorm, A., Ahmad, I., Anil K. Anal pages 299-326; ISBN: 978-1-118-22787-9. In Press.

Kishoree K. Kumaree, Mridula Thapa and Anil K. Anal (2013); Bioactive Components in Foods: In: *Functional Foods and Dietary Supplements: Processing effects and Health Benefits*: A. Noomhorm, I. Ahmad and A.K. Anal (Eds) (In Press); Wiley-Blackwell, John Wiley and Sons. Ltd., 2013.

Nina K.M. Alparce and Anil K. Anal (2013); Food Processing By-products as Functional Foods and Nutraceuticals; In: *Functional Foods and Dietary Supplements: Processing effects and Health Benefits*: A. Noomhorm, I. Ahmad and A.K. Anal (Eds) (In Press) Wiley-Blackwell, John Wiley and Sons. Ltd., 2013.

Noomhorm, A., Anil K. Anal, I. Ahmad (2013), Functional Foods, Nutraceuticals and Probiotics as a Functional Food Component In: *Functional Foods, Dietary Supplements: Processing Effects and Health Benefits* 05/2014; Wiley-Blackwell. (In Press).

Sutee W., A. Noomhorm, J.M. Regenstein, Anil K. Anal (2014); Value-added Bioprocessing of Fish Waste to Gelatin; In: *Gelatin: Productions, Applications and Health Implications* G. Boran (Ed.); ISBN: 978-1-62417-671-5; Nova Publishers, 2013.

Taslima Ayesha Aktar Nasrin and Anil K. Anal (2013); Resistant Starch: Properties, Preparation and Applications in Foods; In: *Functional Foods and Dietary Supplements: Processing effects and Health Benefits*: A. Noomhorm, I. Ahmad and A.K. Anal (Eds) Wiley-Blackwell, John Wiley and Sons. 2013.

Punchira Vongsawasdi and Athapol Noomhorm (2013); Bioactive compounds in meat and its functions in Functional Foods and Dietary Supplements: Processing effects and Health Benefits: A. noomhorm, I. Ahmad and A.K. Anal (Eds) (In Press) Wiley-Blackwell, John Wiley and Sons, Ltd., 2013.

Vongsawasdi, P. and Noomhorm, A. (2013), Bioactive compounds in meat and its functions In: *Functional Foods, Dietary Supplements: Processing Effect and Health Benefits* 05/2014; Wiley-Blackwell (In Press).

International Journal Publications

Abraham Abate, Sudip K. Rakshit and Anil K. Anal (2013); Genotypic and Phenotypic Characterization of Antimicrobial Resistance Patterns of *Salmonella* strains isolated from Sebata district, Ethiopia; *International Journal of Life Sciences*; 6(3): 191-199, 2013.

Ahmad, I., Jeenanunta, C., Chanvarasuth, P., and Komolavanij, S. (2013). Prediction of Physical Quality Parameters of Frozen Shrimp (*Litopenaeus vannamei*): An Artificial Neural Networks and Genetic Algorithm Approach. *Food Bioprocess Technology* (IF= 4.12), (available online 4 June 2013) DOI: 10.1007/s11947-013-1135-3.

Ahmad, I., Jeenanunta, C. and Komolavanij, S. (2013). Characterization of Quality Degradation during Chilled Shrimp (*Litopenaeus vannamei*) Supply Chain. *International Food Research Journal* 20(4): 1833-1842. (a Scopus listed journal)

Ali Akbar and Anil K. Anal (2014); Biopolymeric Active Packaging Loaded with Zinc Oxide Nanoparticles: A Challenge Study Against *Salmonella typhimurium* and *Staphylococcus aureus*; *Food Control*, 38 (2014) 88-95. Impact Factor: 2.738 (Elsevier Publications)

Ali Akbar and Anil K. Anal (2013); Occurrence of *Staphylococcus aureus* in ready-to-eat poultry meat and bio-control strategies for their preservation; *Annals of Microbiology*; DOI: 10.1007/

s13213-013-0641-x; Impact Factor: 1.549 (Springer Publications), 2013.

Ali Akbar and Anil K. Anal (2013); Prevalence and Antibioqram Study of *Salmonella* and *Staphylococcus aureus* in poultry meat; *Asian Pacific Journal of Tropical Biomedicine* 3: 163-168, 2013. (Elsevier Publications)

Anil K. Anal (2013); Bioprocessing of marine waste for value-addition; In: Forum on Bioprocessing of Crustacean Waste to Value-Added Products; In Proceedings: *Forum of High Value Utilization and By-Products*; 2013.

Jiraporn Sripinyowanich and Athapol Noomhorm (2013). "Effects of freezing pretreatment, microwave-assisted vibro-fluidized bed drying, and drying temperature on instant rice production and quality ; *Journal of Food Processing and Preservation*. 37 (4), pp. 314-324, 2013.

Noomhorm, A, P. Sirisoontarak, C. Uraichoen and I. Ahmad (2013), "Effect of atmospheric and pressurized carbon dioxide or air against *Sitophilus zeamais* Motchulsky (Coleoptera: Curculionidae) and *Tribolium castaneum* (Herst) (Coleoptera Tenebrionidae) in milled rice" ; *Journal of Stored Products Research* 54, pp 48-53, 2013.

Nur Istianah, Setiyo Gunawan and Anil K. Anal (2013); Effect of Fermented Sorghum Floor on Physico-chemical Properties of Bread; In Proceedings: Fifth International Conference on Fermentation Technology for Value Added Agriculture Products; 2013;

Saloko, S., Darmadji P., setiaji B., Pranoto Y. and Anil K. Anal (2013); Encapsulation of Coconut Shell Liquid Smoke in Chitosan-Maltodextrin Based Nanoparticles; *International Food Research Journal*; 20(3): 1269-1276, 2013.

Sunan Pansakorn and Athapol Noomhorm (2013), "Effect of storage temperature on physical and chemical properties of brown rice, parboiled rice and parboiled paddy"; *Thai Journal of Agriculture Science* 45(4), 2013. (in press)

Taslina Aktar, Athapol Noomhorm and Anil K. Anal (2013); Physico-chemical Characterization of Starch and Flour from Plantain Waste for Their Value-Addition; *International Journal of Food Properties* (Ref: LJFP-2013-0112); Impact Factor: 0.877 (Taylor and Francis Publication) In Press 2013.

Taslina Ayesha Aktar and Anil K. Anal (2013); Resistant Starch III from Culled Banana and Its Functional Properties in Fish Oil Emulsion; *Food Hydrocolloids*; DOI: 10.1016/j.foodhyd.2013.06.019; 35; 403-409; Impact Factor: 3.494, 2013.

Zealelem T. Gebretsadik and Anil K. Anal; (2014), Indigenous Sheep Breeds of North Ethiopia: Characterization of Their Phenotype and Major Production System; *Tropical Animal Health and Production*; DOI 10.1007/s11250-013-0494-0 Impact factor: 1.090 (Springer Publications) 2013.

Conference Publication

Anil Kumar Anal (2013); Micro-/nanoencapsulation of Bioactive Compounds and Live Cells to Enhance Physical Stability and for Gastrointestinal Targeted Delivery: In: Exploring Vegetal and Microbial Diversity and Technological Innovation for Food Quality and Safety; 16-17 September 2013; Hanoi, Vietnam (Key Note Speaker).

Anil Kumar Anal (2013); Antibiotic and Sanitizer in Food Production Systems: Concerns on Antibiotic Resistance and Public Health; In: Expert Workshop Antimicrobial Resistance 2013; 4-6 February 2013; Bangkok, Thailand.

Anil Kumar Anal (2013); Encapsulation of Probiotics to Enhance Physical Stability and for Colon Targeted Delivery; PS-9 In: The 4th IC-ISLAB, Yogyakarta, Indonesia; 25-26 January 2013 (Invited).

Kishore Krishna Kumaree and Anil K. Anal (2013); Incorporation of Isolated Probiotics from Fish Gut in Feed as Functional Additive for Healthy and Value-Added Fish Production; P-48; In: The 4th IC-ISLAB, Yogyakarta, Indonesia; 25-26 January 2013.

Tezar Ramdan and Anil K. Anal (2013); Effects of Lactic Fermentation on Total Phenolic Contents and Antioxidant Activity of Ginger (*Zingiber officinale* Roscoe), P-18; The 4th IC-ISLAB, Yogyakarta, Indonesia; 25-26 January 2013.

Articles in Regional, National Journals and Industry Magazines

Anil Kumar Anal (2013); Encapsulation Opening a New Dimension of Fortification; *Asia Food Beverage*; Vol. 11, May-June 2013; pp 60-63.

Anil Kumar Anal (2013); Transforming Plant Food Waste into Value-Added Products; *Asia Food Beverage*; Vol. 11, No. 60; March-April 2013; pp 22-25
Ahmad, I. (2013) What is Next in Sterilization Technology? *Asia Food and Beverage Thailand*. Pp 22-25 (Thai and English)

Ahmad, I. (2013), Combination of Food Preservation Technologies, *Asia Food and Beverage Thailand*. Pp 34-37 (Thai and English)

Ahmad, I. (2013) Right Conveyor brings Right Productivity, *Asia Food and Beverage Thailand*. Pp 48-50 (Thai and English)

Ahmad, I. (2013) Energy and Waste Minimization in Food Processing, *Asia Food and Beverage Thailand*. Pp 50-54 (Thai and English)

Jeevanunta, C., and I. Ahmad (2013) Getting the Supply Chain Ready before the Risk becomes Reality, *Asia Food and Beverage Thailand*. Pp 46-50 (Thai and English)

Oral Presentations in International Conferences and Workshops

Anil Kumar Anal; Micro-/Nanoencapsulation of Bioactive Compounds and Live Cells to Enhance Physical Stability and for Gastrointestinal Targeted Delivery; In: International Workshop on Exploring Biodiversity for Sustainable Development in South East Asia (EBSEA); 16-17 September 2013; Hanoi, Vietnam (Keynote Speaker).

Anil Kumar Anal; Bioprocessing of Crustacean Waste to Value-Added Products; In: *Forum of High Value Utilization and By-Products; Qingdao, China; 24-26 May 2013;* (Keynote Speaker).

Anil Kumar Anal; Encapsulation of Probiotics to Enhance Physical Stability and for Colon Targeted Delivery; In: The 4th International Conference of Indonesian Society for Lactic Acid Bacteria (4th IC-ISLAB); 25-26 January, 2013; Yogyakarta, Indonesia (Keynote Speaker).

4.6.5 Doctoral Students' Dissertation

Screening for biotechnology Applications from Obligate Halophilic Fungi Isolated from a Man-made Solar Saltern in Thailand.
By Imran Ali
Supervisor: Prof. Sudip Kumar Rakshit

Influence of Combined Hot Air Impingement and Infrared Drying on Potato Chips.
By Nattriya Supmoon
Supervisor: Prof. Athapol Noomhorm

Enhancing growth rate, carcass yield and meat quality of abergelle and begait sheep breeds through feed management.
By Zelealem Tesfay Gebretsadik
Supervisor: Dr. Anil K. Anal

Characterization and Production of Resistant Starch from Culled Banana to Encapsulate Fish Oil.
By Taslima Ayesha Aktar Nasrin
Supervisor: Dr. Anil K. Anal

4.6.6 Masters Students' Theses and Research Studies

Antioxidant properties and duperoxide dismutase activity of melon (*Cucumis melo*) functional beverage.
By Witchaya Traichok

Supervisor: Prof. Athapol Noomhorm
Production, characterization and antimicrobial properties of nanofibers from coconut husk by fermentation with rumen microbes.
By Chum Chantha
Supervisor: Dr. Anil K. Anal

Effect of fermentation temperature and types of bean on Thai traditional fermented soy sauce.
By Proudponn Sumetha-Aksorn
Supervisor: Prof. Athapol Noomhorm

Encapsulation of virgin coconut oil in blends of soy/rice protein, chitosan and gum arabic.
By Thuzar Mon
Supervisor: Dr. Anil K. Anal

Fortification of alkaline water by encapsulated bilberry anthocyanin in biopolymeric beads and in vitro studies for targeted delivery in colon.
By Rashmi Supriya
Supervisor: Dr. Anil K. Anal

Effects of freezing rate and reheating methods on qualities of cooked rice.
By Suttirat Boonthajit
Supervisor: Prof. Athapol Noomhorm

Comparison of bioethanol production from corn and tapioca starch by conventional and raw starch hydrolysis processes.
By Sarocha Pradyawong
Supervisor: Prof. Athapol Noomhorm

Isolation of pathogens in eggs from farms and markets in Thailand and analysis of their resistance to commercial antibacterials and lactobacilli.
By Siriporn Chaemsanit
Supervisor: Dr. Anil K. Anal

Functional properties and antimicrobial activities of banana (*Musa Sapientum* L) flower proteins.
By Kewalee Sithiya
Supervisor: Dr. Anil K. Anal

Enzymatic production of xylooligosaccharides from coconut husk and their prebiotic effects on growth of *Lactobacillus plantarum*.
By Krittayawan Bhumiwat
Supervisor: Dr. Anil K. Anal

Extraction of polyphenols from longan seeds and production of longan beverages.
By Petcharat Sangkamkad, M.Eng.
Supervisor: Prof. Athapol Noomhorm

Effects on quality of processing instant blended aromatic rice (KDML 105) and black rice (Hom Nil).
By Tanakorn Jantaraprapa
Supervisor: Prof. Athapol Noomhorm

Antimicrobial and Antioxidant Activities of Extracts from the Black Tea in Thanh Hoa Province, Vietnam
By Huang Luying
Supervisor: Prof. Dr. Anil Kumar Anal

Antibacterial Effect Against *Streptococcus pneumoniae* of Bioactive Extracts from Natural Beehives (*Apis mellifera*) from East Java, Indonesia.
By Zjahra Vianita Nugraheni
Supervisor: Dr. Anil K. Anal

Enhancing Nutrient Value of Sorghum by Fermentation and The Application in Bakery Product.
By Nur Istianah
Supervisor: Dr. Anil K. Anal

Effects of Light Intensity and Photoperiod Time for Biomass Production of *Chlorella Vulgaris*
By Aditya Lal
Supervisor: Dr. Anil K. Anal

Carboxymethylatation of Kappa Carrageenan and evaluation of physicochemical and antibacterial activities.
By Muhammad Bilal Sadiq
Supervisor: Dr. Anil K. Anal

4.7: SERD – GENDER AND DEVELOPMENT STUDIES FIELD OF STUDY



4.7.1 Introduction

A small project, Women in Development was initiated in the Human Settlements Development Division at AIT in the late 1980s. This grew into the Gender and Development Studies (GDS) as an academic unit in 1991, with financial support from CIDA, NORAD, the Dutch Development Cooperation and the Japanese Government.

Gender and Development Studies (GDS) is a center for graduate studies, research and outreach in the School of Environment, Resources and Development. Within the overall gender specific framework, GDS highlights both the need for specialized academic degree awarding studies in gender and development, and the integration of gender analysis and a gender relations perspective in AIT's other fields of study.

4.7.2 Faculty and Research Staff

Full-time Faculty

KYOKO KUSAKABE, BA, Sophia University, Tokyo, Japan; MSc, PhD, AIT, Thailand.

Associate Professor and Field Coordinator (*Women's employment in informal economy; Labor migration, Cross-border trade; Gender and development policy and planning; Gender issues in fisheries/aquaculture.*)

PHILIPPE DONEYS, B.A., University of Toronto, Canada; MA, University of London, UK; PhD, Institut d' Etudes Politiques de Paris, France.

Assistant Professor (*New Technologies, Industrialization and Gender HIV/AIDS; Gender Politics, Civil Society and Human Rights; Gender, Migration and Trafficking in Asia*)

Visiting Faculty

BERNADETTE RESURRECCION, BSc, Assumption College, Philippines; MA, PhD, Inst of Social Studies, the Hague, the Netherlands.

Associate Professor (*Gender, natural resource management and climate change, multi-local livelihoods and migration, discourses and practices of gender mainstreaming*)

DONNA L. DOANE, M. A. Anthropology, M.A., M. Phil. Economics, Yale University, and Ph.D. Economics, Yale University

Adjunct Faculty (*Economic Development, Gender and Development, Informal economy, home based work, social protection, technology policies, indigenous knowledge and technology blending, analyses of prejudice and discrimination, conflict, ethnicity and gender*)

JULAIKHA BENTE HOSSAIN, MSc in University of Dhaka, Bangladesh; MSc. and PhD in Asian Institute of Technology, Thailand

Senior Research Specialist and Affiliated Faculty (*Gender and Development with emphasis on the policies and programmes for gender equality and women's empowerment; Gender, Employment*)

and Organization; Gender and ICT for Development; Gender and Human Rights; Gender, Development and Public Policy; Gender Mainstreaming; Gender and Natural Resource Management)

REINA ICHII, B.A Economics, Tokyo Women's Christian University, Tokyo, Japan; M.A International Studies, Sophia University Tokyo Japan; Ph.D Economics, University of South Australia, Adelaide, Australia, Ph.D preliminary Studies, Economics Hitotsubashi, University, Tokyo, Japan,

Visiting Faculty (*Selected Topic: Gender and Development Economics*)

Research Staff

JULAIKHA BENTE HOSSAIN

Research Specialist and Affiliated Faculty, Rockefeller Foundation

DR DONNA L. DOANE

Senior Researcher, AusAid funded project on women's economic empowerment and social protection in the Greater Mekong Sub-region

MANRAJ GREWAL

Managing Editor, of Gender, Technology and Development

RUTMANEE ONGSAKUL

Programme Coordinator, Adapting to Climate change in Peri-Urban Southeast Asia

JHOZINE DAMASO,

Program Officer, Adapting to Climate change in Peri-Urban Southeast Asia

CHALISARA SUPARAT

Research Associate Training Workshop Ochanomizu

Administrative Staff

Ms Agnes Pardilla, Program Officer

4.7.3 Grants and Sponsored Research Completed in 2013

Mobile Livelihoods and Gendered citizenship: The counter geographies of Indigenous people: Laos

Duration: 1-Jan-2010 to 31-Jan-2013
Project Investigator(s): Kyoko Kusakabe
Sponsor: Norwegian University of Science and Technology (NTNU)
Total Contracted Amount (THB): 2,764,032

Mobile Livelihoods and Gendered citizenship: The counter geographies of Indigenous people: China

Duration: 1-Jan-2010 to 31-Jan-2013
Project Investigator(s): Kyoko Kusakabe
Sponsor: Norwegian University of Science and Technology (NTNU)
Total Contracted Amount (THB): 2,118,670

Social Impact Assessment on Wild Honeybee Project in Cambodia

Duration: 13-May-2011 to 31-Mar-2013
Project Investigator(s): Kyoko Kusakabe
Sponsor: Arun LLC
Total Contracted Amount (THB): 960,480

M-Power -CPWF Research Fellowships Program

Duration: 1-Aug-2011 to 31-Dec-2013
Project Investigator(s): Bernadette P. Resurreccion
Sponsor: CPWF Challenge Program on Water and Food
Total Contracted Amount (THB): 29,640,436

UNPD P4P

Duration: Sep- 2011 to 31-Mar-2013
Project Investigator(s): Philippe Doney
Sponsor: UNDP Bangkok
Total Contracted Amount (THB): 1,144,206

APMAS Asian Project Management Support Programme,

Duration: 2010 to 2013
Project Investigator(s): Philippe Doney, Mokbul Morshed Ahmad, Kyoko Kusakabe (co-PIs)
Sponsor: IFAD.
Total Contracted Amount

(THB): 44,000,000

Actions Towards Resource-efficient and Low Carbon Cities in Asia

Duration: Dec 2009 to April 2013
Co-Project Investigator(s): Kyoko Kusakabe/S Kumar/C. Visvanathan/Ranjith Perera/P. Abdul Salam/Charles Marpaung
Sponsor: French Environment and Energy Management Agency, France
Total Contracted Amount (THB): 9,087,870.00

Sumernet Phase 3-Partnership Initiation Support

Duration: 21-Aug-2013 to 30-Sept-2013
Co-Project Investigator(s): Kyoko Kusakabe/ S. Kumar/P. Abdul Salam
Sponsor: Sustainable Mekong Research Network
Total Contracted Amount (THB): 150,000.00

Sumernet Phase 2 – Outreach and Monitoring 7 Evaluation Small Grants

Duration: 10-Aug-2013 to 15-Sep-2013
Co-Project Investigator(s): Kyoko Kusakabe/S. Kumar/P. Abdul Salam
Sponsor: Stockholm Environment Institute , Asia
Total Contracted Amount (THB): 232,000.00

Service on Conducting a Qualitative on Masculinities and Gender-based in Bangladesh

Duration: Sep-2011 to 31-Mar-2013
Project Investigator(s): Philippe Doney
Sponsor: UNDP Bangkok
Total Contracted Amount (THB): 1,144,206

AIT-MPower: Mekong Project 4 on Water Governance

Duration: Sep- 2010 - 2013
Project Investigator(s): Bernadette Resurreccion/ Edsel Sajor
Sponsor: CGIAR Challenge Program on Water & Food Grant
Total Contracted Amount (USD): 800,000.00

4.7.4 On-going Grants and Sponsored Research

Sustainable Climate Compatible Development Project (CCD)

Duration: June-2013 to June-2014

Co-Project Investigator(s): Kyoko

Kusakabe/Prof S. Kumar

Sponsor: CDKN-ICLEI Secretariat GmbH, Germany

Total Contracted Amount (THB):

665,000.00

Asian Project Management Support Programme

Duration: Dec-2009 to June-2014

Project Investigator(s): Kyoko

Kusakabe/Philippe Doney/Mokbul

Morshed Ahmad

Sponsor: International Fund for Agricultural Development (IFAD)

Total Contracted Amount

(THB): 45,150,000.00

Survey and assessment of street vending policies and regulations: Focus on Thailand case

Duration: Nov-2013 to Apr-2014

Project Investigator(s): Kyoko Kusakabe

Sponsor: ILO

Total Contracted Amount

(THB): 301,266.00

Role of local governments' policies in creating multicultural society: Review of policy and practices to manage/support migrants in Municipality/Provincial level in Thailand and Japan

Duration; 1-Nov-2013 to 31-Oct-2014

Project Investigator(s): Kyoko Kusakabe

Sponsor: Toyota Foundation

Total Contracted Amount (THB):

1,320,000.00

Japanese Government Grant

Duration: Renewed every year

Project Investigator(s): Kyoko Kusakabe

Sponsor: Japanese Government

Total Contracted Amount

(THB):

AusAid and MPower: Mekong Project 7 on Research Fellowship Program on Water Governance

Duration: August-2011 to March-2014

Project Investigator(s): Bernadette P

Resurreccion

Sponsor: CGIAR Challenge Program on Water & Food

Total Contracted Amount (THB):

30,293,367.50

Organizing expert consultation workshop on land tenure and disaster and its social and gender impact

Duration: 8-Jul-13 to 31-June-2014

Project Investigator(s): Kyoko

Kusakabe/Rajendra P Shrestha

Sponsor: FAO

Total Contracted Amount

(THB): 1,450,000

Revisiting Gender in Development: Complex Inequalities in a changing Asia

Duration:15-Mar-2011 to 15-Mar-2014

Project Investigator(s): Bernadette P

Resurreccion, Philippe Doney

Sponsor: Research Council of Norway

Total Contracted Amount

(THB): 7,004,000

Re-visiting Gender in Development: Gender mainstreaming infrastructure development in Laos

Duration: 15-Mar-2011 to 15-Mar-2014

Project Investigator(s): Kyoko Kusakabe

Sponsor: The Research Council of

Norway

Total Contracted Amount

(THB): 1,219,000

Escaping the middle income country trap: Targeted and pragmatic policies for technological upgrading and workers inclusive industrial strategies as drawn from firm-level analysis of the Philippines and Thailand

Duration: 1-Aug-2011 to 30-Jul-2014

Project Investigator(s): Kyoko Kusakabe

Sponsor: WOTRO

Total Contracted Amount

(THB): 4,911,102

Gender and development training research publications and Networking project

Duration: 1-Jul-2011 to 30-Jun-2014

Project Investigator(s): Bernadette P

Resurreccion

Sponsor: Norwegian Ministry of Foreign Affairs

Total Contracted Amount

(THB): 5,360,482

Consortium of Development Studies in Southeast Asia (CDSSEA)

Duration: Aug-2012 to 1-Jun-2014

Project Investigator(s): Philippe Doney

Sponsor: The Regional Center for Social

Sciences and Sustainable Development

RCSD

Total Contracted Amount

(THB): 3,456,000

Consortium of Development Studies in Southeast Asia (CDSSEA) - 2

Duration: Aug-2013 to 1-Jun-2016

Project Investigator(s): Philippe Doney

Sponsor:International Development

Research Centre (IDRC)

Total Contracted Amount

(THB): 4,628,792.00

Do Policy Makers understand the Economic and Social Issues Affecting Low Income Women in Four Mekong Countries? (Cambodia, Laos Myanmar, Vietnam)

Duration: Mar-2013 to 1-Apr-2016

Project Investigator(s): Philippe Doney

Sponsor:AUSAID Australia

Total Contracted Amount

(THB): 22,243,000

Gender, Technology and Development (GTD Journal)

Duration: January 2012 – July 2015

Project Investigator(s): Dr Julaikha

Bente Hossain

Sponsor:Rockefeller Foundation

Total Contracted Amount

(THB): 2,250,000.00

AIT-Norwegian Cooperation Programme Phase 2011- 2014 (GDS Component: Training, Research, Publications and Networking Project)

Duration: July-2011 to June-2014

Project Investigator(s): Dr Julaikha Bente

Hossain

Sponsor:Norwegian Ministry of Foreign Affairs

Total Contracted Amount

(THB): 5,360,482.16

Adapting to Climate Change in Peri-Urban SEA

Duration: Oct-2012 to 3-Sep-2015

Project Investigator(s):Bernadette

Resurreccion / Edsel Sajor

Sponsor: IDRC-International
Development Research Centre
Total Contracted Amount
(THB): 18,262,000

Do policy makers understand the economic and social issues affecting low income women in four Mekong countries? - AUSAID

Duration: Mar -2013 to 1-Apr-2016
Project Investigator(s): Philippe Doney
Sponsor: AUSAID Australia
Total Contracted Amount
(THB): 22,243,000

Organizing expert consultation workshop on land tenure and disaster and its social and gender impact

Duration: 8-Jul-2013 to 31-Dec-2019
Project Investigator(s): Kyoko Kusakabe/Rajendra P Shrestha
Sponsor: FAO
Total Contracted Amount
(THB): 1,450,000

Gender Technology and Development (GTD) Journal

Duration: Aug-2012 to July-2015
Project Investigator(s):Julaikha B. Hossain
Sponsor: Rockefeller Foundation
Total Contracted Amount (THB): 2,250,000

4.7.5 Publications

Papers in Refereed Journal

Kusakabe, Kyoko and Ruth Pearson (2013) “Cross-border childcare strategies of Burmese migrant workers in Thailand”, *Gender, Place and Culture*, 20:8, 960-978.

Lund, Ragnhild, Kyoko Kusakabe, Smita Mishra Panda, Wang Yunxian (eds.) (2013) *Transformations of indigenous people’s lives and livelihoods: Mobilities in China, Laos, and India*, Routledge.

Narknisorn, B. and Kusakabe, K. (2013) “Issues Challenging Future Thai Elder Care by Women and Family”, *International Journal of Sociology and Social Policy*, 33(1/2), 21-32.

Panda, Smita M., Ragnhild Lund, Kyoko Kusakabe and Wang Yunxian (2013) “Gender, Mobility and Citizenship Rights among Tribals of Khurda and Sundargarh, Odisha”, *Gender, Technology and Development*, 17:2, 105-129.

Philippe Doney and Donna I. Doane (2013), *Lost in Translation? Gender and Economic Empowerment in the Greater Mekong Sub-Region*, International workshop on Rethinking/Revisiting Gender, Novotel, Bangkok, August 29-31, 2013.

Philippe Doney, Shalini Mitra, Abdul Kader Nazmul and Helal Mohiuddin (2013), “The Male Entity of the Self Never Dies, It Just Leaps like a Tiger”: Masculinity and Gender-based Violence in Bangladesh”, UN Partners For Preventions (P4P), UNDP: Bangkok, 2013. Downloadable at: <http://www.partners4prevention.org/resource/masculinity-and-gender-based-violence-bangladesh>.

Rokeya Fahmida and Philippe Doney (2013), Sexual coercion within marriage in Bangladesh. *Women Studies International Forum* 38 (2013) 117–124.

Soma Dey, Bernadette P. Resurreccion, Philippe Doney (2013), Gender and Environmental Struggles: Voices from Adivasi Garo Community in Bangladesh, *Gender, Place and Culture*, Vol. 20, 2013.

Wang, Yunxian, Kusakabe, Kyoko., Lund, Ragnhild., Panda, Smita. & Zhao, Qun. (2013) Mobile livelihoods among ethnic minorities in China: insights from Yunnan. *Norsk Geografisk Tidsskrift–Norwegian Journal of Geography* 67:4, 187-199.

Book Chapter

Kumar S., Kyoko Kusakabe, Pravakar Pradhan, Pujan Shrestha, Srujana Goteti, Tran Anh Tuan, Ekawit Meteejaroenwong, Trinnawat Suwanprik, Khanh Linh, (2013, in press) “Greenhouse Gas Emissions from Tourism Service Providers: Case Studies

in Chiang Mai, Thailand and Hue, Vietnam”, in Louis Lebel, Chu Thai Hoanh, Chayanis Krittasudthacheewa and Rajesh Daniel (eds) *Livelihoods, Ecosystem Services and the Challenges of Regional Integration in the Mekong Region*, published by Strategic Information and Research Development Centre (SIRD), Selangor, Malaysia.

Kusakabe, Kyoko and Sengkham Vongphakdy (2013) “Gender vulnerabilities of resettlement and restricted mobility of ethnic groups in northern Laos” in Lund et al. (eds) *Transformations of indigenous people’s lives and livelihoods: Mobilities in China, Laos, and India*, Routledge.

Outreach Activities

Trainings/Short Courses/Conferences /Workshops

Development Research Writing, Publication and Dissemination Workshop from 21 – 22 September 2013, AIT Conference Centre, Thailand, supported by The Regional Center for Social Science and Sustainable Development (RCSD), Chiang Mai University (*Dr Philippe Doney*).

Final Project Workshop for “Re-visiting Gender in Development: Complex Inequalities in a Changing Asia, funded by the Norwegian Research Council from 29-31, 2013, Novotel, Siam Square, Bangkok, Thailand (*Dr Philippe Doney*)

Ochanomizu-AIT field trip and student seminar on gender, migration and health 13-27 August 2013, AIT (*Dr Kyoko Kusakabe*).

Expert consultation workshop on “Land tenure and disaster and its social and gender impact”, 14-15 November 2013, Bangkok, in partnership with FAO Regional office of Asia and the Pacific. (*Dr Kyoko Kusakabe*)

Consultation meeting on social/ gender impact of rubber plantation investment in Northern Laos 19 December 2013, Bangkok, Thailand, supported by

Norwegian Research Council. (Dr Kyoko Kusakabe)

Invited speakers / Resources person

Julaikha B. Hossain (2013), Guest Lecturer "Gender and Society" in BRAC Development Institute BRAC University in Dhaka, Bangladesh, September 2013

Kyoko Kusakabe (2013). "Women in the Thai economy: Gender analysis of economic development" 19 September 2013, for Yamaguchi University student exchange program, AIT.

Kyoko Kusakabe (2013). Participant of Asia Expert Dialogue Climate Technology Center and Network, Organized by UNEP, ADB, get, 21-22 May 2013, Bangkok.

Kyoko Kusakabe (2013). "Book about us" 5-7 March 2013, Resource person, Women Get Together, Annual meeting of migrant women in Thailand, Chiangmai, organized by MAP Foundation.

Kyoko Kusakabe (2013). Mekong Symposium on Migration: Migrants from the Mekong Neighbourhood Living Together — Seeking Coherent Responses to Enable Integration and Social Cohesion of Migrants in the Greater Mekong Subregion (GMS)

Kyoko Kusakabe (2013). Resource person, 26 February 2013, Bangkok, organized by Mekong Migration Network.

Kyoko Kusakabe (2013). Participant of Asia Expert Dialogue Climate Technology Center and Network, Organized by UNEP, ADB, get, 21-22 May 2013, Bangkok.

Kyoko Kusakabe (2013) "Book about us" 5-7 March 2013, Resource person, Women Get Together, Annual meeting

of migrant women in Thailand, Chiangmai, organized by MAP Foundation.

Kyoko Kusakabe (2013), Mekong Symposium on Migration: Migrants from the Mekong Neighborhood Living Together — Seeking Coherent Responses to Enable Integration and Social Cohesion of Migrants in the Greater Mekong Subregion (GMS). Resource person, 26 February 2013, Bangkok, organized by Mekong Migration Network.

Kyoko Kusakabe (2013), "Women in the Thai economy: Gender analysis of economic development" September 2013, for Yamaguchi University student exchange program, AIT.

Philippe Doney (2013), Guest Lecturer "Gender and Development Theory" at Chulalongkorn University in Bangkok, Thailand, 12 December 2013

Philippe Doney (2013), Invited resource person, "Research Methodology Workshop", CDSSEA scholarships, Chiang Mai, Thailand, March 11-13 2013.

Other Academic Contributions

Member of the Issue-specific Supporting Committee on Development and Gender of Japan International Cooperation Agency (JICA) (Dr Kyoko Kusakabe)

Advisor for JICA's research project "Effective support for National Machineries" (Dr Kyoko Kusakabe)

Member of the Program Oversight Panel for the CGIAR Research Program on Aquatic Agricultural System (Dr Kyoko Kusakabe)

Journal Coordinator of Gender, Technology and Development Journal 2012 to present (Dr Julaikha B Hossain)

AIT Program Director for Consortium of Development Studies in Southeast Asia (CDSSEA) scholarships 2012-2014 (Dr Philippe Doney)

Associate Editor of Gender, Technology and Development Journal, published by Sage Publications.

4.7.6 Doctoral Student's Dissertation

Towards Equal Partners' Involvement in Sexual Reproductive Health (SRH): A Gender Perspective on the Sexual Reproductive Health and Rights Status of Married Couples in Savar, Dhaka, Bangladesh

By Rokeya Fahmida

Supervisor: Dr Philippe Doney

Gender, Elder Care and Older Persons in Various Living Arrangements: A Case Study of Ayutthaya in Thailand

By Boontarika Narknisorn

Supervisor: Dr. Kyoko Kusakabe

Gender-based Analysis of Adaptability and Vulnerability to Climate Change among Smallholder Farmers: A Case of Semi-arid Nguru Local Government Area, Northeastern Nigeria

By Jummai Othniel Yila

Supervisor: Dr. Bernadette Resurreccion

Shifting Livelihoods and Gender in the Matrilineal Garo Community of Modhupur Sal Forest Bangladesh

By Soma Dey

Supervisor: Dr. Philippe Doney

Co-chairperson: Dr. Bernadette P. Resurreccion

4.7.7 Masters Students' Theses and Research Studies

Gendered Experiences of Human Security in the Context of Changing Livelihoods among the Talang Mamak People in Indonesia

Ria Permana Sari

Supervisor: Dr Kyoko Kusakabe

The Impacts of "Ho Khau" System on Rural-Urban Migration: A Case Study in Peri-Urban Ho Chi Minh City, Vietnam

By: Miss Vu Thi Cam Hong

Supervisor: Dr. Bernadette P. Resurreccion

Gender Dimensions of Community Based Ecotourism: A Case Study of Koh Rongnieu Island in Kratie Province, Cambodia

By Kopila Thapa

Supervisor: Dr. Philippe Doney

The Challenges of Socio-economic Reintegration of Maoist Ex-combatants in Nepal: A Gender View

By Lorina Sthapit

Supervisor: D Dr. Bernadette

Gender Dimensions of Adolescent Brides' Decision Making for Reproductive Health in Bangladesh

By Mahbuba Dewan

Supervisor: Dr. Philippe Doney

Influence of Gender Dynamics on Women's Nutritional Status in the Central Terai Region of Nepal

By Dipika Das

Supervisor: Dr. Kyoko Kusakabe

Gender Issues in Mobility of Nurses under ASEAN Economic Community in Thailand

By Napaphat Satchanawakul

Supervisor: Dr. Kyoko Kusakabe

Insecurities of Displaced Persons in Kachin State of Myanmar: A Gender Perspective

By Khin Swe Myint

Supervisor: Dr. Bernadette P. Resurreccion

Assessing Gender Equality and Social Inclusion in Maternal Health Care Services in Dolakha District, Nepal

By Renuka Rai

Supervisor: Dr. Kyoko Kusakabe

Career Advancement for Female Staff in Factories: A Case Study of 304 Industrial Park in Thailand

By Jianan Jin

Supervisor: Dr. Kyoko Kusakabe

Burmese Migrant Workers and Their Gendered Coping Strategies during the 2011 Floods in Thailand: A Case Study in Pathumthani Province

By Huang Zhirong

Supervisor: Philippe Doney

HIV and Women's Sexual Negotiating Power in Sero-discordant Couples: A Case Study in Mahasarakham Province, Thailand

By Thippawan Mokpa

Supervisor: Philippe Doney

Gender and Water Stresses in Peri-urban, Thailand: A case of Krachang Villages, Pathumthani Province

By Kanokphan Jongjarb

Supervisor: Dr Bernadette Resurreccion

4.8: SERD – NATURAL RESOURCES MANAGEMENT FIELD OF STUDY



4.8.1 Introduction

This field of study emphasizes natural resources, including land, forest and wild animal and environmental conservation concerns. It addresses the problems of deforestation, land and coastal ecosystem degradation, biodiversity depletion, diminishing water supply, and other environmental pressures and threats on local, national, regional and global ecosystems.

4.8.2 Faculty and Research Staff

Full-time Faculty

CLEMENS GRUNBUHEL, MA, PhD, University of Vienna, Austria/

Assistant Professor (Ecological Anthropology, Resource Use Indicators, Smallholder Agriculture, Integrated Land Use Management)

GANESH P SHIVAKOTI, BS, MS, Udaipur Univ, India; PhD, Michigan State Univ, USA.

Professor (Natural Resources Economics; Common Property Resources; NRM Policy Analysis; and Watershed Management)

RAJENDRA PRASAD SHRESTHA, BSc, Haryana Agri. Univ, India; MSc, DTechSc, AIT, Thailand.

Associate Professor (Sustainable Land Management; Natural Resources Degradation and Environmental indicators; Landuse-climate, Geoinformatics)

Visiting Faculty

SYLVAIN ROGER PERRET, MS and PhD, University of Montpellier III, France; DSc, EcolePolytechnique de Lorraine, Nance, France.

Visiting Associate Professor (Water management/institutions, governance, economics/sustainability in rural development/dynamic modeling)

DAMIEN JOURDAIN, BEng, MSc, Ecole Nationale Superieure Agronomique de Montpellier, France; PhD, University of Montpellier I, France.

Visiting Assistant Professor (Water Management and Economics, Natural Resources Economics and Valuation, Farm Household Economics)

Adjunct Faculty

DIETRICH SCHMIDT-VOGT, BSc, Freiburg University, Germany; MSc, University of

Saskatoon, Canada; PhD, Heidelberg University, Germany.

Adjunct Faculty (Landscape Ecology; Integrated Land Use Systems; Sustainable Forest Management; and Human Impact on Vegetation)

ROLAND COCHARD, BSc (Hons in Environmental Science), James Cook University of North Queensland; DSc, Institute of Geobotany, Swiss Federal Institute of Technology ETH, Switzerland.

Assistant Professor (Savanna ecosystem dynamics, landscape ecology, biodiversity, mangrove, risk management)

Research Staff

Soe Soe Htway, B.Ag.Sc., Soil & Water Management, Yezin Agricultural University; M.Sc., Natural Resources Management, Asian Institute of Technology,.

Research Associate, Strengthening institutional capacity, extension services and rural livelihood in the Central Dry Zone and Ayeyarwaddy Delta regions of Myanmar.

4.8.3 Grants and Sponsored Research Completed in 2013

Technology needs assessment in Asia and Europe for climate change mitigation

Duration: July-2010 to Apr-2013
 Project Investigator(s): Prof. S. Kumar, Dr. Rajendra P. Shrestha, Dr. Salam, Dr.C. Marpaung,
 Sponsor: UNEP RISOE Center, Denmark
 Total Contracted Amount (THB): 12,948,000

Collaboration in Integrated Natural Resources Management in Indonesia "Decentralization, Local People, Gender and Resources"

Duration: 1-Aug-2005 to 31-Dec-2013
 Project Investigator(s): Prof. Ganesh P. Shivakoti
 Sponsor: The Ford Foundation
 Total Contracted Amount (THB): 984,000

4.8.4 On-going Grants and Sponsored Research

Enabling sustainable land management for sustainable use of soil and land resources.

Duration: Dec 2012 to June 2014.
 Project Investigator(s): Dr. Rajendra P. Shrestha
 Sponsor: FAO RAP
 Total Contracted Amount (USD): 30,000

Making the Mekong Connected: Developing carbon and multidiversity assets for multifunctional landscapes in upper Mekong

Duration: 1-Mar-2009 to 30 June 2014
 Project Investigator(s): Dr. Rajendra P. Shrestha
 Sponsor: World Agroforestry center
 Total Contracted Amount (THB): 2,187,588

Climate technology center and networking

Duration: Sep 2013 – Dec 2014
 Project Investigator(s): M Babel, S Shrestha and Rajendra P. Shrestha
 Sponsor: UNEP
 Contracted Amount (THB): 3,900,000

Land tenure and disaster and its social and gender impact

Duration: Jul to Mar-2014

Project Investigator(s): K. Kusakabe and Rajendra P. Shrestha
 Sponsor: FAO RAP
 Total Contracted Amount (THB): 1,577,000

Making the Mekong Connected : Developing carbon and multidiversity assets for multifunctional landscapes in upper mekong

Duration: 1-Mar-09 to 30-June-2015
 Project Investigator(s): Rajendra P. Shrestha
 Sponsor: World Agroforestry center
 Total Contracted Amount (THB): 2,187,588

Collaboration in Integrated Natural Resources Management in Indonesia "Decentralization, Local People, Gender and Resources"

Duration: 1-Aug-05 to 31-Dec-13
 Project Investigator(s): Ganesh P. Shivakoti
 Sponsor: The Ford Foundation
 Total Contracted Amount (THB): 984,000

Collaboration on Capacity Building of Hanoi Agricultural University and Hue University of Agriculture and Forestry in Initiating INRM and Poverty Alleviation

Duration: 1-Jul-2008 to 31-Dec-2014
 Project Investigator(s): Prof. Ganesh P. Shivakoti
 Sponsor: The Ford Foundation, Hanoi, Vietnam
 Total Contracted Amount (THB): 6,536,600

The Collaborative Graduate program in Integrated Natural Resources Management between Hanoi University of Agriculture and Hue University of Agriculture and Forestry

Duration: 15-Jul-2009 to 31-Dec-2014
 Project Investigator(s): Prof. Ganesh Shivakoti
 Sponsor: Ford Foundation Hanoi
 Total Contracted Amount (THB): 12,184,992

CNH: When Strengths Can Become Weaknesses: Emerging Vulnerabilities in Coupled Natural Human Systems under Globalization and Climate Change

Duration: 16-Oct-2011 to 1-Sep-2015
 Project Investigator(s): Prof. Ganesh Shivakoti
 Sponsor: National Science Foundation (NSF)-Arizona State University (ASU)
 Total Contracted Amount (THB): 4,405,959.03

Developing Multi-scale Climate Change Adaptation Strategies for Farming Communities in Cambodia, Lao PDR, Bangladesh and India

Duration: 1-Apr-2012 to 30-Mar-2014
 Project Investigator(s): Dr. Clemens Grunbuhel
 Sponsor: CSIRO
 Total Contracted Amount (THB): 922,731

Strengthening institutional capacity, extension services and rural livelihood in the Central Dry Zone and Ayeyarwaddy Delta regions of Myanmar

Duration: 1 June 2013 to 31 Dec 2016
 Project Investigator: Dr. Clemens Grunbuhel
 Sponsor: ACIAR
 Total Contracted Amount (THB): 16,449,382

4.8.5 Publications

International Journal Articles with Impact factor

Akber, M. A., and R.P. Shrestha. 2013. Land use change and its effect on biodiversity in Chiang Rai province of Thailand. *Journal of Land Use Science*. [Online 19 June 2013; DOI:10.1080/1747423X.2013.807315].

Arshad, M., T.A. Cheema, S. Ahmad, R. Nawaz, M.S. Sarfraz, R.P. Shrestha, and S.L. Ranamukhaarachchi. 2013. Yield comparison of nonstructural carbohydrates in Sweet Sorghum and Legume-based cropping systems. *Communications in Soil Science and Plant Analysis*. **44**(14) 2186-2206.

Cheablam, O., R.P. Shrestha, and D. Emphandhu. 2013. Does Coral Bleaching Impact Tourists' Revisitation? A case of Mu Ko Surin Marine National Park,

- Journal of Food, Agriculture and Environment*, 11(3-4):2648-2654.
- Chowdhury, M.A., Y. Khairun, and Ganesh P. Shivakoti, (2013)**. "Sustainability assessment of shrimp farming: a conceptual framework and application." *International Journal of Sustainable Development*. (in press)
- Divakar, L., Babel, M.S., Perret, S.R., Das Gupta, A. (2013)** Optimal water allocation model based on satisfaction and economic benefits. *International Journal of Water*, 7(4): 363-381.
- Gheewala, S.H., Silalertruksa, T., Nilsalab, P., Mungkung, T., Perret, S.R., Chaiyawannakarn, N. (2013)** Implications of the biofuels policy mandate in Thailand on water: the case of bioethanol. *Bioresource Technology*, 150(2013): 457-465
- Haiyun, Chen; Ganesh Shivakoti, Zhu, Ting and David Maddox (in press)**. "Livelihood Sustainability and Community Based Co-Management Projects in China: Change and Improvements in Project Design." *Environmental Management*.
- Kamran, M.A. and Ganesh P. Shivakoti, (2013)**. "Comparative institutional analysis of customary rights and colonial law in spate irrigation systems of Pakistani Punjab." *Water International*. 38 (5): 601-619.
- Kamran, M.A. and Ganesh P. Shivakoti.. 2013**. "Design principles in tribal and settled areas spate irrigation management institutions in Punjab, Pakistan." *Asia Pacific Viewpoint*. 54(2): 206-217.
- Kamran, M.A. and Ganesh P. Shivakoti, (2013)**. "Local risk perceptions to identify institutional and development planning needs." *Development in Practice*. 23(4):575-588.
- Kityuttachai, K. N.K. Tripathi, T. Tipdecho, R.P. Shrestha, 2013**. How the Sustainable Development Get Benefits from Trending of the Constraint Coastal Urban Growth Medeling: Hua Hin Model, Thailand. *Sustainability*. 5, 1480-1500; doi:10.3390/su5041480.
- Kuswardhani, N., P. Soni and Ganesh P. Shivakoti, (2013)**. "Comparative energy input-output and financial analyses of greenhouse and open field vegetables production in West Java, Indonesia." *Energy*. 53:83-92.
- Leeben, Y., P. Soni and Ganesh P. Shivakoti, (2013)**. "Indicators of sustainable development for assessing performance of pineapple canneries: Conceptual framework and application." *Journal of Food, Agriculture and Environment*. 11(2):100-109.
- Ligonja, P. J. and R.P. Shrestha. 2013**. Soil erosion assessment in Kondoa Eroded Area in Tanzania using Universal Soil Loss Equation, Geographic Information Systems and Socio-economic approach. *Land Degradation and Development*. (published online 25 APR 2013 | DOI: 10.1002/ldr.2215).
- Mullick, M.R.A., Babel, M.S., Perret, S.R. (2013)** Marginal benefit based optimal water allocation: case of Teesta River, Bangladesh. *Water Policy*, 15(2013): 126-146
- Mullick, M.R.A., Perret, S.R., Babel, M.S. (2013)** Benefit functions for instream water uses – a case of Teesta River, Bangladesh. *Journal of Applied Water Engineering and Research*, 1(2): 118-128
- Partoyo and R.P. Shrestha, 2013**. Monitoring farmland loss and projecting the future land use of an urbanized watershed of Yogyakarta, Indonesia, *Journal of Land Use Science*, 8(1): 59-84.
- Perret, S.R., Saringkarn, P., Jourdain, D., Babel, M.S. (2013)** Can rice farmers pay irrigation costs? An investigation of irrigation supply costs and use value in a case study scheme in Thailand. *Cahiers Agriculture*, 22(5): 385-392
- Perret, S.-R., Saringkarn, P., Jourdain, D. and Babel, M. S. (2013)**. Can rice farmers pay irrigation costs? An investigation of irrigation supply costs and use value in a case study scheme in Thailand. *Cahiers Agricultures*, 22(5), 1-8.
- Perret, S.R., Thanawong, K., Basset-Mens, C. (2013)** The environmental impacts of lowland paddy rice: A case study comparison between rainfed and irrigated rice in Thailand. *Cahiers Agriculture*, 22(5): 369-377
- Roth, C.H. and Clemens M. Grünbühel, (2013)**. Developing Multi-Scale Adaptation Strategies: A Case Study for Farming Communities in Cambodia and Laos. *Asian Journal of Environment and Disaster Management* 4(4): 425-446.
- Yuerlita, Perret, S.R., and Ganesh P. Shivakoti, (2013)**. Fishing farmers or Farming fishers? Fishing typology of inland small-scale fishing households and fisheries management in West Sumatra, Indonesia. *Environmental Management*, 52(1): 85-98.
- Yuerlita, Yuerlita, S. Perret and Ganesh P. Shivakoti, (2013)**. "Fishing Farmers or Farming Fishers? Fishing Typology of Inland Small-scale Fishing Households and Fisheries Management in Singkarak Lake, West Sumatra, Indonesia." *Environmental Management*.(in press)

Books and Chapters

Shrestha, R.M., Kim Oanh, N.T., Shrestha, R. P., Rupakheti, M., Rajbhandari, S., Permadi, D.A., Kanabkaew, T. and Iyngararasan, M. 2013. *Atmospheric Brown Cloud (ABC) Emission Inventory Manual*, United Nations Environment Programme, Nairobi, Kenya.

Working papers:

Williams, L.J., C.M. Grunbuhel, and P.R. Brown. (2013). A social science framework to guide multi-scale research for climate change adaptation strategies in agricultural communities. Climate adaptation Flagship Working papers #15. CSIRO: Brisbane (ISBN: 978-1-922173-36-2).

4.8.6 Doctoral Students' Dissertation

Livelihoods and Fishing Strategies of Small-Scale Fishing Households Faced with Resource Decline: A Case Study of Singkarak Lake, West Sumatra, Indonesia
By Yuerlita
Supervisor: Dr. Sylvain Roger Perret

Assessment of the Environmental and Social Economic Benefits of Soil Conservation in Semi-arid Regions of Tanzania: The Case Study of Kondoa Eroded Area
By Paul Jonas Ligonja
Supervisor: Dr. Rajendra Prasad Shrestha

4.8.7 Masters Students' Theses and Research Studies

Investigating Rubber and Non-Rubber Based Livelihoods in the Mountainous Area of Dien Bien District in Vietnam
By Do Thi Thanh Duong
Supervisor: Dr. Sylvain Perret
Co-chairperson: Prof. Ganesh P Shivakoti

Decision Pattern and Socio-Economic Factors Affecting Rural-to-Urban Land

use Change in the Context of Urbanization: A Case Study of Bang Bua Thong District, Nonthaburi, Thailand
By Panita Rattanasirichoke
Supervisor: Dr. Clemens Grunbuhel

Farmers' Perception on and Adaptation to Climate Change in Doi Mae Sa Long, Thailand
By Nuanwan Chaweewan
Supervisor: Dr. Rajendra Shrestha

Social Impact Analysis of a Mangrove Reforestation Project: A Case Study in the Welu River Basin, Chanthaburi, Thailand
By Supaksiri Putthanavarat
Supervisor: Dr. Clemens Grunbuhel

Assessment of Farmers' Coping Strategies for Water Scarcity Under Rainfed Agriculture in the Dry Zone of Myanmar
By Soe Soe Htway
Supervisor: Dr. Rajendra P Shrestha

Major Socio-economic Factors Affecting Participation of Forest User Groups in

Community Forestry through Different Management Approaches: A Case Study in Chin State, Myanmar
By Ni Cung Thang
Supervisor: Prof. Ganesh P Shivakoti

Customary Law in Water Resource Use and Management: A Case Study of M'Nong People in Dak Lak Province, Vietnam
By Nguyen Thi Thiem
Supervisor: Dr. Clemens Grunbuhel

Investigating the Factors and Patterns of Q-GAP Adoption by Rice Farmers in Ayutthaya Province, Central Region of Thailand
By Saengabha Srisopaporn
Supervisor: Dr. Damien Jourdain

Livelihoods Analysis of Affected Communities due to Nam Mang 3 Hydro Power Dam, Lao PDR
By Mayvong Sayatham
Supervisor: Dr. Clemens Grunbuhel

4.9: SERD – PULP AND PAPER TECHNOLOGY FIELD OF STUDY



4.9.1 Introduction

This field of study strives for finding basic solutions for the immediate technical problems facing the local pulp and paper industry. Research activities in PPT are focused on optimising pulping, bleaching and papermaking processes with emphasis on the reduction of their negative impact on environment. The quality of the product is also emphasized to maintain competitive edge of local pulp and paper industry in the global market. Modification of existing processes to suit local raw material is another challenging area of research. The field of study is also launching a new program with focus on biorefining. Biorefining is a new trend of pulp and paper industry. The industry along with production of pulp pioneers production of transportation fuel, chemicals and medicine from the same raw material (i.e. lignocelluloses).

4.9.2 Research Facilities and Laboratories

The Pulp and Paper Laboratory was established to provide the need for research and high level education for this specific field. The laboratory is equipped with all basic facilities for

teaching and research purposes in the field of pulp and paper technology. Several sophisticated equipment have been constantly furnished to extend the services for advance research and special studies likewise. The facilities are provided for activities in pulping paper testing, printing and coating, as well as for wood component analysis. The equipment is standardized according to ISO, TAPPI, and Scandinavian Standards. The programmable six-vessel autoclave digester makes cooking study in research level possible in the most convenient setting. Other major equipment in Pulp and Paper Laboratory include the single batch digester, bleaching reactor, sheet formers, fiber length analyzer, formation tester, deinking flotation cell, and spectrophotometer with ERIC option. In addition to provide assistance and research facilities needs for students, faculty, the laboratory also provides professional services for pulp and paper industry internationally. Among its major equipment include a 6-bomb autoclaved digester, CRS Engineering; Bleaching reactor; Buchi extraction system; GC; Zeta potential tester; Charge density tester; PFI mill; Valley beater; Escher Wyss refiner; AMC Medium Consistency disintegrator;

VoithSulzer Deinking unit; Fiber length analyzer FS-200, Kajaani; L&W Fiber Tester; Handsheet former set with white water recirculation option; Fiber line ESpectrophotometer with ERIC option; Ambertec beta formation tester and Calender.

4.9.3 Faculty and Research Staff

Full-time Faculty

JIRI BASTA, MSc Technical University of Chemistry and Technology, Prague, Czech Republic; PhD. Chalmers University of Technology, Gothenburg, Sweden

Adjunct Faculty [*Carbohydrate Chemistry, Pulping, TCF / ECF Bleaching, Environmental aspects, Effluent analyses and treatment, Process optimization, Non-wood fibers, Nano-fibers, Dissolving pulp*]

MOUSA M MOHAMAD NAZHAD, BSc, Univ of Concordia, Montreal, Canada; MSc, Univ of Concordia, Montreal; PhD, Univ of British Columbia, Vancouver, Canada.

Associate Professor [*Recycled fiber, Paper and Paperboard quality,*

Nanoparticles in papermaking, Specialty papers, Pulp processing and Biorefining]

Adjunct Faculty

HAKAN KOLMODIN, MSc. in Chemical Engineering, Ph.D. Engineering Chemistry, Chalmers University of Technology, Sweden.

Adjunct Faculty [*Pulp and Paper Mill, cooking chemistry, bleaching chemistry, paper chemistry, printing technology/printability*]

Visiting Lecturers

Prof. YUJI MATSUMOTO BSc., Department of Forest Products, The University of Tokyo (1978), MSc., Department of Forest Products, The University of Tokyo (1980),PhD., Department of Forest Products, The University of Tokyo (1983),

Visiting Lecturer [Fiber Structure and Chemistry]

Prof. HIROSHI OHI, Graduate in Doctor Course of Graduate School of Agriculture, the University of Tokyo, PhD, Title of Doctor Theses: Study on the Behaviors of Wood Components during Alkaline Sulfite-Anthraquinone Cooking

Visiting Lecturer [*Pulp manufacturing*]

Technician and Laboratory

Mr. SUCHART JUNTEING, Laboratory Technician II

Mr. KANONG MALAITHONG, Laboratory Technician I

Mr. MANOCH SUANSIRI, Laboratory Technician II

Administrative Staff

Ms. KATESARAPORN NAKDEE, Secretary I

4.9.4 Masters Students' Theses and Projects

Fiber Surface Modification Using Layer-by-Layer (LbL) Technique
By Subir Kumar Biswas
Supervisor: Dr. Mousa M. Nazhad

Adaptation of an Existing O2 Stage to Strong Alkaline Treatment (SAT) when Aiming at Production of Dissolving-like Hardwood Pulps
By Supanee Phiphatwitthaya
Supervisor: Dr. Mousa M. Nazhad

Optimizing in the ECF Bleaching Conditions for Producing Final Non-wood Dissolving-like Pulps with Suitable Viscosity Levels
By Pornthip Tongpitsombat
Supervisor: Dr. Mousa M. Nazhad

The Reaction of Non-Phenolic B-O-4 Type Lignin in Alkaline Media
By Pattaraporn Posoknistakul
Supervisor: Dr. Mousa M. Nazhad

Potential of Enzymes in ECF Bleaching of Acacia Pulp
By Chu Quy
Supervisor: Dr. Mousa M. Nazhad

Comparing Flexural Behavior of Cement-bonded Fiberboard Reinforced Bagasse, Pine and Coconut Coir
By Hoang Van Phong
Supervisor: Dr. Mousa M. Nazhad

Evaluation of Acacia, Eucalyptus and Mixed Hardwood Pulp for Cigarette Paper
By Alex Tisna Senjaya
Supervisor: Dr. Mousa M. Nazhad

Evaluation of Acacia and Eucalyptus Pulps for Facial Tissue
By Prastya Noprianto
Supervisor: Dr. Mousa M. Nazhad

Potential of Production of Recycled Paper from Beverage Carton with Mixed General Paper Waste
By Sara Pirshahid
Supervisor: Prof. Chettiyappan Visvanathan

4.10: SERD – REGIONAL AND RURAL DEVELOPMENT PLANNING FIELD OF STUDY



4.10.1 Introduction

This field of study focuses on rural poverty, improvement of the quality of life, and social and economic development of rural areas. Practice oriented rural regional planning is carried out regularly at district and sub-district levels following a participatory and integrated approach, and attention is paid to management of development Institutions, infrastructure and physical resources. Sectoral and spatial planning is equally emphasized along with the management of rural development programs and local development projects to strengthen rural communities for sustainable development.

4.10.2 Faculty and Research Staff

Full-time Faculty

MOKBUL MORSHED AHMAD, BSc, MSc, Dhaka University, Bangladesh; MSc, AIT, Thailand; PhD, University of Durham, UK.

Associate Professor (*Economic geography; regional and rural development planning; community development; Non-Governmental Organizations (NGOs); civil society; and globalization; etc*)

SOPARTH PONGQUAN, BSc, Chiang Mai University; MSc, AIT, Thailand; DSc, University of Wageningen, The Netherlands.

Associate Professor (*Capacity Building; Community Development and Monitoring and Evaluation of Development Projects; Decentralized Local Government; People's and Community Participation; Rural Development*)

JAYANT K ROUTRAY, BSc (Hons), MSc, PhD, Utkal University; MRP, Indian Institute of Technology, Kharagpur, India.

Professor (Regional and Rural Development Planning; Rural-Urban Relations; Regional Planning Methods and Techniques; Disaster Risk Reduction and Management; Climate Change Induced Adaptation; and GIS Applications)

GOPAL BAHADUR THAPA, BSc, Tribhuvan University, Nepal; MSc, DTechSc, AIT, Thailand.

Professor (Natural Resources Management; Sustainable Agricultural Development and Planning; and Watershed Management)

Professional Staff

VITON NIL-UBOL, MSc, AIT, Thailand
Field Lab Supervisor, Regional and Rural Development Planning

4.10.3 Grants and Sponsored Research Completed in 2013

Enhancing Productivity and Market Linkages – Improving the Livelihoods and Food Security of Smallholders in Asia

Duration: 23-May-2013 to 22-May-2016
Project Investigator: Prof. Gopal B Thapa
Sponsor: USAID/RDMA
Total Contracted Amount (THB): 26,908,104

4.10.4 Publications

International Journal Articles with Impact factor

Alam, J. and Ahmad, M.M. (2013). "Public Facilities in Public and Private Housing Projects in Dhaka, Bangladesh". *Urban Policy and Research*. Vol. 31. No. 2. Pp. 190-207.

Haitham Bashier Abbas and Jayant K. Routray (2013), A semi-quantitative risk assessment model of primary health care service interruption during flood:

Case study of Aroma locality, Kassala State of Sudan, *International Journal of Disaster Risk Reduction*, Volume 6, 2013, 118-128.

Muhammad Ashraf and Jayant K. Routray (2013), Perception and understanding of drought and coping strategies of farming households in north-west Balochistan, *International Journal of Disaster Risk Reduction*, Volume 5 (2013) 49-60.

Rahman, S.M. and Ahmad, M. M. (2013). "Solar Home Systems (SHS) in Rural Bangladesh: Ornamentation or Fact of Development?" *Energy Policy*. Vol. 63. Pp. 348-354.

Sohail Akram and Jayant K. Routray (2013), Investigating the causal relationship between social capital and microfinance: Implications for rural development, *International Journal of Social Economics*, Vol. 40, No. 9, 2013, pp.760-776.

Syed Ainuddin, Daniel P. Aldrich, Jayant K. Routray, Shabana Ainuddin, and Abida Achkazai (2013), The need for local involvement: Decentralization of disaster management institutions in Baluchistan, Pakistan, *International Journal of Disaster Risk Reduction*, Volume 6, 2013, 50-58.

Book Chapter

Mustafa Md. Saroar and Jayant K. Routray (2013), 'Climate Refugee' Is Not a Hoax. But We Can Avoid It. Empirical Evidence from the Bangladesh Coast; in Philipp Schmidt-Thome and Johannes Klein (Eds.), *Climate Change Adaptation in Practice: From Strategy Development to Implementation* (First Edition), Chapter 21, Wiley-Backwell, 2013, pp. 283-301.

Mustafa Md. Saroar and Jayant K. Routray (2013), Desert in Bengal Delta – Changes in Landscape, Changes in Livelihood: Can Diffusion and Adoption of Sustainable Adaptation Make a Difference? in Helen E. Muga and Ken D. Thomas (Eds.), *Cases on the Diffusion and Adoption of Sustainable*

Development Practices (Chapter 4), IGI Global, 2013, pp. 83-117.

Shitangsu Kumar Paul and Jayant K. Routray (2013), An Analysis of the causes of Non-Response to Cyclone Warnings and the Use of Indigenous Knowledge for Cyclone Forecasting in Bangladesh, in "W. Leal Filho (Ed.), *Climate Change and Disaster Risk Management*, Chapter 2, Springer-Verlag Berlin Heidelberg, 2013, pp. 15-39.

Suleeporn Bunbongkarn and Soparth Pongquan (2013), "Adoption of integrated farming in Thailand delivered by the Royal Development Study Centres", *Outlook on Agriculture*, Volume 42, Number 3, September 2013, pp. 209-214.

Articles/Chapters in Journals, Books etc. (English)

Ahmad, M. M. (2013). "Microfinance and Poverty Reduction in Bangladesh: Challenges and Opportunities" Goglio, S. and Alexopoulos, Y. (edt.). *Financial Cooperatives and Local Development*. pp. 198-211. London: Routledge.

Alam, J. and Ahmad, M.M. (2013). "Public Facilities in Public and Private Housing Projects in Dhaka, Bangladesh". *Urban Policy and Research*. Vol. 31. No. 2. Pp. 190-207.

Rahman, S.M. and Ahmad, M. M. (2013). "Solar Home Systems (SHS) in Rural Bangladesh: Ornamentation or Fact of Development?" *Energy Policy*. Vol. 63. Pp. 348-354.

4.10.5 Doctoral Students' Dissertation

Assessing Agritourism Potential for Rural Development in Sri Lanka
By S.H.P. Malkanthi
Supervisor: Prof. Jayant Kumar Routray

Adoption of Integrated Farming Extended by Royal Development Study Centers: Case Studies of the Huai Sai and Khao Hin Sorn Royal Development Study

Centers in Petchaburi and Chachoengsao Provinces
By Suleeporn Bunbongkarn
Supervisor: Dr. Soparth Pongquan

4.10.6 Masters Students' Theses and Research Studies

Theses

Benefit Assessment of Rehabilitation Services for Physically Challenged Rural Persons in Thailand: A Case Study of Disability Center in Roi-Et Province
By Pichsinee Punnatrakul
Supervisor: Dr. Soparth Pongquan

Farmers' Use and Repayment of Credit in Ninh Thuan Province, Vietnam
By Chau Tan Luc
Supervisor: Prof. Gopal B Thapa

Safe Vegetable Marketing Cooperative in Vietnam: A Case Study of Na Chuong Cooperative
By Hoang Thi Yen
Supervisor: Prof. Gopal B Thapa

Assessment of Secondary Education Services and Facilities for Ethnic Minorities in Rural Vietnam
By Pham Thi Tam
Supervisor: Dr. Soparth Pongquan

Education of Ethnic Minority Children in Vietnam: A Case Study in Krong H'Nang District in Dak Lak Province
By Y Lot Nie K'Dam
Supervisor: Dr. Mokbul M Ahmad

Opportunities and Challenges of the New Hpa-an Industrialization Zone Project in Kayin State, Myanmar
By Nan Mya Thida
Supervisor: Dr. Mokbul M Ahmad

Assessing Food Security and Coping Mechanism of Farm Households in Drought Prone Areas of Central Myanmar
By Su Su San
Supervisor: Prof. Jayant K Routray

Role of Local Institutions for Agricultural Development in Myanmar
By Khin May Kyi

Supervisor: Prof. Jayant K Routray	Education of The Minority Communities in Vietnam: A Case Study of Quanson Mountainous District, Thanhhoa Province By Pham Anh Tuan Supervisor: Dr. Mokbul M Ahmad	Economic Impact of Labor Migration in Rural Areas of China By Sun Yupeng Supervisor: Prof. Gopal B Thapa
Economic Impacts of Flood on the Migrant and Non-migrant Households in the Terai Region of Nepal By Susan Parajuli Supervisor: Prof. Jayant K Routray	Adaptation in Rice Production in the Frequently Flooded Areas of Rural Thailand: A Case Study of Khon Khean Province By Phakamon Srikamta Supervisor: Dr. Mokbul M Ahmad	Rural Development Policy Impacts and Disparity in Rural Areas of Aceh Province, Indonesia By Asrul Sidiq Supervisor: Prof. Jayant K Routray
Allocation of Agricultural Land for Oil Palm Production in Thailand: A Macro and Micro Analysis By Nattanicha Chairassamee Supervisor: Prof. Jayant K Routray	Economic, Social and Environmental Effects of Copper Mining Industry on the Local Yi Ethnic Group in China By Zhang Yuanjie Supervisor: Dr. Soparth Pongquan	Rural Urban Disparity in and Around Surabaya Region, Indonesia By Vely Kukinul Siswanto Supervisor: Prof. Jayant K Routray
Social and Psychological Costs of Labor Migration in Rural Areas of Nepal By Rosy Pun Supervisor: Prof. Gopal B Thapa	Assessing Tourism Potential in Khon Kaen, Thailand: Institutional and Policy Analysis By Juan Carlos Calderon Lopez Supervisor: Prof. Jayant K Routray	Agro-Industrial Development in Lamongan District, East Java, Indonesia By Ajeng Nugrahaning Dewanti Supervisor: Prof. Jayant K Routray
Effects of Agricultural Extension Activities Delivered by INGO to Small Farmers in the Dry Zone of Myanmar By Su Lai May Supervisor: Dr. Soparth Pongquan	Assessing Social and Economic Benefits from Vocational Training on Occupational Development in Rural Thailand By Wilasinee Pokaisawan Supervisor: Dr. Soparth Pongquan	Research Study Impacts of Nam Mang 3 Hydropower Dam on the Evacuees in Lao PDR By Mr Phoutkanya Dalasavong Supervisor: Prof. Gopal B Thapa
Farmers' Decision-making on Crop Cultivation in the Northeast of Thailand By Sassana Sornpha Supervisor: Prof. Gopal B Thapa		Assessment of Agricultural Sustainability in Pakistan By Mr. Farhad Zulfiqar Supervisor: Prof. Gopal B Thapa

4.11: SERD – URBAN ENVIRONMENTAL MANAGEMENT FIELD OF STUDY



4.11.1 Introduction

Urban Environmental Management (UEM) is an area of academic discourse and professional practice in which urban planning and urban management issues are studied and practiced from an environmental management perspective.

As an academic program, UEM provides opportunities of graduate level education and research at master (M.Sc.) and doctoral (PhD) level. It also provides certificate and diploma programs, as well as post-doctoral research opportunities. It draws on and integrates theories and perspectives in established disciplines of urban planning, urban and regional development, urban economics, sustainable development, and urban policy and management studies into a distinctive framework of problems, issues and questions concerning the urban environment. It enables students to identify problems; apply appropriate analytic methodologies; design, plan and implement programs and projects; and monitor impacts and challenges within the context of sustainable development in developing societies.

The Field of Study prepares students for professional careers in the public and private sectors as well as international

development agencies and civil society organizations engaged in urban development and environmental management.

4.11.2 Research Facilities and Laboratories

In this Field of Study, any researcher gets modern computer lab and other facilities for communication. There is also a workshop room for students which can accommodate about 24 students in four clusters at a time. The workshop room also has audio-visual facilities for presentation. A new Regional Urban Resource Center (R-URC) has been established for compiling and disseminating knowledge related to urban development and environmental management issues.

4.11.3 Faculty and Research Staff

Full-time Faculty

VILAS NITIVATTANANON, BEng, Chulalongkorn Univ; MA, Thammasat University; Meng, AIT, Thailand
PhD, University of Pittsburgh, USA.

Associate Professor (*Management of Infrastructure and Services, Waste Recycling and Systems Management, Urban Environmental Management,*

Water Engineering and Management, Economic and Environmental Assessment, Climate Change Risk Assessment and Adaptation)

Visiting Faculty

L. A .S. RANJITH PERERA, BSc, MSc, University of Moratuwa, Sri Lanka; MSc, PhD, AIT, Thailand.

(Urban Architecture and Environmental Design; Urban Planning and Housing; Urban Environmental Management, Results-based Project Management and Evaluation)

EDSEL SAJOR, BSc, University of the Philippines; MA, PhD, ISS, The Hague, The Netherlands.

(Conflict Management; Governance; Land Development in Peri-Urban; Policy Process and Scientific Discourse; Politics of Environmental Policy; State-Society Relations in UEM; Urban Land Management)

SAEED ZAKIAHMED, PhD, Asian Institute of Technology, Thailand.

(Urban Environmental and Planning and Design)

LE THI THU HUONG, PhD, Asian Institute of Technology, Thailand.

(Urban Housing and Living Environment)

BHARAT DAHIYA, PhD, University of Cambridge, UK.

(Cities and Climate Change)

Research Staff

Dr. RUTMANEE ONGSAKUL

Project Manager

Mr. CLAUDIUS CAEZAR GABINETE

Research Associate

Ms. JHOZINE DAMASO

Program Officer

Administrative Staff

Ms. JITRA LUCKANAPITAK, Senior Administrative Officer

4.12.4 Grants and Sponsored Research Completed in 2013

Strategic Environmental Assessment (SEA) for Spatial Planning and Capacity Development for Sustainable Tourism in the Golden Quadrangle Development Area of Greater Mekong Sub-region

Duration: 31-May-2010 to 30-Dec-2013

Project Investigator(s): Dr. Vilas Nitivattananon

Sponsor: Asian Development Bank (ADB) and Kirstianstad University

Total Contracted Amount (THB): 584,660

Mekong Project 4 on Water Governance (MK4 Project)

Duration: 1-March-2010 to 31-Aug-2013

Project Investigator(s): Dr. Edsel Sajor

Sponsor: Challenge Program on Water and Food (CPWF)

Total Contracted Amount (USD): 800,000

4.11.5 On-going Grants and Sponsored Research

International Climate Initiative 2010_Vulnerability and Adaptation to Climate Change in Coastal Cities of Southeast Asia

Duration: 10-Jan-2011 to 31-Dec-2014

Project Investigator(s): Dr. Vilas Nitivattananon

Sponsor: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Total Contracted Amount (THB): 3,787,200

Professional Master's Program (PM-UM1) AITVN

Duration: 1-Apr-2012 to Dec-2013

Project Investigator(s): Dr. Vilas Nitivattananon

Sponsor: Government Officials, private individuals

Total Contracted Amount (USD): 323,035

Measuring the Influence of Sound Materials Society in Thailand

Duration: 18-Apr-2013 to 30-Apr-2014

Project Investigator(s): Dr. Vilas Nitivattananon

Sponsor: Sumitomo Foundation

Total Contracted Amount (THB): 218,576

4.11.6 Publications

International Journal Articles

Chantamon P. & Perera, R. (2013). *Assessment of shop house enterprises in the Bangkok metropolitan area in view of environmental and health aspects, Environmental Development*, December 2013.

Chomaitong, S. & Perera, R. (2013). Adoption of the low carbon society policy in locally-governed urban areas: experience from Thai municipalities, *Mitigation and Adaptation Strategies for Global Change*, May 2013.

Khailani, D.K. & Perera, R. (2013). Mainstreaming disaster resilience attributes in local development plans for the adaptation to climate change induced flooding, A study based on the local plan of Shah Alam City, Malaysia, *Land Use Policy*, 30(1):615-627.

Ratchapong Klinsrisuk, Vilas Nitivattananon, Winai Wongsurawut (2013), published online: 18 January 2013, *Effective Condition and Integration of Energy and Transport Policies for CO₂ Integration in Thailand*, Springer Science and Business Media.

Vilas Nitivattananon, Nitirach Sanguanduan, (2013), *Domestic Water Reuse Situation in the Context of Middle-income Countries: A Case Analysis. Frontiers Environmental Engineering (FIEE)*, Vol.2, issue 1, March 2013.

Conference Proceedings

Rachnarin Nitorisavut, Nalikatibhag Sangnit, Vilas Nitivattananon (2013). *Low Carbon Hotels toward Sustainable Tourism in Koh Chang and Neighbouring Islands, Thailand, GMSARN International Conference on Green Growth in GMS: Energy, Environmental and Social Issue: 18-20 December 2013.*

Sajor, Edsel (2013) "Poor Urban Migrants in Floodplains of Metro Manila: Mobility and the Generation of Vulnerability to Flooding Risks, and State Response". Chulalongkorn University-Rockefeller Foundation. Workshop Meeting on Migration and Flooding in Southeast Asia, French Embassy, Myanmar (7-10 October 2013).

Books/Chapters

Sajor, Edsel (forthcoming) "Periurbanization and Environmental Issues in Urban Mega-Regions of Indonesia, Philippines, Thailand and Vietnam" In *Handbook of Environmental in Southeast Asia*. Hirsch, P. (ed). Routledge Taylor and Francis.

Refereed Books/Chapters/Monographs
Resurreccion, Bernadette and Sajor, Edsel (In Press) *Gender Mainstreaming and Urban Governance in Four Asian Countries*, Nairobi: UN-HABITAT

Sajor, E., Resurreccion, B. and Raksit, S. (In Press) *Bio-Innovation And Poverty Alleviation: 9 Experiences in Asia*. Sage

Publications

4.11.7 Doctoral Students' Dissertation

Policy Assessment for Integration of Energy and Transport Sectors for CO2 Mitigation in Thailand
By Ratchaphong Klinsrisuk
Supervisor Dr. Vilas Nitivattananon

Assessing Carbon Mitigation Potential for Low Carbon Society Development in Lahore Metropolitan Area
By Ghaffar Ali
Supervisor: Dr. Vilas Nitivattananon

Environmental Policy Integration (EPI) in Thailand in Strategic Environmental Assessment (SEA) and Climate Change Mainstreaming
By Uma Wirutskulshai
Supervisor: Dr. Edsel E. Sajor

4.11.8 Masters Students' Theses

UEM

Assessment of Physical and Social Infrastructure for Improving Living Environment of New Urban Towns in Hanoi City, Vietnam
By Duong Quoc Khanh
Supervisor: Dr. Vilas Nitivattananon

Assessment of Urban Land use Control on Bangkok Floodway
By Apichart Chom boon
Supervisor: Dr. Vilas Nitivattananon

Optimization for Low Carbon Emissions in Different Types of Land Use in Surabaya, Indonesia
By Ummi Fadlilah Kurniawati
Supervisor: Dr. Vilas Nitivattananon

Adaptation to Flood in the Context of Climate Change in Padang, Indonesia
By Ihsani Merdekawati
Supervisor: Dr. Vilas Nitivattananon

UM

Assessing Living Condition of Poor Neighbor: A Case of Nguyen Du Residential in Long Xuyen City, An Giang Province, Vietnam
By Tran Nguyen Phuoc Thanh
Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Do Phu Hung

The Role and Environmental Working Conditions of Informal Waste Recycling Sector in Kbang Town, Gia Lai Province, Vietnam
By Pham Thanh Nhan
Supervisor: Dr. Edsel Sajor
Co-chairperson: Dr. Vilas Nitivattananon

Potential Improvement of the Process of Land Acquisition for Private Sector Development Projects in Bien Hoa City, Dong Nai Province, Vietnam
By Trieu Trung Tinh
Supervisor: Dr. Hanh Thi Hong Vu
Co-chairperson: Dr. Vilas Nitivattananon

Improving the Operation of the Public Bus System in Bien Hoa City, Dong Nai Province, Vietnam
By Tran Thanh Tung
Supervisor: Dr. Le Thi Thu Huong
Co-chairperson: Dr. Vilas Nitivattananon

Enhancing Public Green Space along Duong Dong River, Duong Dong Town, Phu Quoc Island, Vietnam
By Dang Ngoc Chau
Supervisor: Dr. Le Anh Duc

Flood Impact Assessment on Land use Planning of Lap Vo District in Dong Thap Province, Vietnam
By Tran Hoang Nam
Supervisor: Dr. Do Phu Hung
Co-chairperson: Dr. Vilas Nitivattananon

Improvement and Management of Urban Public Space Quality in Ha Tien Town, Kien Giang Province, Vietnam
By Ha Van Thanh Khuong
Supervisor: Dr. Do Phu Hung
Co-chairperson: Dr. Vilas Nitivattananon

Urban Storm Drainage System: A Case Study in Ha Tien Town, Kien Giang Province, Vietnam
By Tran Hai Quoc

Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Le Thi Thu Huong
Improvement of Income and Likelihood for An Hoa Resettlement, Rach Gia City, Kien Giang Province, Vietnam
By Phan Hoang Anh Tuan
Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Edsel Sajor

Enhancing the Roles of Households in Organic Waste Management in the Ha Tien Town of Kien Giang Province in Vietnam
By Luu Hoang Tin
Supervisor: Dr. Le Thi Thu Huong
Co-chairperson: Dr. Vilas Nitivattananon

Evaluation of Housing Program on Flood-mitigation Residential Zone in Tam Nong District, Dong Thap Province, Vietnam
By Huynh Thanh Truong
Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Do Phu Hung

Developing Tourism in Phu Quoc Island, Kien Giang Province, Vietnam: Win-Win Solution
By Nguyen Hieu Nghia
Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Le Anh Duc

Public Private Partnership in Road Network: A Case of Tran Phu Street Project in Bien Hoa City, Dong Nai Province, Vietnam
By Huynh Tan Loc
Supervisor: Dr. Le Anh Duc
Co-chairperson: Dr. Vilas Nitivattananon

Effects on Living Environment Resulting from Deforestation in Nui Cam Area, An Giang Province, Vietnam
By Chau Rack Sanay
Supervisor: Dr. Le Anh Duc
Co-chairperson: Dr. Vilas Nitivattananon

Community Participation in Development and Management of Public Green Space: A Case Study of New Urban Areas in Ca Mau City, Ca Mau Province, Vietnam
By Tran Hoang Nghiep
Supervisor: Dr. Vilas Nitivattananon
Co-chairperson: Dr. Le Thi Thu Huong

Model of Resettlement for the People in the Areas of Cam Hai Dong Commune in

Cam Lam District, Khanh Hoa Province, Vietnam By Vo Duy Tung Supervisor: Dr. Vilas Nitivattananon Co-chairperson: Dr. Hanh Thi Hong Vu	Relationships Between People's Lifestyle and Urban Development: A Case Study of Binh Duong New City, Vietnam By Tran Minh Trung Supervisor: Dr. Le Thi Thu Huong Co-chairperson: Dr. Vilas Nitivattananon	Assessment of Impacts from Sea Level Rise on Road Infrastructure with Possible Solutions in Rach Gia City, Kien Giang Province, Vietnam By Do Cong Tu Supervisor: Dr. Le Thi Thu Huong Co-chairperson: Dr. Vilas Nitivattananon
Water Pollution due to Domestic Waste in Cho Moi District, An Giang Province, Vietnam By Nguyen Xuan Thinh Supervisor: Dr. Hanh Thi Hong Vu Co-chairperson: Dr. Vilas Nitivattananon	Enhancing Housing Provision for Workers by the Private Sector in Ca Mau Province, Vietnam By Dang Chi Nguyen Supervisor: Dr. Le Thi Thu Huong Co-chairperson: Dr. Vilas Nitivattananon	Assessment of Solid Waste Separation at the Source: A Case Study of Buon Ma Thuot City, Daklak Province, Vietnam By Ho Quoc Huy Supervisor: Dr. Vilas Nitivattananon Co-chairperson: Dr. Le Anh Duc
Livelihood Improvement and Sustainable Development in Dong Ho Lake National Ecological Site (DLNES), Ha Tien Town, Kien Giang Province, Vietnam By Nguyen Van Ngoc Supervisor: Dr. Hanh Thi Hong Vu Co-chairperson: Dr. Vilas Nitivattananon	Adaptating to the Risk of Land use Shortage for the Development of Coastal Cities under the Impacts of Sea Level Rise due to Climate Change in Ninh Thuan Province, Vietnam By Ho Xuan Ninh Supervisor: Dr. Edsel Sajor Co-chairperson: Dr. Vilas Nitivattananon	

4.12: SERD – AGRIBUSINESS MANAGEMENT PROGRAM



4.12.1 Introduction

Agriculture plays a vital role in the economic growth of many countries especially developing countries like of Asia including Thailand, China, India, Vietnam, Malaysia etc. Due to the growing industrialization the importance of agri-products has increased several-folds. The food and food-products import-export policies play an important role in the overall development of any country and the world as a whole.

In developing countries, since last 25 years, majority of the young people educated, came from agriculture community or from the similar background. But, due to many reasons they have not been able to compete for available jobs, which demand specialized skills and knowledge. Even in their attempts to set up small entrepreneurial activities in non-farm sector they face many problems generally not encountered by such youths in urban areas. All these rural youths can now be supported for new opportunities of entrepreneurship in business activities related to Agriculture. They have the basic understanding of agriculture, which can be utilized for promotion of business enterprises revolve around agricultural activities.

Rationale

As the nature of rural economy of many developing countries of Asia-Pacific region shifts from subsistence farming to commercial food enterprises, a new breed of agribusiness professionals is needed to manage this transformation. The proposed program will cater to the unique needs of agribusiness professionals, which comprise of knowledge and skills in elements of agriculture sector policy issues, technology, marketing and finance. Agribusiness professionals are needed in several sectors, including in multinational companies involved in corporate farming, food processing, packaging and marketing, agricultural finance institutions, agricultural cooperatives, animal feed industry, biotechnology industry, fertilizer and pesticide industry, irrigation and mechanical equipment manufacturing, medicinal plants/herbs, and government-initiated rural/agricultural development schemes.

The agri-business management program builds on long standing strengths and experience in research, and internal and external postgraduate teaching in the fields of agricultural production, preservation, processing, agro- and food-industry management and marketing, and in agricultural development.

The program focuses on the potential for and contribution of the agribusiness industry in developing economies. It is aimed at enhancing small business entrepreneurship among primary producers of agri-food products, and traders and other market intermediaries in the value chain. The course is appropriate for entrepreneurs themselves and also for people working in the public sector and non-governmental organizations. Entrepreneurs and others will be enabled to take advantage of opportunities within the agri-food and related sectors, and increase the contribution of these sectors within public and national objectives.

Objectives

Specific objectives of the Masters Program in Agribusiness Management are:

- To train students, academics, researchers and professionals, to develop skills and practices in the area of good agricultural production, appropriate value addition, systematic marketing, food-chain supply and global trade.

- To enhance the sustainability and capability of agricultural enterprises by providing trained students with knowledge of international standards on food safety and traceability in agricultural production, local and global trade policies etc.

4.12.2 Faculty and Professional Staff

Faculty

GANESH. P. SHIVAKOTI

Professor, Agricultural Systems & Engineering and Natural Resources Management Fields of Study.

(Agricultural Development and Policy Analysis; Resource Development; Farming Systems; Natural Resources Management)

ANIL KUMAR ANAL

Assistant Professor, Food Engineering & Bioprocess Technology Field of Study.

(Agriculture and Food Biotechnology; Bionanotechnology; Functional Properties of Proteins and Polysaccharides; Food Colloids and Biopolymers; Encapsulation and Targeted Delivery of Biomolecules)

PEEYUSH SONI

Assistant Professor and ABM Coordinator, Agricultural Systems & Engineering Field of Study.

(Terramechanics; Agricultural Instrumentation; Controlled Environment Agriculture; Agricultural Systems Analysis; Analytical Techniques)

Visiting, Adjunct Faculty/Affiliated Faculty

CHAIYAPHOL KAEWPRAKAISAENGKUL;
PhD

Adjunct Faculty *(Agricultural Machinery Design & Testing; Instrumentation &*

Measurement; Quality Control & Assurance)

Professional Staff

IMRAN AHMAD

Laboratory Supervisor, Food Engineering & Bioprocess Technology Field of Study. *(Food Enterprises Productivity; Food Process Operations; Food Supply Chain)*

4.12.3 Grants and Sponsored Research Completed in 2013

Short-term Training Visit and International Internship on Agribusiness and Agro-industries in Thailand

Duration: 1-Jan-2013 to 31-Dec-2013
Project Investigator(s): Peeyush Soni
Sponsor: Joseph School of Business Studies, India
Total Contracted Amount (THB): 548,873

4.12.4 Publications

International Journal Article with Impact factor

Hena Imtiyaz and Peeyush Soni (2013). Supply Chain Analysis of Fresh Guvava (A Case Study). *International Journal of Management and Business Research*, 3(4): 373-382. ISSN 2228-7019

Yuwadee Leeven, Peeyush Soni, and Ganesh P. Shivakoti (2013). "Indicators of Sustainable Development for Assessing Performance of Pineapple Canneries: Conceptual Framework and Application" *Journal of Food, Agriculture and Environment*, 11(2):100-109. Publisher: WFL [IF: 0.517]. ISSN: 1459-0255

4.12.5 Doctoral Students' Dissertation

Development Potential of The Pineapple Canning Industry in Thailand: A Case

Study of Canned Pineapple Industries in Prachaupkhirikhan
By Yuwadee Leeben
Supervisor: Dr. Peeyush Soni

4.12.6 Masters Students' Theses and Research Studies

An Analysis of Effectiveness of Rubber Farming Production, Distribution, and Government Support Services in Thap Put District, Phang Nga Province, Thailand
By Darunee Na Rungsri
Supervisor: Prof. Ganesh P. Shivakoti

Agricultural Mechanization Modelling: Farm Tractor use in Northeastern Thailand
By Ruangyot Suanboon
Supervisor: Dr. Peeyush Soni

The Role of Irrigation Management to Enhance Competitiveness Among Thai Rice Farmers
By Kornikar Phomsopha
Supervisor: Prof. Ganesh P. Shivakoti

Consumer Behavior towards Nutritious Functional Beverages
By Sivalee Deepralad
Supervisor: Prof. Ganesh P. Shivakoti

Current Trade, Market Opportunity and Future Prospects of Oil Palm Plantation in Northeastern Thailand
By Pareerat Pongpakdee
Supervisor: Dr. Peeyush Soni

Assessing the Effects of Community Based Enterprises and Microfinances Through Community Capitals in Phutthaisong Sub-district.
By Mr. Warapop Chingdongkam,
Supervisor: Prof. Athapol Noomhorm

Sustainability Assessment and Cost-Benefit Analysis of Selected Rice Husk CDM Projects in Thailand
By Thanan Ounsinman
Supervisor: Dr. Peeyush Soni

Economic Impact of Regional Rural Banks in the State of Uttar Pradesh, India
By Amit Mishra

Supervisor: Prof. Ganesh P. Shivakoti

Export Market Analysis and
Indntification of Non Tariff Barriersers for
ther Products Related To Agricultural
Trade

By Ashish Kumar

Supervisor: Prof. Ganesh P. Shivakoti

By Abhinav Kumar

Supervisor: Dr. Peeyush Soni

An Elaborative Study of Milk Supply
Chain Patterns in Allahabad District,
India

By Ujair Ahmad

Supervisor: Dr. Peeyush Soni

Street Food Vendors: A Case Study in
Allahabad, India

By Amit Kumar

Supervisor: Dr. Avishek Datta

Issues in Marketing of Basmati Rice: A
Case Study in Dehradum, India

Assessment of the Problems and
Challenges Faced by the Urban Informal

4.13: DISASTER PREPAREDNESS, MITIGATION AND MANAGEMENT AREA OF STUDY



4.13.1 Introduction

The world in the recent past has witnessed over 35 major conflicts and some 2,500 disasters. Approximately, it impacted two billion people, and millions have lost their lives. That is not all; the most destructive disasters that could occur are still to happen yet. Rapid escalation and intensity in the incidence of severe disaster events have become a huge threat to the global community.

Asia-Pacific, on the other hand, with 85% of all the people affected by disaster in the world, is in the center stage of all disasters. The highest amount of displacement in the world in 2011 owing to disaster also happened in this region. Due to rapid rate of population growth, urbanization, poverty, climate change and geographical location, most of the Asian countries have become highly susceptible to natural disasters; some of them, per se: flood, cyclone, drought, earthquake, landslide, extreme temperature, heavy rain, epidemics, etc. It has been felt that there is limited capacity at global, regional and national levels in terms of knowledge base, skills training, long-term planning, emergency preparedness and policy development to

respond to such severe disaster events. Consequently, to address these issues in innovative ways, it gave way to a program on Disaster Preparedness, Mitigation and Management (DPMM) at Asian Institute of Technology (AIT) in August 2008. AIT being located at the center of this region provides a strategic insight into the happenings in the world of disasters and development.

DPMM program uses interdisciplinary capacities (engineering, medicine, natural and social science, as well as management) to manage and minimize the effects of disasters in people on the front lines of disaster response and preparedness. It provides professional education and short term training for the capacity building of the Asia-Pacific as well as neighboring regions.

The courses at DPMM are designed and developed by AIT Faculties and experts from partner institutions having more than a decade of experience in this particular field. The program is being successfully run with students from Bangladesh, Canada, China, France, India, Indonesia, Iran, Maldives, Myanmar, Pakistan, Philippines, Singapore, South Africa, Sudan, Thailand, Tibet and

Vietnam. DPMM has recruited 58 students till date out of which 34 students have already graduated.

DPMM works closely with its partners for sharing knowledge and expertise. DPMM Faculties, Staff and Students get special invitation to attend workshops, seminars, symposiums, conferences, etc. They also get involved with the partners as volunteers, interns and consultants.

Currently, DPMM is working closely with the following partners.

- Asian Disaster Preparedness Center (ADPC)
- Department of Disaster Prevention and Mitigation (DDPM), Thailand
- HelpAge International
- Integrated Research on Disaster Risk (IRDR)
- International Federation of Red Cross and Red Crescent Societies (IFRC)
- Télécoms Sans Frontières (TSF)
- The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)
- UN Regional Agencies based in Thailand such as, UN International Strategy for Disaster Reduction for

Asia & the Pacific (UNISDR-AP); UN World Food Programme (WFP), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP); United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)

- World Society for the Protection of Animals (WSPA)

DPMM is now planning to work further at the national, regional and global level along with its future partners that may include:

- Action Aid
- Agreement on Disaster Management and Emergency Response (AADMER)
- ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Center)
- Asia Foundation
- AusAid
- Care
- Oxfam
- Plan
- Save The Children
- USAID
- World Vision

Networks

Asia Pacific Initiative on Disaster Management and Humanitarian Assistance (API: DMHA)

It is a hybrid online disaster training course via video conferencing and content on an e-course management system. This course is offered through a multiple site video teleconference system that connects all participating educational institutions with students on their respective campuses. More than ten institutions around the globe continue to collaborate and share resources in the planning, organizing and delivering of the course. It has been offered at AIT since the inception of DPMM in August 2008.

The partners and participating institutions are:

1. Asian Institute of Technology (AIT),

2. Thailand
2. Bangladesh University of Engineering and Technology (BUET)
3. Gadjah Mada University, Indonesia
4. Kieo University, Japan
5. National Institute of Social Work and Social Sciences (NISWASS), India
6. Okayama University, Japan
7. School of the Internet (SOI – ITB), Japan
8. The Energy and Resources Institute (TERI), India
9. The National University of Samoa, IA IO Samoa
10. United Nations University, Japan
11. University of Hawaii, Manoa
12. University of Ryukyus, Japan

Asian University Network of Environment and Disaster Management (AUEDM)

To enhance the objectives of the HFA, and to contribute to higher education and research process, Kyoto University in partnership with 19 other universities and organizations from 13 Asian countries has agreed to form the Asian University Network for Environment and Disaster Management (AUEDM) in a meeting in July 2008 in Kyoto, Japan.

The objectives of the network are:

- To share and work together (bilaterally or multilaterally) in promoting environment and disaster management in higher education (focusing on, but not restricted to, post-graduate education)
- To seek possibilities of mutual collaboration on field-based action research
- To broaden the scope of education and learning in the environment and disaster management field through collaboration with other stakeholders like NGOs and local governments.

Disaster Risk Certificate (DRC) Program

The Consortium of International Human Resource Development for Construction of Disaster Resilient Countries – an initiative of Kyoto University and ASEAN Alliance Universities. This program is for 5 Years starting from 2012 to 2017.

- Asian Institute of Technology (AIT), Thailand
- Chulalongkorn University, Thailand
- Kasetsart University, Thailand
- Institut Teknologi Bandung, Indonesia
- University of Malaya, Malaysia
- Vietnam National University, Vietnam

Details regarding DPMM program are available at <http://dpmm.ait.ac.th>

4.13.2 Faculty and Research Staff

Coordinating faculty members

School of Environment, Resources & Development (SERD)

Field of Study

Regional and Rural Development Planning (RRDP)

JAYANT K ROUSTRAY, B.Sc. (Hons), M.Sc., PhD, Utkal University; MRP, Indian Institute of Technology, India.

Professor [*Regional and Rural Development Planning, Rural-Urban Relations, Regional Planning Methods and Techniques, Disaster Risk Reduction and Management, Climate Change Induced Adaptation, and GIS Applications*]

School of Engineering & Technology (SET)

Field of Study

Structural Engineering (STE)

PENNING WARNITCHAI, B.Eng. (Hon), Chulalongkorn University, Thailand; D.Eng., M.Eng., University of Tokyo, Japan.

Associate Professor [*Earthquake Engineering*]

Contributing faculty members

School of Engineering & Technology (SET)

Field of Study

Remote Sensing and Geographic Information Systems (RS&GIS)

KIYOSHI HONDA, B.Agr., D.Eng., University of Tokyo, Japan.

Professor [*Real-time Mapping and Simulation of Geological Processes*]

NITIN KUMAR TRIPATHI, B.Tech., National Institute of Technology, Warangal, India; M.Tech., IIT; PhD, IIT, Kanpur, India.

Professor [*Remote Sensing and GIS for Disaster Mitigation*]

Water Engineering and Management (WEM)

MUKAND S BABEL, B.Eng., Rajasthan Agricultural University, India; M.Eng., D.Eng., AIT, Thailand.

Professor [*Drought Forecasting and Management*]

ROBERTO CLEMENTE, BSAE, University of the Philippines at Los Baños; M.Eng., AIT, Thailand; PhD, McGill University, Canada.

Professor [*Floods and Droughts*]

Geotechnical and Geoenvironmental Engineering (GTE)

NOPPADOL PHIEN-WEJ, B.Eng., Chulalongkorn University, Thailand; M.S., PhD, Illinois at Urbana-Champaign, USA.

Associate Professor [*Geological Hazards*]

School of Environment, Resources & Development (SERD)

Field of Study

Environmental Engineering and Management (EEM)

AJIT P ANNACHHATRE, B.Tech., PhD, Indian Institute of Technology, Kanpur, India.

Professor [*Health and Ecological Risk Management*]

CHETTIYAPPAN VISVANATHAN, B.Tech., IIT, Madras, India; M.Eng., AIT, Thailand; PhD, InstNatIPolytech, Toulouse, France.

Professor [*Environmental Hazards Mitigation*]

OLEG V SHIPIN, PhD, Institute of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

Associate Professor [*EIA & Disaster Management*]

Gender and Development Studies (GDS)

KYOKO KUSAKABE, B.A., Sophia University, Tokyo, Japan; M.Sc., PhD, AIT, Thailand.

Associate Professor [*CBDRM & Gender Issues*]

Regional and Rural Development Planning (RRDP)

MOKBUL MORSHED AHMAD, B.Sc., M.Sc., Dhaka University, Bangladesh; M.Sc., AIT, Thailand; PhD, University of Durham, UK.

Associate Professor [*NGO Management, Community and Rural Development*]

Energy

SIVANAPPAN KUMAR, B.E., University of Madras, India; M.Eng., AIT, Thailand; PhD, InstNatIPolytechnique, Toulouse, France.

Professor [*Climate Change Mitigation*]

Urban Environmental Management (UEM)

VILAS NITIVATTANANON, B.Eng., Chulalongkorn University; M.A., Thammasat University; M.Eng., AIT, Thailand; PhD, University of Pittsburgh, USA.

Assistant Professor [*Disaster Management in Urban Infrastructure Planning*]

Adjunct Faculty

JAYARAMAN K V POTTY, B.Sc. University of Kerala, India; M.Sc., Cochin University of Science and Technology, India; PhD, Indian Institute of Technology, New Delhi, India.

Chief Scientist, Regional Integrated Multi Hazard Early Warning Systems (RIMES), [*Climate Prediction and Early Warning System*]

TAWATCHAI TINGSANCHALI B.Eng. (Hon) Chulalongkorn University, Thailand; M.Eng., Asian Institute of Technology, Thailand; D.Eng., Asian Institute of Technology, Thailand.

Chair Professor of Water Resources Engineering, Nakhon Pathom Rajabhat University [*Floods*]

Affiliated Faculty

AKIYUKI KAWASAKI PhD, Yokohama National University, Japan; M.S., Yokohama National University, Japan; B.S., Yokohama National University, Japan.

Visiting Faculty [*Geospatial Technologies for Multidisciplinary Disaster & Water research*]

A R SUBBIAH

Director, Regional Integrated Multi Hazard Early Warning Systems (RIMES), [*Climate Risk Management*]

LAL SAMARAKOON, B.Sc., University of Kelaniya, Sri Lanka; M.Sc., Saga University, Japan, PhD, Ehime University, Japan.

Director, Geoinformatics Center [*Geospatial Technology for Disaster Management*]

MANZUL KUMAR HAZARIKA, PhD, University of Tokyo, Japan; M.Eng., Asian Institute of Technology, Bangkok, Thailand; M.Tech., Indian Institute of Technology, Kharagpur; B.Tech., J N Krishi Vishwa Vidyalyaya (J. N. Agriculture University), India.

Associate Director, Geoinformatics Center [Disaster Risk Assessment, Managing Disasters and CBDRM]

SUTAT WEESAKUL, D.Eng., M.Eng., Asian Institute of Technology; B.Eng., Chulalongkorn University, Thailand.

Affiliated Faculty [Tsunami and Coastal Engineering]

4.13.3 Grants and Sponsored Research Completed in 2013

Training on Public Health and Disaster Management

Duration: 1 – 5 July 2013
Project Investigator(s): Jayant K Routray
Sponsor: United Nations Environment Programme, Regional Office for Asia and Pacific
Total Contracted Amount (THB): 150,000

Visit and Interactive Program for Assessing the Needs and Developing Curriculum on Disaster Management

Duration: 1 to 5-July-2013
Project Investigator(s): Jayant K Routray
Sponsor: United Nations Environment Programme, Regional Office for Asia and Pacific
Total Contracted Amount (THB): 150,000

Project Management: 40 (forty) government officials were trained in Project Management.

Duration: 13 to 18-March-2013

Project Investigator(s): Jayant K Routray
Sponsor: State Institute for Urban Development, Government of Karnataka, India
Total Contracted Amount (THB): 1,186,208.50

4.13.4 On-going Grants and Sponsored Research

Training course on Project Management

Duration: 8-Mar-2013 to 31-Dec-2014
Project Investigator(s): Jayant K Routray
Sponsor: State Institute for Urban Development, Government of Karnataka, India
Total Contracted Amount (THB): 1,186,208.50

Training on Disaster Management

Duration: 1-Sep-11 to 31-Dec-14
Project Investigator(s): Jayant K Routray
Sponsor: ECRPP PCMU, Planning Commission, World Bank Project Aid
Total Contracted Amount (THB): 571,942.31

4.13.5 Publications

Please refer to the respective parent Field of Study of the Faculty.

4.13.6 Masters Students' Theses and Research Studies

Impact of Pre-Positioned Emergency Satcom Equipment on Effective Disaster Response: A Case Study in Luzon, the Philippines
By Clinton John Smith
Supervisor: Dr. Pennung Warnitchai
Recovery Strategies of Small Businesses Affected by flood in Ayutthaya Province, Thailand
By Tenzin Kunchok

Supervisor: Dr. Georges Tadonki

Increasing Community Awareness of Earthquake Risk Through Children Education: A Case Study of Dien Bien City of Vietnam

By Pham Thi Hong

Supervisor: Dr. Pennung Warnitchai

Disaster Education for Secondary School Children in Chiang Mai Province, Thailand

By Nattakarn Noree

Supervisor: Prof. Jayant Kumar Routray

Implementation of Disaster Risk Management Policies at the Community Level:

A Case Study in Rakhine State, Myanmar
By Pan Thanda Htun

Supervisor: Dr. Mokbul Morshed Ahmad

Livelihood Resilience of Resettled Communities Induced by Volcanic Eruption in Yogyakarta, Indonesia

By Atrida Hadianti

Supervisor: Prof. Jayant Kumar Routray

Mangrove Deforestation and Disaster Risk in Coastal Communities in Ayeyarwady Delta: A Comparative Study of Two Communities at Risk

By Wai Yar Lin Zin

Supervisor: Dr. Georges Tadonki

Grassroots Innovation in Disaster Crisis Communication: A Case Study of 2011 Thailand Floods

By Wang Lin

Supervisor: Dr. Georges Tadonki

Chapter 5: SCHOOL OF MANAGEMENT



5.1 Introduction

AIT School of Management (SOM) was established in October 1987 to meet the growing needs in Asia for graduate management education. In line with AIT's mission, SOM's objective is to make a difference in the quality of management education and practices in the Asia-Pacific region leading to sustainable development, technological leadership, entrepreneurial spirit, wealth creation and pride. SOM believes in the development of corporate leaders not just for the present but also for the future to face the challenges posed by the dramatic social, economic, political and technological changes in Asia. The programs at SOM offer a unique competitive advantage to managers and future leaders in the region.

Currently SOM has students from over 40 countries and various academic backgrounds enrolled in its programs. In every case study, group work and assignment the students work in groups with students from 3 or more different nations. The bonds formed by the students during their stay in SOM have proved as important as the knowledge and skills they gain. At SOM we stress on ethics and moral values as much as the need to produce managers who can

drive their organizations to profitability and prosperity.

5.2 Mission

Mission

To develop socially responsible global leaders who will enhance organizational performance for the growth and sustainable development of economies "and societies in Asia in particular and the world in general.

Vision

"To become the leading creator and disseminator of Asian management knowledge, practices and values"

5.3 School Governance

Dean of School

DONYAPRUETH KRAIRIT, BS, Thammasat Univ, Thailand; MS, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor (*Technology, Management, Management of Telecommunications Technologies and Public Policy*)

5.4 Management Development and Research

The School of Management is involved in training and extension activities through the Management Development Programs (MDP). MDP was established as an integral part of the School of Management (SOM). It is the research, consultancy, and executive development arm of the School. It is SOM's non-degree academic activities and programs, which complement SOM's degree programs and other related activities of SOM. It facilitates the linkage between SOM, AIT and the business community and public sector in Asia.

The objectives of MDP:

- To establish closer links between the business community/public sector and SOM through executive education programs and consulting in the areas of Management of Technology, International Business, Service Marketing and Technology, and International Public Management.
- To facilitate the development of research projects which are both of high practical value to the business

community/public sector and academically rigorous.

MDP activities include:

1. Corporate relationship management
2. Executive development programs
3. Organizing executive forums, workshops, seminars, and conferences
4. Other activities contributing to SOM's objectives

5.5 SOM Research Focus

SOM primary area of research focuses, but not limited to,

“THE BUSINESS AND INNOVATION MODELS FOR A GREEN ECONOMY”.

Under this thematic area, there are five sub-thematic areas, including:

1. Sustainability and Corporate Social Responsibility in Business
2. Climate Change Policy and Corporate Compliance
3. Social responsibility, Behavioral Change and Social Impact
4. Innovation in Green Products and Services
5. Technology needs assessment and transfer

5.6 Research Facilities and Laboratories

The School of Management has 5 state-of-the-art multimedia classrooms including a large amphitheater for academic use. Each classroom is equipped with a multimedia podium that consists of LCD projectors, audio cassette recorder, VHS player/ recorder, slide projectors, built-in desktop PC, laptop and wireless internet connection.

The School of Management provides the students with an extensive range of online journals and database. The students can access the journal and database to read articles from reputed international journals.

Computer Lab consultants are available during office hours to assist with computer related problems. The consultants will provide help by answering general questions relating to the lab e.g., how to obtain a computer account, questions related to the PC Proficiency about software applications, email, printing etc.

5.7 Faculty and Research Staff

Full-time Faculty

YUOSRE BADIR, M.S., The Swiss Federal Institute of Technology Lausanne (EPFL), M.Sc University of Putra Malaysia, Ph.D (MOT) EPFL

Assistant Professor (Technology, International Strategic Alliance, Organization Theory and Design)

BARBARA IGEL, BA, MA, Technical Univ, Berlin; PhD, Freie Univ, Berlin, Germany.

Associate Professor (High-tech Entrepreneurship; Industrial Economics; Knowledge Management; Management of Innovation)

SUPASITH CHONGLERTTHAM, B. Engineering, ChulalongkornUniv, Thailand; MBA Finance, Tulane Univ, USA; PhD, Univ of Hawaii, Manoa, USA

Senior Instructor (Corporate Finance, Derivatives, Corporate Governance, Financial Accounting)

JUTHATHIP JONGWANICH, BA, MA, ThammasatUniv, Thailand; PhD, The Australian National University, Australia

Assistant Professor (International Economics, Multinational Enterprises, Managerial Economics and Business environment)

DONYAPRUETH KRAIRIT, BS, ThammasatUniv, Thailand; MS, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor (Technology, Policy and Management)

SUNUNTA SIENGTHAI, BA, ChulalongkornUniv, Thailand; MA, PhD, Univ of Illinois, USA.

Associate Professor (Labor & Industrial Relations, HRM, Wages & Productivity)

VATCHARAPOL SUKHOTU, BEng, KasetsartUniv, Thailand; MEng, Univ of Houston, Texas, USA; PhD, Texas A&M Univ, College Station, Texas, USA

Assistant Professor (Operation Management and Supply Chain Management)

WINAI WONGSURAWAT, B.A.S (Econ & Math., Comp. Sc.) Stanford University USA PH.D (Managerial Econ and Strategy), Kellogg School of Management, Northwestern University, USA

Assistant Professor (Strategic Management)

Visiting and Adjunct Faculty

EVANGELOS ANGELOS AFENDRAS, B.A., M.A, Ph.D(Humanities-Linguistics) The Johns Hopkins Univ., USA.

Adjunct Faculty (Cross-Cultural Management, Organization Behavior, Management of Change)

Prof. HITENDRA BARGAL, MBE, LLM, PhD Indore University, India,

Visiting Professor (Marketing & Entrepreneurship)

URS BUMBACHER, M.A, Ph.D (Economics & Business Admin.), Univ. of Basel, Switzerland.

Adjunct Professor (International Business)

Dr. GAUTAM KMAR DUTTA, B.E, MBA, Ph.D. – IIT, India

Visiting Associate Professor (International Marketing, Marketing Management, Technology Innovation Manage-

ment, Entrepreneurship and Small Business Development.)

Prof. GEETIKA GOEL, Ph.D University of Allahabad- India

Visiting Professor (Technology & Development, High Tech Entrepreneurship)

RUDOLF GRUENIG, Ph.D (BA), University of Bern, Switzerland.

Adjunct Faculty (Strategic Management)

ROLAND AMOUSSOU-GUENOU, LL.B in Business Law, National Univ. of Benin. LL.M in International Business Law, Univ. of Toulouse. Ph.D. in International Law, Univ of Paris, France.

Adjunct Faculty (Policy and Legal Issues) NAZRUL ISLAM, BScEng, BUET, Bangladesh; MEng, DEng, AIT, Thailand.

Visiting Professor (Management of Technology; Technology and Development; Technology Policy; Technology Transfer)

LALIT M JOHRI, BSc (Hons), MSc, MBA, PhD, Univ of Delhi, India.

Adjunct Faculty (International Business; International Joint Ventures; Marketing; Negotiations; Strategic Management)

ILKKA KAURANEN, MS Engg, Lic Tech, DTech, Helsinki University of Technology, Finland.

Adjunct Professor (Development and Management in Industry)

ROBERT S. KIETEL, BA, Univ. of Colorado; Ph.D, De La Salle University, The Philippines.

Adjunct Faculty (HRM, Leadership)

TRITOS LAOSIRIHONGTHONG, Ph.D., (Management of Technology) School of Management, AIT, Thailand

Adjunct Faculty (Manufacturing Strategy and Supply Chain Management)

Prof. KALPANA MATHUR, PhD in Human Resource Management, Jai Narain Vyas University (JNVU) - India

Visiting Professor (Human Resource Management)

PETER MOSER Ph.D., M. Econ., University of St. Gallen, Switzerland

Visiting Faculty (European Integration and International Trade Policy)

LOGAN MULLER, Ph.D (Sustainability), Kennedy Western University, USA.

Adjunct Faculty (International Business)

INDRA M PANDEY, MComm, PhD, Univ of Delhi, India.

Adjunct Professor (Corporate Finance, Emerging Capital Markets)

ASHISH SADH, M.B.A., A.P.S. Univ., Rewa. Ph.D (Marketing) Devi Ahilya Univ., Indore.

Adjunct Faculty (Sales and Marketing)

RAGNAR THOR GRUNDTVIG SEGAARD, Ph.D London School of Foreign Trade, England, Master of Business Administration, University of Gothenburg, Sweden

Adjunct Faculty (Finance)

FREDRIC W SWIERCZEK, BA, Temple Univ, USA; MA, PhD, Univ of Pittsburgh, Pennsylvania, USA.

Visiting Associate Professor (Behavioral Science; Organizational Development)

GERARD TOCQUER, Ph.D., University of Nice-SophiaAntipolis, France, M.A (Marketing), University of Sherbrooke, Canada, C.P.D., Cornell University, Ithaca USA

Adjunct Faculty (Service Innovation, Service Culture and Branding)

ALLAN WILLIAM, B.Ed., Univ. of Tasmania; MSc., Ph.D (Organization Development) MITASH Univ., USA.

Adjunct Faculty (Organization Behavior, Leadership & Business Performance)

WILLI ZIMMERMANN, Ph.D. (Political Science) University of Munich, Germany, Post-Doc. Diploma, Swiss Federal Institute of Technology Switzerland

Adjunct Faculty (Public Sector Management, Environmental Management)

5.8 Grants and Sponsored Research Completed 2013

ProSPER.Net-Biodiversity & Climate Change-Business Sustainability Education for Asia

Duration: 10-Aug-2012 to 31-Aug-2013

Project Investigator(s): Dr. David Ferguson

Sponsor: United Nations University - Institute of Advanced Studies

Total Contracted Amount (THB): 2,400,000

Executive MBA-BKK Program, August 2011

Duration: 1-Aug-2011 to 31-May-2013

Project Investigator(s): Dr. David Ferguson

Sponsor: Professional Managers / Administrators of Private/Public Sectors

Total Contracted Amount (THB): 6,300,000

Survey Research on ICT manpower in Thailand and the ICT professional Standard

Duration: 4-Sep-2012 to 31-Sep-2013

Project Investigator(s): Dr. Sununta Sienghai

Sponsor: Ministry of Information and Communications Technologies (ICT)

Total Contracted Amount (THB): 4,000,000

International Executive MBA for Vietnam for VT#3

Duration: 1-Jan-2011 to 30-Apr-2013

Project Investigator(s): Do Ba Khang

Sponsor: Multi donors

Total Contracted Amount (THB): 9,333,545.76

Executive MBA BGK Program August 09

Duration: 1-Aug-2009 to 31-Apr-2013
Project Investigator(s): Nicholas J Dimmitt, Barbara Igel
Sponsor: Multi donors
Total Contracted Amount (THB): 11,416,000

Executive MBA-BKK Program, August 2010

Duration: 1-Aug-2010 to 31-July-2013
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 8,100,000

Fourth Public Management Executive Development Program

Duration: 1-July-2012 to 31-Apr-2013
Project Investigator(s): Sununta Siengthai
Sponsor: The Damrong Rajanupab Research and Development Institute
Total Contracted Amount (THB): 1,311,000

DBA Program in Sri Lanka 2006

Duration: 31-Oct-2006 to 31-Dec-2013
Project Investigator(s): Nicholas Dimmit, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Lalit Johri
Sponsor: Participants
Total Contracted Amount (THB): 11,988,000

DBA Program in Bangkok 2006

Duration: 31-Oct-2006 to 31-Dec-2013
Project Investigator(s): Indra Pandey, Nicholas Dimmit, Freidric Swirczek, Rian Beise-zee, Nazrul Islam, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Lalit Johri
Sponsor: Participants
Total Contracted Amount (THB): 15,552,000

5.9 On-going Grants and Sponsored Research

International Executive MBA-Vietnam for Hanoi#13.1 & Hanoi#13.2 Group

Duration: 1-Aug-2012 to 31-Dec-2017
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 12,246,000

International Executive MBA-Vietnam for HCMC#9th Group

Duration: 1-Aug-2012 to 31-Dec-2017
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 10,332,562.5

International Executive MBA-Vietnam for Dongnai#4 Group

Duration: 1-Jan-2012 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 8,801,812.5

International Executive MBA-Vietnam for Vung Tau#4th Group

Duration: 1-Jan-2012 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 9,119,749.275

International Executive MBA Vietnam for ong Nai 4th group

Duration: 1-Jan-2012 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 8,625,000

International Executive MBA Vietnam for Vung Tau 4th group

Duration: 1-Jan-2012 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 8,936,550

International Executive MBA Vietnam for HCMSC#8 group

Duration: 1-Aug-2011 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 11,250,000

International Executive MBA Vietnam for Hanoi #12.2 and # Hanoi 12.3 group

Duration: 1-Aug-2011 to 31-Dec-2016
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 13,875,000

Doctor of Business Administration

Duration: 1-Aug-2012 to 31-Jun-2019
Project Investigator(s): Winai Wongsurawat
Sponsor: -
Total Contracted Amount (THB): 19,440,000

DBA Program in Bangkok 2008

Duration: 1-Jan-2008 to 31-Dec-2014
Project Investigator(s): Nicholas Dimmit, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Lalit Johri
Sponsor: Participants
Total Contracted Amount (THB): 16,848,000

DBA Program in Taiwan 2007

Duration: 1-Nov-2007 to 31-Dec-2014
Project Investigator(s): Indra Pandey, Nicholas Dimmit, Freidric Swirczek, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Illka Kauranen
Sponsor: Participants
Total Contracted Amount (THB): 14,025,000

DBA Program in HCMC 2007

Duration: 1-Feb-2007 to 31-Jan-2014
Project Investigator(s): Indra Pandey, Nicholas Dimmit, Freidric Swirczek, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Illka Kauranen
Sponsor: Participants
Total Contracted Amount (THB): 14,000,000

DBA Program in Bangkok 2007

Duration: 1-Feb-2007 to 31-Jan-2014
Project Investigator(s): Indra Pandey, Nicholas Dimmit, Freidric Swirczek, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Illka Kauranen
Sponsor: Participants
Total Contracted Amount (THB): 19,440,000

5.10 Publications

International Journal Articles

Bhatiasevi, V., Krairit, D. Acceptance of open source software amongst Thai users: An integrated model approach (2013) Information Development, 29 (4), pp. 349-366.

- Chiralaksanakul, A., and Sukhotu, V. (2013). Optimal supply chain replenishment with shelf-refill trips from backroom storage. (Submitted to Journal of Modeling in Management, awaiting decision)
- Duc, N.N., Siengthai, S., Page, S. A conceptual model of HRIS-Trust: An understanding of suppliers'/customers' relationship (2013) *Foresight*, 15 (2), pp. 106-116.
- Jongwanich, J., Brooks, D.H., Kohpaiboon, A. Cross-border mergers and acquisitions and financial development: Evidence from emerging Asia (2013) *Asian Economic Journal*, 27 (3), pp. 265-284.
- Jongwanich, J., Kohpaiboon, A. Capital flows and real exchange rates in emerging Asian countries (2013) *Journal of Asian Economics*, 24, pp. 138-146.
- Kamal Badar, Julie M. Hite, Yuosre F. Badir. 2013. Examining the relationship of co-authorship network centrality and gender on academic research performance: The case of chemistry researchers in Pakistan. *Scientometrics*, By Springer, 94 (2): 755-775,
- Kohpaiboon, A., Jongwanich, J., International production networks, clusters, and industrial upgrading: Evidence from automotive and hard disk drive industries in Thailand (2013) *Review of Policy Research*, 30 (2), pp. 211-239.
- Lamratanakul S., Y. Badir, S. Siengthai, and V. Sukhotu, (2013) Indicators of Best Practices in Technology Product Development Projects: Prioritizing Critical Success Factors, *International Journal of Managing Projects in Business*, 7 - 4.
- Mamun, S. A. A. and Yuosre F. Badir. 2013. The Impact of Board of Directors on Value Addition Efficiency of Corporate Resources in Emerging Economies, *Int. Journal of Corporate Governance*, By Inderscience. (Forthcoming)
- Nuntamanop, P., I. Kauranen and B. Igel (2013): A New Model of Strategic Thinking Competency, *Journal of Strategy and Management, EMERALD*, Vol.6, No.3 pp. 242-264
- Shinnaranantana, N., Dimmitt, N.J., Siengthai, S. CSR manager competencies: A case study from Thailand (2013) *Social Responsibility Journal*, 9 (3), art. no. 17094336, pp. 395-411.
- Sompong, K., B. Igel and H.L. Smith (2013): Strategic Alliances a Model of Collaboration for Commercializing Technology, *Management Research Review, EMERALD* (accepted)
- Supachart lamratanakul, Yuosre F. Badir, Sununta Siengthai, and Vatcharapol Sukhotu. 2013. Indicators of Best Practices in Technology Product Development Projects: Prioritizing Critical Success Factors, *International Journal of Managing Projects in Business*, By Emerald (Forthcoming).
- Teeratansirikool, L., Siengthai, S., Badir, Y., Charoenngam, C. Competitive strategies and firm performance: The mediating role of performance measurement (2013) *International Journal of Productivity and Performance Management*, 62 (2), pp. 168-184.
- Thien, N. P., Luong, H. T., Khang, D. B., Sukhotu V., (2013) Revenue sharing contract with two-way penalties, *International Journal of Operational Research*, TBA
- Yuosre F. Badir and Gina O'Connor. 2013. The formation of tie-strength in a strategic alliance's first new product development project: The influence of project and partners' characteristics. *Journal of Product Innovation Management, JPIM*, By Wile-Blackwell. (Forthcoming)
- Dominant Growth Barriers for Small and Medium Sized-enterprises (SMEs) in Thailand
By Tana Chanyatipsakul
Supervisor: Dr. Winai Wongsurawat
- Global Recession: Impact on Multi-Dimensional Firm Performance of Indian IT-ITES Firms Serving BFSI Industry
By Murali Kailasam
Supervisor: Prof. Lalit M. Johri
Co-chairperson: Dr. Winai Wongsurawat
- Building Micro Brands via Buyer - Seller Relationships by Informal Sector Micro Businesses for Food Products
By Sanatcha Theerachun
Supervisor: Dr. Donyaprueth Krairit
- Strategic Thinking Competency and Business Growth
By Polboon Nuntamanop
Supervisor: Dr. Barbara Igel
Co-chairperson: Prof. Ilkka Kauranen
- Competitive Strategy, Performance Measurement and Firm Performance
By Luliya Teeratansirikool
Supervisor: Dr. Sununta Siengthai
- Acceptance of Open Source Software among Thai Users: An Integrated Model Approach
By Veera Bhatiaisevi
Supervisor: Dr. Donyaprueth Krairit
- A Conceptual Model of HRIS-TRUST: An Exploratory Study
By Nguyen Ngoc Duc
Supervisor: Dr. Sununta Siengthai
- Cassava Root Purchasing Strategies for Consistent Cassava Supply to Starch Mills: A Case Study of Corn Products Thailand Ltd. (CPT)
By Adisak Suvittawat
Supervisor: Dr. Peeyush Soni
Co-chairperson: Dr. Barbara Igel
- Market Reengineering Strategy of Traditional Products in Thailand: Case Study of Thai Silk Industry
By Preeya Patichol
Supervisor: Dr. Winai Wongsurawat
Co-chairperson: Prof. Lalit M. Johri

5.11 Doctoral Students' Dissertation

The Corporate Performance of Privatized Enterprises in Vietnam
By Vo Thi Quy
Supervisor: Dr. Do Ba Khang

Impacts of Information Technology Outsourcing on Financial Institutions in Thailand
By Rachchabhorn Wongsaroj
Supervisor: Dr. Donyaprueh Krairit

Determinants of Disclosure Quality and Impact of Corporate Governance Characteristics on Cost of Equity Financing: Evidence from Pakistan
By Safia Nosheen
Supervisor: Dr. Supasith Chonglerththam

Strategic Alliances for Technology Commercialization and Product Development
By Kusumaphorn Sompong
Supervisor: Dr. Barbara Igel

Revenue Sharing Contract with Two-way Penalties
By Nguyen Phuoc Thien
Supervisor: Dr. Huynh Trung Luong
Co-chairperson: Dr. Vatcharapol Sukhotu

Communication, Decision Making and Customer Satisfaction in Credence Services: An Empirical Study of the Patient-Doctor Interaction in Hospitals
By Anothai Ngamvichaikit
Supervisor: Dr. David Ferguson
Co-chairperson: Dr. Rian Beise-Zee

5.12 Masters Students' Theses, Research Studies and Projects

Impact of Online Travel Agencies on Hotel Industry
By Farhan Tariq Malik
Supervisor: Dr. Rian Beise-Zee

The Philippines ICT Industry: Trends, Challenges and Prospects
By King Jehu II Quirino Radaza
Supervisor: Dr. Sununta Siengthai

The Role of a Recycler in an Aseptic Carton Closed-loop Supply Chain in Thailand: The Case of Fiber Pattana Company Limited

By Garuna Yooyartwong
Supervisor: Dr. Vatcharapol Sukhotu

Micro Finance: An Analysis of Nepal's Urban Micro-Finance Industry
By Saurav Timilsina
Supervisor: Dr. Supasith Chonglerththam

Barriers and Challenges of Applying Mobile Communication Services in Agricultural Value Chain: A Case Study of Bangladeshi Rural Vegetable Farmers
By S.M. Arifuzzaman
Supervisor: Dr. David Ferguson

The Impact of Human Resource Information System (HRIS) on Organizational Effectiveness: A Case Study of the Textile Industry in Thailand
By Aroonlod Udomphol
Supervisor: Dr. Sununta Siengthai

Wavelet Neuron Network Prediction of Stock Market Prices
By Anupak Martmoon
Supervisor: Dr. Supasith Chonglerththam

A Study of the Organizational Culture for Knowledge Sharing in Selected Public Sector Banks Branches in Western Province of Sri Lanka
By Narayana Naidelage Chamari Pushpamali
Supervisor: Prof. Nazrul Islam

Problem Analysis of Power Plant Projects at Petro Vietnam Power Corporation (PV Power)
By Vu Anh Tuan
Supervisor: Dr. Do Ba Khang

Restructuring Organization for New Cooperation Agreement: A Case Study of the Vietsovpetro Joint Venture in Vung Tau City, Vietnam
By Thai Khac Quy
Supervisor: Dr. Huynh Trung Luong

Evaluation of the Capacity of Local Officers for Implementing ODA Funded Projects Aiming at Poverty Reduction and Rural Development in Vietnam
By Pham Thi Thuy Chi
Supervisor: Dr. Willi Zimmermann

Improving Retail Customer Service in the Electricity of Vietnam

By Bui Quoc Hoan
Supervisor: Dr. Huynh Trung Luong
Co-chairperson: Dr. Fredric W. Swierczek

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By Hoang Ngoc Vy
Supervisor: Dr. Winai Wongsurawat
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Developing Local RIG Crew to Enhance the Competitive Advantage of PV Drilling
By Nguyen Xuan Cuong
Supervisor: Dr. Winai Wongsurawat

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By Dam Thi Thu Dung
Supervisor: Dr. Willi Zimmermann

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By Nguyen Manh Hien
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By Nguyen Chi Hieu
Supervisor: Dr. Huynh Trung Luong
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A Development Strategy for EVM from 2014-2020
By Nguyen Hong Long
Supervisor: Dr. Huynh Trung Luong
Co-chairperson: Dr. Fredric W. Swierczek

Keeping Power Plant Projects on Schedule at PV Power
By Nguyen The Anh
Supervisor: Dr. Winai Wongsurawat

A Strategy for Human Resources Development in Petrovietnam Power Services Company
By Nguyen Minh Tuan
Supervisor: Dr. Fredric W. Swierczek
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Improving the Grid Management System: A Case of Hanoi Power
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Supervisor: Dr. Sununta Siengthai
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Improving Cultural Communication in National Hospital of Pediatrics By Nguyen Thu Thuy Supervisor: Dr. Winai Wongsurawat Co-chairperson: Dr. Supasith Chonglertham	Retail Branding: A Case Study of Protea Flower Company Limited, Ho Chi Minh City, Vietnam By Nguyen Thi Thuy Tien Supervisor: Dr. Clemens Bechter Co-chairperson: Dr. Sununta Siengthai	Electricity Subsidies for Poor Households in Vietnam By Do Hung Manh Supervisor: Dr. Fredric W. Swierczek Co-chairperson: Dr. Huynh Trung Luong
Human Resource Training and Development Strategy at Petrovietnam Manpower Training College, Vung Tau, Vietnam By Dang Ngoc Anh Supervisor: Dr. Winai Wongsurawat Co-chairperson: Dr. Supasith Chonglertham	How to Improve Interdepartmental Cooperation in Telecom Project Implementation: The Case of Huawei Technologies, Vietnam By Vo Thi Ngoc Thuy Supervisor: Dr. Sununta Siengthai	Work Motivation in But Son Cement Joint Stock Company By Do Thi Hanh Supervisor: Dr. Sununta Siengthai
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Power Distribution: A Case Study of MEPCO By Muhammad Shahzad Raee Supervisor: Dr. Jai Govind Singh	Motivation: An Analytical Study on Sources of Motivation for Officers of DISCOs By Kamran Naveed Supervisor: Dr. Sununta Siengthai	Effects of Quality Training and Motivation on Teamwork Improvement and Task Efficiency at MEPCO By Kamran Zahoor Supervisor: Dr. Sununta Siengthai
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Chapter 6: AIT EXTENSION

6.1 Introduction

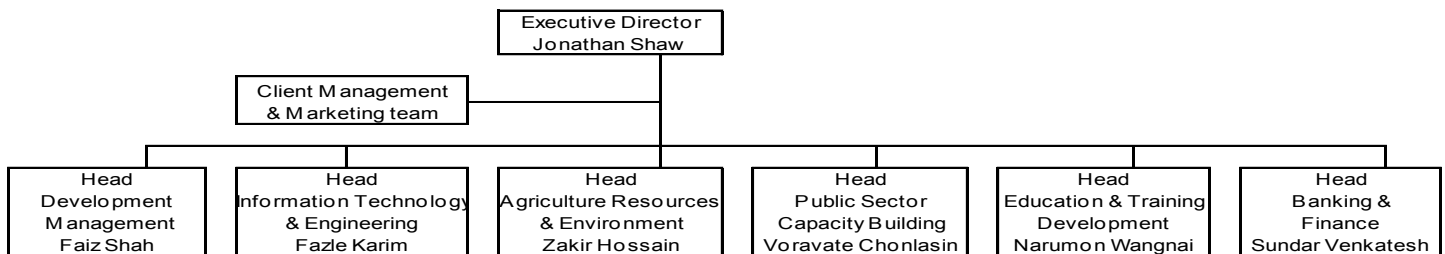
AIT Extension is responsible for non-degree programs at AIT. As the continuing professional development and short-course training arm of the institute, we identify and respond to opportunities in the region for continuing professional education, short-course training and consultancy services, and in this way contribute to the realization of AIT's mission to develop highly qualified and committed

training and consultancy, and thus help to realize AIT's mission to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy.

6.3 Unit Governance Courses and Services

AIT Extension offers courses in the following specializations:

particular client organizations. Every organization with which we work is unique; and change interventions required by our clients are most usually specific to that organization. Wherever required, therefore, we work closely with our clients to develop unique training solutions that meet their specific needs. This process will usually start with the clients' own terms of reference, to which AIT Extension responds. Meetings are scheduled with the client to discuss all aspects of the



professionals who play a leading role in the sustainable development of the region and its integration into the global economy.

We work with professionals in national governments, overseas development agencies, multilateral agencies, development institutions, private sector, development banks, consultants and NGOs. AIT Extension's operating programs are:

- Agriculture, Resources and Environment
- Education and Training Development
- Public Sector Capacity Building
- Development Management
- Information Technology and Engineering
- Banking and Finance

6.2 Mission

To identify and respond to regional opportunities for continuing education,

- Agriculture and Food Processing
- Environment and Natural Resources Management
- Education and Training Development
- Poverty Reduction and Livelihoods Development
- Business Performance, Management and Strategy
- Development Effectiveness
- Public Sector Services and Management
- Private Sector Development
- Information and Communication Technologies
- Information and Communication Management
- Banking and Finance.

Most international training courses usually last from one to three weeks.

Customized Courses

AIT Extension specializes in designing, developing and implementing short courses to the specifications of

required training, and to ensure that the client's needs are met.

Exposure Visit Programs

Many professionals are interested in field visits to observe best practices in their field. Exposure visits are designed to provide senior government officials and decision makers with opportunities to visit and observe current technology and practices in their fields, to exchange information, to exchange experiences with local counterparts, project personnel and beneficiaries on development and management of similar projects, and to exchange views with participants from other countries. At the end of each program, a seminar is conducted at AIT to enable participants to reflect on what has been learned and what can be adapted to their own development contexts.

Thailand provides numerous examples of best practice in a wide diversity of fields. AIT Extension is also experienced in organizing exposure visit programs to

many countries in the region, with recent experience in Vietnam, Laos, Malaysia, Korea, Philippines, Indonesia, Singapore and the UK.

Consulting Services

AIT Extension professional staff offer a wide range of technical assistance and consulting services. These include:

- **Human Resource Development:** Development of human resource development (HRD) programs and projects; assessment of training needs in organizations; evaluation of training courses, projects or plans; review and evaluation of the management and operation of training centers; management and implementation of training development projects.
- **Educational Development:** Curriculum design and development; evaluation of educational programs and projects; management and implementation of educational development projects; report writing and documentation.
- **Organizational change and development:** Strategic planning.
- **Information Technology:** Strategic information technology. Planning; information system analysis and design; IT project management.

6.4 Learning Approach

Our teaching and learning approach is to apply best practices in training, based on established principles of adult learning.

Training strategies that we use are consistent with the principles of adult learning: peer learning, reflective thinking, problem based learning, participatory learning and experiential learning. We aim to maximize learning by mixing these approaches appropriate to each learning context.

Methods used include short presentations, group discussions, case studies, workshops, individual exercises, simulation, role-plays, project work, peer learning and exposure visits. Training sessions are designed to allow

participants the scope to interact with resource persons and actively engage in the learning process.

Participants benefit from close personal attention by AIT Extension staff. Our typical training course provides five to six hours of workshop sessions every weekday, with extensive social and cultural trips organized at the weekends in courses of two weeks or longer. ICTs relevant and appropriate to every group of participants are incorporated into the course design.

Feedback from participants in one course is a critical input to subsequent courses. All our training courses are undertaken with the aim of continuous quality improvement.

All AIT Extension activities take advantage of AIT's stimulating academic and social environment, and the Institute's multicultural English-speaking academic community.

6.5 Training Resources

AIT Extension has a wide pool of academic and professional Resource Persons drawn from AIT's schools, and from leading international and local organization in the region.

Its professional staffs are specialists in human resources development, curriculum planning, instructional system design, information technology application development and other specific technological areas.

It has state-of-the-art educational and information technologies incorporated into all training facilities on campus.

Presenting a serene and relaxing environment for study AIT's campus show cases hotel and student dormitory accommodation, a medical clinic, an international cafeteria, several restaurants and sports facilities including tennis and squash courts, a golf course and a swimming pool.

6.6 Grants and Sponsored Trainings Completed in 2013

Monitoring and Evaluation of DMTBF Project

Duration: 28-Jan-2013 to 6-May-2013
Project Investigator(s): Tharakorn Chanlapa
Sponsor: Ministry of Finance, Bangladesh
Total Contracted Amount (THB): 741,555

Emerging Issues in oil and Gas Industries

Duration: 4-Mar-2013 to 6-Jun-2013
Project Investigator(s): Tharakorn Chanlapa
Sponsor: BAPEX, Bangladesh
Total Contracted Amount (THB): 232,000

Experience Sharing on Management of Large Irrigation Project in Philippines and Indonesia

Duration: 4-Mar-2013 to 10-Jun-2013
Project Investigator(s): Afzal Jamil
Sponsor: Bangladesh Water Development Board
Total Contracted Amount (THB): 831,492

Entrepreneurship Management and Identifying small business opportunities

Duration: 11-Feb-2013 to 16-May-2013
Project Investigator(s): Mathew Kuruville
Sponsor: Ministry of Economic Affairs, Bhutan
Total Contracted Amount (THB): 258,074

Management of Flood Control, Drainage and Irrigation (FCDI) Schemes with Emphasis on Disaster Management (Vietnam)

Duration: 28-Feb-2013 to 31-Sep-2013
Project Investigator(s): Thaniya Jirasathitpornpong
Sponsor: BWDB, Bangladesh
Total Contracted Amount (THB): 1,057,892

Operation & Maintenance of Transmission Line

Duration: 4-Feb-2013 to 31-Dec-2013
Project Investigator(s): Furqan Ali
Sponsor: World Bank
Total Contracted Amount (THB): 1,176,239

Professional Development Program on Quality Assurance

Duration: 25-Feb-2013 to 6-Jun-2013
 Project Investigator(s): Warindhorn Srina and Narumon Wangnai
 Sponsor: MoHE, Islamic Republic of Afghanistan
 Total Contracted Amount (THB): 1,308,470

Basic Research Methodology

Duration: 4-Feb-2013 to 23-May-2013
 Project Investigator(s): Kanlaya Muangsan
 Sponsor: Ministry of Higher Education, Afghanistan
 Total Contracted Amount (THB): 2,094,000

International Exposure Program on MSME Financing in Asia

Duration: 20-Feb-2013 to 28-May-2013
 Project Investigator(s): Rowena Alcoba
 Sponsor: CAB/RBI
 Total Contracted Amount (THB): 1,636,559

Management & Implementation of Road Infrastructure Projects in Japan

Duration: 24-Jan-2013 to 1-May-2013
 Project Investigator(s): Upul Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 711,854

Capacity Enhancement Program in Supporting High Performance and Potential System

Duration: 4-Feb-2013 to 27-May-2013
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: OCSC
 Total Contracted Amount (THB): 7,920,000

Management Leadership Development for Oil and Gas Industries

Duration: 14-Jan-2013 to 25-Apr-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: BAPEX
 Total Contracted Amount (THB): 1,364,795

SB101

Duration: 1-May-2013 to 2-Aug-2013

Project Investigator(s): Rowena Alcoba
 Sponsor: AIT
 Total Contracted Amount (THB): 60,000

Micro-Hydro

Duration: 18-Mar-2013 to 22-Jun-2013
 Project Investigator(s): Agus S. Prajogo
 Sponsor: PSCDE
 Total Contracted Amount (THB): 1,095,084

Agro-processing Community level in Thailand

Duration: - Apr- 2013 to 11-Jul-2013
 Project Investigator(s): Phyu Sin
 Sponsor: RFLDC, Bangladesh
 Total Contracted Amount (THB): 2,078,625

MBA-Study Tour program

Duration: 10-Jan-2013 to 14-Apr-2013
 Project Investigator(s): Myint M. Sein
 Sponsor: White House International College, Nepal
 Total Contracted Amount (THB): 320,072

Implementation, O&M, M&E of Flood Control, Drainage and Irrigation in Sri Lanka

Duration: 6-May-2013 to 15-Aug-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: World Bank, WMIP
 Total Contracted Amount (THB): 1,036,141

Long Term Power System Planning

Duration: 29-Apr-2013 to 8-Aug-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Asian Development Bank-PSCDP
 Total Contracted Amount (THB): 1,412,504

Mines and Minerals Professional Development Program

Duration: 20-Mar-2013 to 14-Apr-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: Punjab Mines and Minerals Department
 Total Contracted Amount (THB): 3,110,775

Competency Based Human Resources Management

Duration: 7-Apr-2013 to 18-Jul-2013

Project Investigator(s): Furqan Ali Shaikh
 Sponsor: Water Resources Planning Organization
 Total Contracted Amount (THB): 1,283,754

Management Skill Development for Public Service Junior Officers

Duration: 25-Apr-2013 to 28-Jul-2013
 Project Investigator(s): Upul Brahmanage
 Sponsor: Ministry of LG&PC, Sri Lanka
 Total Contracted Amount (THB): 546,000

Implementing Selective ERP Application and Management

Duration: 17-Apr- 2013 to 31-Dec-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: ADB
 Total Contracted Amount (THB): 1,424,007

Economic Load Management

Duration: 15-Apr- 2013 to 31-Sep-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: ADB
 Total Contracted Amount (THB): 1,139,206

Operation & Maintenance of Generator

Duration: 18-Mar-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount (THB): 1,438,392

Human Resources Management in Oil and Gas

Duration: 28-Mar-2013 to 7-Jul-2013
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Multi Donor
 Total Contracted Amount (THB): 2,189,432

Operation & Maintenance of Customer Metering System

Duration: 18-Mar-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: Bakhrabad Gas Company
 Total Contracted Amount (THB): 695,992

Accounting and Auditing for Gas and Oil Companies

Duration: 25-Mar-2013 to 31-Sep-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: Multi, Bangladesh
 Total Contracted Amount (THB): 1,517,817

Regional Exposure Visit Program in Australia, Financial Sector Reform and Investment

Duration: - Apr- 2013 to 13-Jul-2013
 Project Investigator(s): Sufian Etea
 Sponsor: HFIC
 Total Contracted Amount (THB): 3,247,167

Regional Exposure Visit Program in Australia, Financial Sector Reform and Investment

Duration: 18-Mar-2013 to 27-Jun-2013
 Project Investigator(s): Sufian Etea
 Sponsor: HFIC
 Total Contracted Amount (THB): 1,624,718

Advanced Level Monitoring and Evaluation (Thailand and Cambodia)

Duration: 25-Mar-2013 to 4-Apr-2013
 Project Investigator(s): Shankar Tagad
 Sponsor: Ministry of Federal Affairs and Local Development, Nepal
 Total Contracted Amount (THB): 814,584

Sustainable Coastal Community and Ecosystem Management

Duration: 11-Mar-2013 to 22-Mar-2013
 Project Investigator(s): Evanshainia Syiem and Dr. Md. Zakir Hossain
 Sponsor: Ministry of Defence and Urban Development, Sri Lanka
 Total Contracted Amount (THB): 737,000

Financial Management

Duration: 25-Feb-2013 to 8-Mar-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: Bangladesh Water Development Board
 Total Contracted Amount (THB): 1,135,900

YCA Professional Development Program

Duration: 18-Feb-2013 to 11-Dec-2013
 Project Investigator(s): Faisal Alih
 Sponsor: Multi-donor

Total Contracted Amount (THB): 3,336,450

IT Network Security

Duration: 9-Oct-2013 to 31-Dec- 2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Ministry of Finance, Bangladesh
 Total Contracted Amount (THB): 1,167,965

Professional Training Program on Contact Center Management and Customer Care

Duration: 19-Aug-2013 to 21-Nov-2013
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Telecom
 Total Contracted Amount (THB): 297,832

Strategic Human Resource Management/Change Management

Duration: 12-Aug-2013 to 21-Nov-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: ADB
 Total Contracted Amount (THB): 1,125,362

Performance Management

Duration: 26-Aug-2013 to 5-Dec-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: ADB
 Total Contracted Amount (THB): 1,031,013

Strategic HR Management

Duration: 18-Jul-2013 to 28-Sept-2013
 Project Investigator(s): Rowena Alcoba
 Sponsor: GTCL
 Total Contracted Amount (THB):784,686

Professional Workshop on Marketing Management

Duration: 19 August 2013 to 21 November 2013
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Tashi Infocom, Bhutan
 Total Contracted Amount (THB): 193,500

Urban Environmental Management

Duration: 5-Aug-2013 to 14-Nov-2013
 Project Investigator(s): Phyu Sin
 Sponsor: Government of India & Bangladesh
 Total Contracted Amount

(THB):556,053

Aquaculture Development & Aquatic Resources Management in South & South East Asia

Duration: 14-Jul-2013 to 24-Nov-2013
 Project Investigator(s): Evanshainia Syiem and Dr. Md. Zakir Hossain
 Sponsor: Shanghai Ocean University
 Total Contracted Amount (THB): 900,000

Organizational Financial Planning and Cost Control

Duration: 15-Jul-2013 to 24-Sep-2013
 Project Investigator(s): Rowena Alcoba
 Sponsor: GTCL
 Total Contracted Amount (THB): 550,117

Construction Management and Quality Control of Roads Works

Duration: 29-Jul-2013 to 6-Nov-2013
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 657,826

Instrumentation & Control of Steam Turbine Power Plant

Duration: 26-Aug-2013 to 31-Dec- 2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: ADB
 Total Contracted Amount (THB): 1,420,911

Irrigation Management by Participatory Approach in Philippines

Duration: 20-May-2013 to 29-Aug-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Bangladesh Water Development Board
 Total Contracted Amount (THB): 1,436,477

Operation and Maintenance of Boiler

Duration: 27-May-2013 to 31-Dec-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: ADB
 Total Contracted Amount (THB): 1,744,571

Electrical Power System and Hazardous Waste Management

Duration: 3-Jun-2013 to 5-Oct-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: BAPEX
 Total Contracted Amount
 (THB): 622,033

Pump Station and Purification Plant for Water Works

Duration: 29-Aug-2013 to 2-Dec-2013
 Project Investigator(s): Ms. Worawan Sumroetrum
 Sponsor: EBARA
 Total Contracted Amount
 (THB): 461,900

Project Mgt., Financial Mgt., Procurement and Audit in Japan

Duration: 17-Jun-2013 to 19-Oct-2013
 Project Investigator(s): Upul Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount
 (THB): 433,971

Master in Public Policy Administration, Regional Study Tour

Duration: 24-Jun-2013 to 1-Sep-2013
 Project Investigator(s): Sufian Etea
 Sponsor: Government of Afghanistan
 Total Contracted Amount
 (THB): 1,318,020

Energy Management

Duration: 20-May-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali and Vicki Sun
 Sponsor: World Bank
 Total Contracted Amount
 (THB): 1,212,485

Sustainable Energy and Cogeneration Technologies for Gas Transmission and Distribution

Duration: 27-May-2013 to 5-Oct-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Petrobangla
 Total Contracted Amount
 (THB): 2,106,274

ICT Awareness and Application

Duration: 23-May-2013 to 31-Dec-2013
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: MoGA, Nepal
 Total Contracted Amount
 (THB): 831,384

Doing Business in a Globalizing World: Thailand and Beyond

Duration: 10-Aug-2013 to 16-Nov-2013
 Project Investigator(s): Mathew Kuruville
 Sponsor: NUST, Pakistan
 Total Contracted Amount
 (THB): 541,168

Management Skill Development for Provincial Council's Public Service Officers

Duration: 1-Jul-2013 to 8-Nov-2013
 Project Investigator(s): Upul Brahmanage
 Sponsor: Uva Province-Sri Lanka
 Total Contracted Amount
 (THB): 2,106,723

Training Program on Project Management

Duration: 24-Jun-2013 to 1-Sep-2013
 Project Investigator(s): Shankar Tagad
 Sponsor: Ministry of Federal Affairs and Local Development, Nepal
 Total Contracted Amount
 (THB): 864,802

Education Planning, Budgeting and Monitoring

Duration: 29-Jul-2013 to 7-Nov-2013
 Project Investigator(s): Kanlaya Muangsan
 Sponsor: Ministry of Education and Sports, Lao PDR
 Total Contracted Amount
 (THB): 627,884

Data Base Management (181.64976)

Duration: 10-Jul-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount
 (THB): 1,177,872

Central Banking and Organizational Development for NRB

Duration: 8-Jun-2013 to 10-Sep-2013
 Project Investigator(s): Upul Brahmanage
 Sponsor: Government of Nepal
 Total Contracted Amount
 (THB): 646,510

Coal Generation

Duration: 10-Jun-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB

Total Contracted Amount
 (THB): 360,556

Renewal Energy

Duration: 3-Jun-2013 to 26-Sep-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Asian Development Bank
 Total Contracted Amount
 (THB): 3,368,015

Relay & Protection Advance

Duration: 8-July-2013 to 31-Dec-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount
 (THB): 868,590

Competence Evaluation Meeting for UNESCO

Duration: 7-Jan-2013 to 5-Apr-2013
 Project Investigator(s): Myint Myint Sein and Kanlaya Muangsaen
 Sponsor: UNESCO, Jakarta, Indonesia
 Total Contracted Amount
 (THB): 416,759

Operation & Maintenance of Relay Coordination

Duration: 14-Jan to 31-Jan-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount
 (THB): 1,176,239

Clean Development Mechanism

Duration: 27-Jan to 2-May-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount
 (THB): 690,428

Participatory Water Resource Management in China

Duration: 18-Jan to 25-Apr-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Water Resources Planning Organization
 Total Contracted Amount
 (THB): 690,428

Operation & Maintenance of Sub Station

Duration: 11-Feb to 31-Jan-2013
 Project Investigator(s): Thanakhorn Chanlapa
 Sponsor: ADB
 Total Contracted Amount

(THB): 1,176,239

Professional Program on Advanced Customer Relationship Management

Duration: 22-Apr-26-Apr-2013

Project Investigator(s): Mathew Kuruvilla

Sponsor: Bhutan Development Bank

Total Contracted Amount

(THB): 362,500

6.7 On-going Grant and Sponsored Trainings

Master Training on FRAME-Fundraising Management and Social Business

Duration: 1-Feb-2012 to 30-Jan-2015

Project Investigator(s): Rowena Alcoba and Mathew Kuruvilla

Sponsor: AIT

Total Contracted Amount

(THB): 6,375,000

Public Sector Management

Duration: 16-Dec-2013 to 18-Jun-2014

Project Investigator(s): Upul

Sponsor: Water Provincial Council, Sri Lanka

Total Contracted Amount

(THB): 450,000

Public Private Partnership

Duration: 9-Dec-2013 to 11-Jun-2014

Project Investigator(s): Furqan

Sponsor: AIT Consulting

Total Contracted Amount

(THB): 465,000

Leadership and Essential Management Skills

Duration: 9-Dec-2013 to 18-Jul-2014

Project Investigator(s): Agus S. Prajogo

Sponsor: Titas Gas

Total Contracted Amount

(THB): 983,160

Project Management (Batch III)

Duration: 18-Dec-2013 to 21-Oct-2014

Project Investigator(s): Thaniya

Jirasathitpornpong

Sponsor: ADB

Total Contracted Amount

(THB): 1,080,000

Accounting and Auditing for Oil, Gas and Mining Industries

Duration: 25-Nov-2013 to 4-Jun-2014

Project Investigator(s): Afzal Jamil

Sponsor: BCMCL, BGFL, KGDCL

Bangladesh

Total Contracted Amount

(THB): 2,402,500

Human Resource Management for Oil and Gas Industries Using IT

Duration: 25-Nov-2013 to 4-Jun-2014

Project Investigator(s): Tharakorn

Chanlapa

Sponsor: Barapukuria Coal Mining

Co.,Ltd

Total Contracted Amount

(THB): 525,000

Professional Masters in Banking and Finance, January 2013 Intake

Duration: 1-Jan-2013 to 31-Dec-2014

Project Investigator(s): Dr.Sunder

Venkatesh

Sponsor: Bangladesh Bank & Bhutan

Limited

Total Contracted Amount

(THB): 11,524,000

Institutional Improvement in Water Resource Sector

Duration: 11-Nov-2013 to 13-Feb-2014

Project Investigator(s): Course

Coordinator

Sponsor: Bangladesh Water

Development Board

Total Contracted Amount

(THB): 1,482,375

Contract Management Batch 2

Duration: 26-Aug-2013 to 30-Jun-2014

Project Investigator(s): Furqan Ali Shaikh

Sponsor: ADB

Total Contracted Amount

(THB): 1,102,200

Management of Food Control and Disaster Management

Duration: 11-Nov-2013 to 30-Jun-2014

Project Investigator(s): Thaniya

Jirasathitpornpong

Sponsor: World Bank

Total Contracted Amount

(THB): 1,137,600

Management of Food Control and Disaster Management

Duration: 11-Nov-2013 to 30-Jun-2014

Project Investigator(s): Thaniya

Jirasathitpornpong

Sponsor: World Bank

Total Contracted Amount

(THB): 1,137,600

Implementation, O&M, M&E of Flood Control, Drainage and Irrigation in Sri Lanka

Duration: 25-Nov-2013 to 6-Mar-2014

Project Investigator(s): Furqan Ali

Sponsor: World Bank, WMIP

Total Contracted Amount

(THB): 1,050,654

International Immersion Programme for PGPWE of IIM Raipur, India

Duration: 9-Dec-2013 to 19-Mar-2014

Project Investigator(s): Kanlaya

Muangsan

Sponsor: Indian institute of

Management Raipur, India

Total Contracted Amount

(THB): 1,152,720

Study Visit Programme on Credit Systems and Students Evaluation for Faculty Members from Shivaji University

Duration: 6-Nov-2013 to 8-Feb-2014

Project Investigator(s): Warindhorn Srina

and Narumon Wangnai

Sponsor: Shivaji University, India

Total Contracted Amount

(THB): 658,440

Sustainable Savings Fund Feasibility Study

Duration: 1-Nov-2013 to 30-Apr-2014

Project Investigator(s): Evanshainia

Syiem and Dr. Faiz Shah

Sponsor: SPLASH

Total Contracted Amount

(THB): 990,000

Principles and Practices of Micro-Finance

Duration: 4-Nov-2013 to 15-Apr-2014

Project Investigator(s): Mahbooba Amin

Sponsor: Bhutan, Sudan, Cambodia,

Thailand

Total Contracted Amount

(THB): 420,050

Public Private Partnership

Duration: 18-Nov-2013 to 27-Feb-2014

Project Investigator(s): Afzal Jamil

Sponsor: ADB

Total Contracted Amount
(THB): 1,599,360.1

Research Based Internship Program on Advanced Management Skills

Duration: 18-Nov-2013 to 29-Apr-2014
Project Investigator(s): Mathew Kuruville
Sponsor: CARD-F
Total Contracted Amount
(THB): 155,000

Performance Management

Duration: 21-Sep-2013 to 30-Jan-2014
Project Investigator(s): Course Coordinator
Sponsor: Asian Development Bank
Total Contracted Amount
(THB): 1,070,850

On-farm Tilapia Feed Production

Duration: 16-Sep-2013 to 20-Feb-2014
Project Investigator(s): Evanshainia Syiem and Dr. Md. Zakor Hossain
Sponsor: Northern Marianas College Cooperative Research Extension and Education Service
Total Contracted Amount
(THB): 450,000

Profeddional Training Program on Human Resource Management/ Change Management

Duration: 21-Sep-2013 to 3-Mar-2014
Project Investigator(s): Mahbooba Amin
Sponsor: Water Development board, Bangladesh
Total Contracted Amount
(THB): 1,168,708

Construction Management Using IT

Duration: 23-Oct-2013 to 9-Jan-2015
Project Investigator(s): Dr.Sunder Venkatesh
Sponsor: Bhutan Bank, Pakistan, Afganistan
Total Contracted Amount
(THB): 731,600

Operation & Maintenance of Steam Turbine (India)

Duration: 28-Sep-2013 to 30-Jun-2014
Project Investigator(s): Furqan Ali
Sponsor: ADB
Total Contracted Amount
(THB): 1,507,500

Procurement and Supply Chain Management

Duration: 30-Oct-2013 to 9-Jan-2014
Project Investigator(s): Afzal Jamil
Sponsor: ADB

Total Contracted Amount
(THB): 1,506,360

Operation & Maintenance of Gas Turbine

Duration: 30-Oct-2013 to 30-Jun-2014
Project Investigator(s): Furqan Ali
Sponsor: ADB
Total Contracted Amount
(THB): 1,472,500

International Training and Exposure Visits Programs for UVA Province Senior Officers 2013

Duration: 1-Sep-2013 to 12-Jan-2014
Project Investigator(s): Upul
Sponsor: Uva Province, Sri Lanka
Total Contracted Amount
(THB): 1,571,700

Professional Development Program on Management of Training Centers

Duration: 23-Oct-2013 to 2-Jan-2014
Project Investigator(s): Warindhorn Srina and Narumon Wangnai
Sponsor: SPEMP, Bangladesh
Total Contracted Amount
(THB): 1,412,500

Project Management (Batch II)

Duration: 12-Aug-2013 to 31-Jan-2014
Project Investigator(s): Thaniya Jirasathitpornpong
Sponsor: ADB
Total Contracted Amount
(THB): 900,000

Project Management

Duration: 12-Aug-2013 to 31-Jan-2014
Project Investigator(s): Thaniya Jirasathitpornpong
Sponsor: ADB
Total Contracted Amount
(THB): 1,241,580

Contract Management

Duration: 26-Aug-2013 to 30-Jun-2014
Project Investigator(s): Furqan Ali Shaikh
Sponsor: ADB
Total Contracted Amount
(THB): 1,183,200

Project Management

Duration: 19-Aug-2013 to 30-Jun-2014
Project Investigator(s): Furqan Ali Shaikh

Sponsor: LTL Sri Lanka
Total Contracted Amount
(THB): 1,050,000

Capacity Enhancement Program in Supporting High Performance and Potential System

Duration: 11-Nov-2013 to 3-Mar-2014
Project Investigator(s): Worawan Sumroetrum
Sponsor: OCSC
Total Contracted Amount
(THB): 8,852,500

Education Strategic Planning and Management

Duration: 23-Oct-2013 to 2-Jan-2014
Project Investigator(s): Kanlaya Muangsan
Sponsor: HEQEP, Bangladesh and AIT Consulting
Total Contracted Amount
(THB): 958,000

Fiscal Decentralization and Local Public Financial Management

Duration: 27-May-2013 to 30-Mar-2014
Project Investigator(s): Mathew Kuruville
Sponsor: Tanzania
Total Contracted Amount
(THB): 110,625

Training Program on Planning and Management

Duration: 3-Jun-2013 to 31-Mar-2014
Project Investigator(s): Dr.Sunder Venkatesh
Sponsor: Multiple
Total Contracted Amount
(THB): 870,000

Professional Development Program on Credit Analysis

Duration: 17-Jun-2013 to 31-Mar-2014
Project Investigator(s): Dr.Sunder Venkatesh
Sponsor: Bank of Bhutan Limited/Banking Sectors in Nepal
Total Contracted Amount
(THB): 580,000

Agricultural Development

Duration: 10-Jun-2013 to 31-Mar-2014
Project Investigator(s): Sujidtra Pumsombut, Dr. Md. Zakir Hossain and Evanshainia Syiem
Sponsor: Multiple
Total Contracted Amount

(THB): 217,500

Low Emission Asian Development

(LEAD)

Duration: 17-Jan-2012 to 30-Oct-2016

Project Investigator(s): Merina Lohani
Sitoula

Sponsor: USAID

Total Contracted Amount

(THB): 4,200,000

Chapter 7: INTERNET EDUCATION AND RESEARCH LABORATORY (intERLab)

7.1 Introduction

Continual expansion of the Internet is creating greater demand for well-trained human resources to support the infrastructures and applications of the Internet. New computer science and engineering solutions are needed to simply handle the exponential growth in the traffic and bandwidth usage which is putting severe strain on the Internet today. There is urgent need for a new breed of engineers and technologists to respond to the growing demand from this rapid expansion with endless range of new applications.

As the Internet continues to penetrate every corner of society and of the economy, there are other non-technical issues to be addressed along with the advancement of technological progress. There is a definite need for better understanding of the Internet's social, business, economic as well as legal implications in order to promote the standards of behaviour and practices for the community that are appropriate to continued growth and beneficial use of the Internet.

The intERLab was established in December 2003 as a fixed regional center for Internet infrastructure capacity building, where AIT based on its human and institutional networks, could play a very significant role for the region. Many Internet organizations such as Network Startup Resource Center (NSRC) funded by NSF, the Asia-Pacific Network Information Centre (APNIC) and the Asia-Pacific Advanced Network (APAN) as well as many Internet business organizations provided strong support for the intERLab establishment.

The concept of establishing a fixed location for the internet human resources development has been discussed and endorsed by leading Asia-Pacific Internet organizations at their AP* Retreat meeting at AIT in year 2000. Several leading research institutions in

Asia-Pacific, Europe and the US have indicated their interests in forming up a network of support for the intERLab research, training and education. The main idea is to work together with partners on training and workshops in order to produce network engineers for the stable deployment of the Internet. It was also encouraged that the intERLab develops its own expertise by doing its own research and eventually become one of the leading Internet research centers in the region.

The core component of the laboratory will be on research activities. This will be achieved by maintaining excellent research facilities and staff, hosting visiting researchers and taking advantage of linkages with research laboratories worldwide. The lab was built upon pre-existing Internetworking Research Laboratory of the School of Advanced Technologies and the Distributed Education Center.

7.2 Mission

To become one of the leading Internet regional centers of excellence; establish-ing intERLab/AIT name, as one of the leading Internet infrastructure HRD centers in the Asia-Pacific region; launching our research products at the regional and international level; and developing a regular degree program under SET.

7.3 Unit Governance

PROF. KANCHANA KANCHANASUT

IntERLab Director

7.4 Resources

Education

Distance Education and E-Education Platform VClass

VClass open source consortium

VClass trainings for AIT faculty and staff

VClass hosting service and technical support

ASEAN Virtual Institute of Science and Technology (AVIST) hosting

Custom courseware development;

E-learning consultancy;

Instructional design consultancy;

Custom course design

CanalAVIST streaming VDO over Trans-Eurasia Information Network (TEIN)

Research

Streaming Technology on the Internet

DVRelay for streaming high quality Video (DV format) over heterogeneous network

Overlay network for streaming content delivery

Computer Network Research

Wireless Internet as information infrastructure for rural Asia

Digital Ubiquitous Mobile Broadband OLSR emergency network project

Multimedia communication over heterogeneous network

Training and Internet Information Center

Trainings for Network Infrastructure Engineers (7~8 courses per year)

Human Resource Development for Trans-Eurasia Information Network

Secretariats for AP* Retreat and Asia Pacific Networking Group (APNG) organizations

7.5 Faculty and Research Staff

Faculty

KANCHANA KANCHANASUT, M.Sc and Ph. D. Computer Science, University of Melbourne, Australia. Graduate Diploma in Computer Science, University of Queensland, Australia. B. Sc. Mathematics, University of Queensland, Australia.

Professor of Computer Science, School of Engineering and Technology and Director of intERLab. [Internet for education; Heterogeneous Networks; Emergency Networks; Mobile Ad Hoc Networks; Streaming Media and Distributed Computing]

Affiliates

MONGKOL EKPANYAPONG, Ph.D., Georgia Institute of Technology. M.Eng., Asian Institute of Technology, Thailand. B.Eng., Chulalongkorn University, Thailand.

Assistant Professor School of Engineering and Technology [VLSI design, physical design automation, micro architecture, compiler, and Embedded Systems]

POOMPAT SAENGUDOMLERT, Ph.D. in Electrical Engineering and Computer Science, MIT, USA M.S. in Electrical Engineering and Computer Science, MIT, USA B.S.E. in Electrical Engineering, Princeton University, USA

Associate Professor School of Engineering and Technology [Areas of Communication Theory; Optical networks; Resource Allocation Problems and Array Processing]

TEERAPAT SANGUANKOTCHAKO-RN, D.Eng in Information Processing, Tokyo Institute of Technology, Japan. M.Eng in

Information Processing, Tokyo Institute of Technology, Japan. Certificate in Japanese Language, Osaka University of Foreign Study, Japan. B.Eng. in Electrical Engineering, Chulalongkorn University, Thailand.

Associate Professor School of Engineering and Technology [Digital Signal Processing; Routing Algorithm in the network such as IP and MPLS network; High Speed network and IP-based multimedia applications]

Adjunct Researchers

TANACHAI KONGPOOL, Bachelor's Degree of Computer Science, KMUTNB King Mongkut's University of Technology North Bangkok

Assistant Researcher National Electronics and Computer Technology Center (NECTEC) [Network management; Network engineering; Ad hoc Network]

AIMASCHANA NIRUNTASUKRAT, Ph.D. in Electrical Engineering, University of Maryland (College Park), Master of Engineering in Electrical Engineering, Chulalongkorn University, Bachelor of Engineering (with honors) in Electrical Engineering, Chulalongkorn University

Researcher National Electronics and Computer Technology Center (NEC-TEC) [Network congestion control; Network performance modeling; Application of AI; Biomedical signal processing]

PANITA PONGPAIBOON, Ph.D. in Electrical and Computer Engineering, Carnegie Mellon University Master of Science in Electrical Engineering, Stanford University Bachelor of Science (with University Distinction) in Electrical Engineering, Stanford University

Researcher National Electronics and Computer Technology Center (NECTEC) [Optical network management; IP-overoptical networking; Survivable and fault-tolerant networks; Network measurement; Traffic classification; IPv6; Mobile IP and Intelligent transport system]

ONNO W. PURBO, Ph.D., University of Waterloo, Canada. M.Eng., McMaster University, Canada.

Retired Lecturer from Institute of Technology Bandung (ITB) & Retired Indonesian Civil Servant. He is an Eisenhower Fellow & Ashoka Senior Fellow. In the last 20 years, dedicate his time to educate Indonesians on Information technology, open source, Internet Telephony & Low Cost "Wireless" Internet Access. He has published 40+ books & thousands of articles in IT. He is active in 170+ mailing lists and moderate 10+ mailing lists. His vision is "To See Knowledge Based Society in Indonesia"

THIRAPON WONGSAARDSAKUL, D.Tech.Sc. in Computer Science, Asian Institute of Technology Master of Science in Telecommunications and Computers, George Washington University Bachelor of Engineering in Computer Engineering, Kasetsart University Associate Dean, School of Science and Technology, Bangkok University [Voice over IP; Mobile Ad Hoc Network; Peer to Peer; Distributed Hash Table; Intelligent transport system]

Research Staff

PREECHAI MEKBUNGWAN, Master of Engineering in Information and Communications Technologies (ICT), Asian Institute of Technology, Thailand. Bachelor of Engineering in Computer Engineering, Kasetsart University, Bangkok, Thailand.

Research Associate [Mobile Ad Hoc Network, Delay Tolerant Networking]

NUNTHAPAT WESHUWANNARUGS, Master of Science in Information and Communications Technologies, Asian Institute of Technology, Thailand. Bachelor of Science in Computer Science, Payap University, Chiang Mai

Research Associate [Mobile ad hoc networking; Vehicular ad hoc networking; Disaster emergency networking]

APINUN TUNPAN, Ph.D. and M.S. in Computer Science, University of Maryland College Park, USA. B.Eng. in Computer Engineering, Chulalongkorn University, Thailand.

Senior Research Specialist [Mobile ad hoc networking; Vehicular ad hoc networking; Robotic ad hoc networking; Disruption tolerant networking; Disaster emergency networking; Intelligent transportation system; Network Coding; Information retrieval; Multimedia databases]

7.6 Grants and Sponsored Research Completed in 2013

IntERLab Trainings 2013

Duration: 1-Jan-2013 to 31-Dec-2013
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: TEIN4 Engineering, Network Engineers
Total Contracted Amount (THB): 3,200,000

Asian Internet Engineering Conference 2013

Duration: 1-Jan-2013 to 31-Dec-2013
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: Researchers/ Engineers interested in Internet Technologies
Total Contracted Amount (THB): 700,000

APStar Retreat Secretarial 2013

Duration: 1-Jan-2013 to 31-Dec-2013
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: APIA-APRICOT
Total Contracted Amount (THB): 200,000

CanalAVIST

Duration: 1-Jan-2010 to 31-Dec-2013
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: CanalAVIST Members and Sponsor, TEIN3, Community College
Total Contracted Amount (THB): 3,985,946

7.7 On-going Grants and Sponsored Research

intERLab IT Service

Duration: 16-May-2013 to 31-Jan-2014
Project Investigator(s): Viraphan Samadi
Sponsor: AIT
Total Contracted Amount (THB): 3,500,000

Internal AIT Internet Service

Duration: 18-Aug-2013 to 31-Dec-2014
Project Investigator(s): Viraphan Samadi
Sponsor: Administration, Schools and other Units at AIT
Total Contracted Amount (THB): 800,000

DUMBO III

Duration: 11-Sept-2011 to 31-Mar-2014
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: NECTEC

Chapter 8: AIT – VIETNAM

8.1 Introduction

AIT in Vietnam (AITVN) was established in 1993 under the agreement between Vietnam government (MoET) and AIT and takes pride in being the first international educational institution in Vietnam and the first center of AIT out of its headquarter. Since 1993, AIT has graduated more than 3,000 Masters and PhD holders, and 20,000 professionals in Vietnam who now hold important positions in both public and private sectors.

AIT in Vietnam is headquartered in Hanoi and has offices, teaching and training facilities in Ho Chi Minh City and Can Tho, and several program offices (in Dong Nai, Vung Tau, Tra Vinh, and Da Nang). Activities cover all 61 cities and provinces in Vietnam. Our exposure-based mobility training programs are organized in different countries and regions worldwide, including Thailand, China, Singapore, Malaysia, Singapore, South Korea, Philippines, Laos, Australia, New Zealand, Europe and North America.

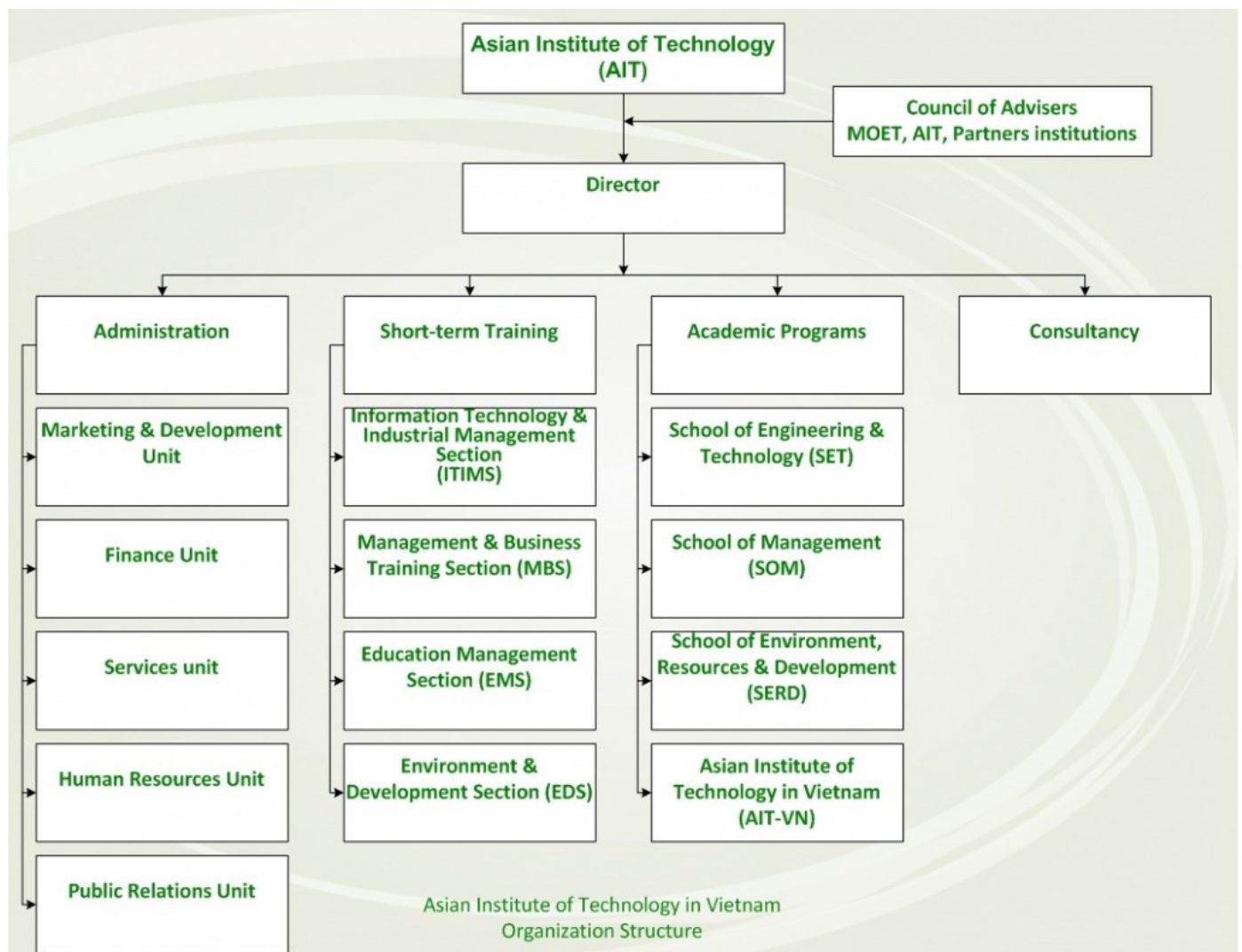
Vision

Our vision is to offer high quality, innovative, and work relevant education, research and outreach services for the sustainable growth of Vietnam and the region.

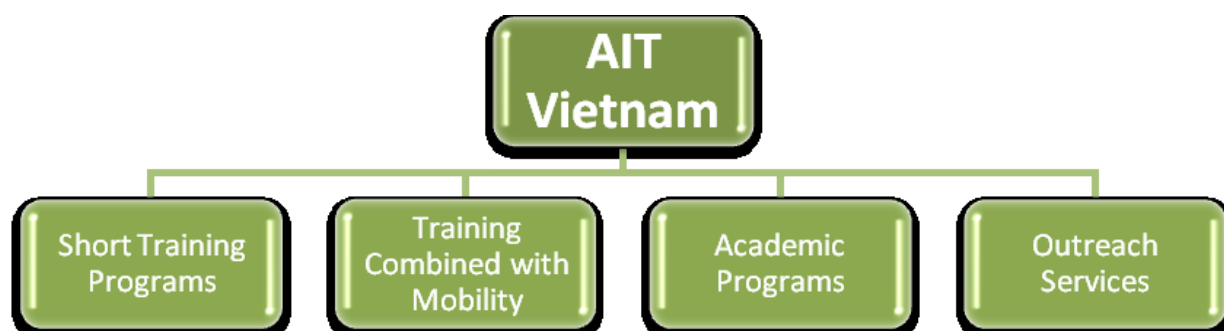
Mission

The mission of AITVN is to train future leaders using high quality education, research and outreach who will play leading roles in Sustainable Development.

Governance



8.2 Services



8.2.1 Short training programs

Over 200 different short training courses in 20 major focus areas are offered:

Environment and Development Section (EDS):

1. Development Project Management
2. Environment and Natural Resource Management
3. Climate Change
4. Sustainable Community and Rural Development

Education and Management Section (EMS):

5. Education and Training Skills
6. Professional Skills
7. Language Skills

Management and Business Section (MBS):

8. Administration and Secretarial

9. Human Resource Development
10. Management Development
11. Marketing, Sales, and Customer Service
12. Business Project Management
13. Fundamentals of Finance Management
14. Business Administration for Middle Management

Industrial Engineering and Management Section (ITIMS):

15. Logistics and Supply Chain Management
16. Industrial Engineering and Management
17. Finance, Banking and Information Management (FBIM)
18. Product Design and Development
19. Project Management
20. Administration Skills

The programs are designed and conducted by AIT trained trainers, international experts, and AIT alumni who currently hold important positions

in both private and public sectors. Newly acquired skills from these short courses are immediately applicable in improving the participants' performance at work.

Upon request, AITVN will quickly organize tailor-made training courses and study visit for companies and organizations in Vietnam and abroad. Training contents, venues and time are tailor-made to meet the clients' requirements.

8.2.2 Training combined with mobility

Trainings and associated mobility are becoming important part of AITVN's development. Relevant programs are developed in close consultation with network of partner universities and institutions in different countries worldwide (Australia, China, Taiwan, Belgium, Switzerland, Austria, UK, France, and Germany). In 2011 alone we successfully completed 7 international training combined with training mobility programs.

8.2.3 Academic Programs

AIT in Vietnam currently offers 11 different postgraduate professional masters programs.

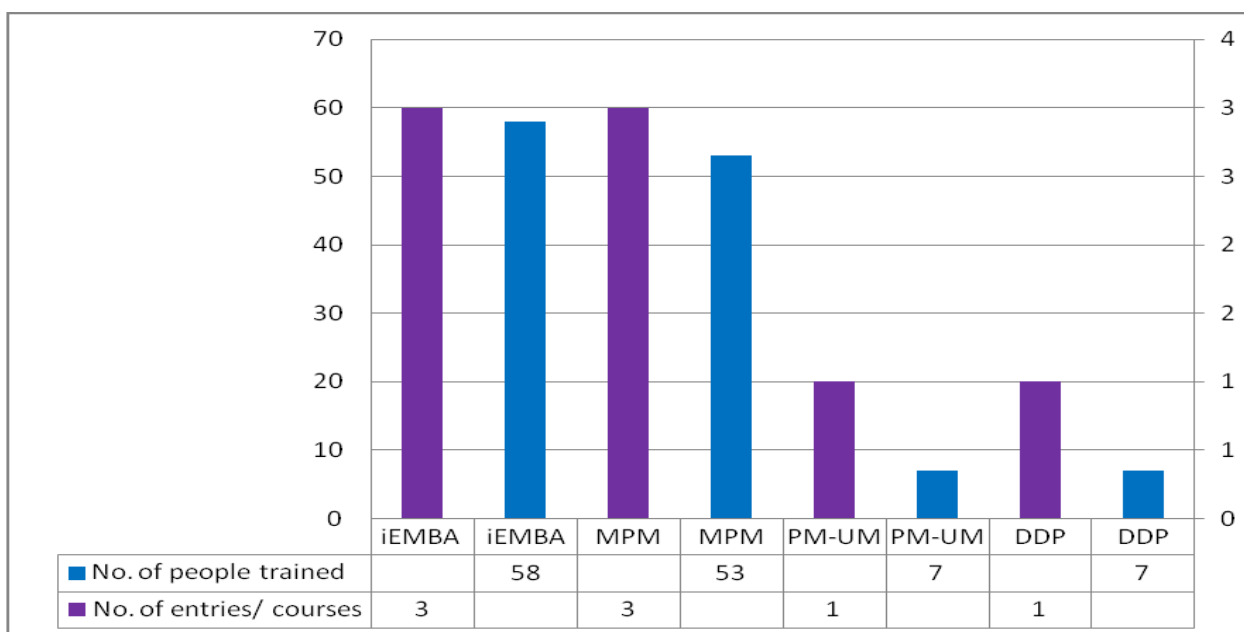
No.	Program	Section
1	International Executive Master of Business Administration (iEMBA)	Business and Management
2	Professional Master in Hospitality Management	
3	Professional Master in Environmental Engineering and Management (EEM)	Environment & Development
4	Executive Master in Development Policies and Practices (Joint with IHEID-Switzerland)	
5	Professional Master in Software Engineering (SE)	Engineering & Technology
6	Professional Master in Industrial System Engineering & Management (ISE)	
7	Professional Master in Construction, Engineering and Infrastructure Management (CEIM)	
8	Professional Master in Project Management in Construction	
9	Professional Master in Geo-Engineering and Management	
10	Professional Master in Geo-exploration and Petroleum Engineering	
11	Professional Master in Telecommunications and ICT (TC and ICT)	

8.2.4 Outreach Services

Services in five broad areas include: Education and Training, Project Management & Evaluation, Environment, Community Development and Capacity Building

8.3 Academic Programs in cooperation with AIT Schools in 2013

OVERVIEW



8.3.1 In collaboration with SOM

Program	Participants	Location
The 14th entry of iEMBA program with double specialization on International Business and Management of Technology	13 participants who are middle to top managers from local companies, SOEs, foreign JVC and international organizations such as Vietnam Electricity, Petro Vietnam, VINACOMIN, Microsoft Vietnam, Vietnam Mobile, Vietnam Cleaner Production Center, Bank of Investment and Development, etc.	Hanoi
The 10th entry of iEMBA program with double specialization on International Business and Management of Technology	22 participants, mostly come from big companies in Vietnam like SaiGon Co-op Mart, ZueligPharma, Hochiminh City Power Corporation and many other private and international companies	HCMC
The 6th entry of iEMBA with double specialization on International Business and Management of Technology	23 participants in this class. Most of them came from Vietsovetro, JVPC and other petroleum companies in Vungtau.	Vung Tau

8.3.2 In collaboration with SET

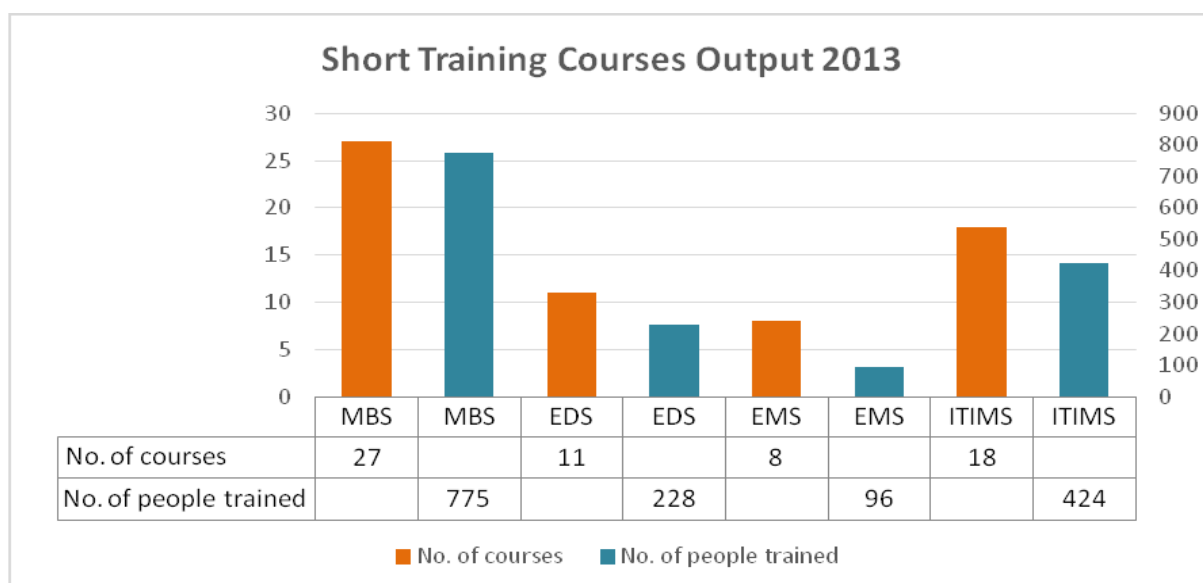
Program	Participants	Location
PROFESSIONAL MASTER PROJECT MANAGEMENT IN CONSTRUCTION (MPM)	16	Hanoi
PROFESSIONAL MASTER GEOTECHNICAL ENGINEERING AND MANAGEMENT (GEM)	9	Hanoi
PROFESSIONAL MASTER PROJECT MANAGEMENT IN CONSTRUCTION (MPM)	23	Ho Chi Minh City
PROFESSIONAL MASTER PROJECT MANAGEMENT IN CONSTRUCTION (MPM)	14	Can Tho

8.3.3 In collaboration with SERD

Program	Participants	Location
Professional Master in Urban Management Program (PM-UM)	7 participants from Dept. of Construction, Dept. of Planning & Investment, Dept. of Urban Management , PC of provinces (HCM, Binh Duong, Kien Giang, An Giang, Ca Mau, Dong Thap, Ninh Thuan, Khanh Hoa, Dong Nai....)	HCMC

8.4 AITVN Short Term Courses Completed in 2013

Overview



8.4.1 By Education Management Section (EMS)

No.	Courses/ Services	Clients	No. of people trained	Location
1	Work Planning and Execution	EPTC	25	Hanoi, Viet nam
2	Interpreting Skills for Professional Interpreters	Open course	10	Hanoi, Viet nam
3	Introduction to Vietnamese Language, History and Culture for Macquarie Students	Macquarie	10	Hanoi, Viet nam
4	Translation and interpreting course	US embassy	4	Hanoi, Viet nam
5	Customer Service	South African Embassy	6	Hanoi, Viet nam
6	Interpreting skills for Professional interpreters	Open course	8	Hanoi, Viet nam
7	Project cycle Management	HSCSP, Ministry of Health	25	Hue, Viet nam
8	Translation	Open course	8	Hanoi, Viet nam
Total no. of courses: 8			Total no. of people trained: 96	

8.4.2 By Management Business Section (MBS)

SEQ	Courses/ Services	Clients	No. of people trained	Location
1	Strategic Planning	HFIC	50	HCMC
2	Financial Statement Analysis	HFIC	75	HCMC
3	Portfolio Risk Management	HFIC	50	HCMC
4	Performance Management and KPIs	HFIC	50	HCMC
5	Change Management	HFIC	50	HCMC
6	Overviews of Law for Lenders & Investors	HFIC	75	HCMC
7	Project Appraisal	HFIC	50	HCMC
8	Project Financing	HFIC	25	HCMC

SEQ	Courses/ Services	Clients	No. of people trained	Location
9	Credit Analysis & Loan Structuring	HFIC	50	HCMC
10	Managerial Skills for Managers	HFIC	50	HCMC
11	Customer Service	HFIC	75	HCMC
12	Recruitment and Interviewing Skills	HFIC	50	HCMC
13	Coaching and Mentoring	HFIC	50	HCMC
14	English for Banking and Financial Institutions*	HFIC	50	HCMC
15	Managerial Skills for Managers	Clients of HFIC	25	HCMC
16	Financial Management for Financial Managers	Clients of HFIC	25	HCMC
17	Project Management Focus on Construction	Clients of HFIC	75	HCMC
18	Human Resource Management	Clients of HFIC	25	HCMC
19	Financial Management for non- Financial Managers	Clients of HFIC	50	HCMC
20	Strategic Planning	Clients of HFIC	25	HCMC
21	Fund Raising Skills	Hanoi Association of People with Disability	25	Hanoi
22	Management Skills	Strengthening the Capacity of Budget Oversight for People's Elected Bodies in Vietnam (CFBA)	13	Bankok, Thailand
23	Leasing Agriculture Machinery	Transaction Office 3 – BIDV	15	USA
24	Financing Supply Chain	Transaction Office 3 – BIDV	13	England
25	Agribusiness Banking	Transaction Office 3 – BIDV	21	Australia
26	Unsecured Loans	Transaction Office 3 – BIDV	15	USA
27	Financing Supply Chain	Transaction Office 3 – BIDV	15	Austria – Italy
Total no. of courses: 27		Total no. of people trained: 775		

8.4.3 By Environment & Development Section (EDS)

SEQ	Courses/ Services	Clients	No. of people trained	Location
1	Management and Implementation in Development Projects	Public training course	10	HCMC
2	Social Impact Assessment and Environmental Impact Assessment – Advanced level	Vietnam Petroleum Institute (VPI)	18	HCMC
3	Participatory Monitoring and Evaluation of Development Projects	Public training course	9	Ha Noi
4	Budgeting and Financial Management in Development Projects	Public training course	6	Ha Noi
5	Executive Secretary Skill	PVEP	8	HCMC
6	Report writing skill	Public training course	17	HCMC
7	Learning seminar: Management of wastewater treatment, sewerage system and Controlling of inundation and flooding in Ho Chi Minh City	HCMC Urban - Civil Works Construction Investment Management Authority (UCCI)	88	HCMC

SEQ	Courses/ Services	Clients	No. of people trained	Location
8	International Exposure Program on Urban Wastewater and Sanitation Management	Ministry of Water, Irrigation and Energy of Ethiopia	14	Ha Noi and neighboring provinces (Quang Ninh, ...)
9	Report writing skill in Development Project	Public training course	8	Ha Noi
10	Aquaculture Business Promotion Workshop	VASEP	50	HCMC
11	Consultancy service on Baseline Survey on Renewable Energy in Vietnam	GIZ	57 organisations	Hanoi, HCMC, Can Tho, Da Nang and Hai Phong
Total no. of courses: 11		Total no. of people trained: 228		

8.4.4 By Information and Technology and Industrial Management Section (ITIMS)

	Courses/ Services	Clients	No. of people trained	Location
A. OPEN COURSE				
1	Logistics and Supply Chain Management	Open	7	HCM
2	Production Planning and Scheduling	Open	8	HCM
3	Data Analysis and Presentation using Excel	Open	4	HCM
4	Data Analysis and Presentation using Excel	Open	6	HCM
B. CUSTOMIZED				
5	Data Analysis, Statistic and Forecasting	PVP Ca Mau	20	Ca Mau
6	Introduction to Kaizen, 5S for Productivity Improvement	PV Drilling	29	Vung Tau
7	Training Program for Senior Executive Successors	VINACOMIN	32	Hanoi
8	Management Skills	Bim Son Cement JSC	34	Thanh Hoa
9	SPIN and ECO-INNO workshop	UNEP	30	Hanoi
10	Customer Relation	Vietnam Airlines	25	Hanoi
11	English Business Writing Skills	Vietnam Airlines	25	Hanoi
12	ATOT Coaching	TH Milk Food JSC	36	Nghe An
13	Project Management	World Bank	20	Hanoi
14	CIO training	Institute of Information Technology for Business (VCCI-ITB)	35	Quang Ninh
15	Vietnam Blended Learning Program	World Bank	37	Hanoi & HCM
C. TRAINING CUM STUDY TOUR				
16	Agricultural Development Activities	Ministry of Agriculture, Government of Bangladesh	6	VietNam
17	Leadership & Management related to Urban Primary Health Care	Urban Primary Health Care Service Delivery Project, Bangladesh	10	VietNam
18	Management & Administration of Local Government Institutions	Local Government Division, Ministry of LGRD & Co-operatives, Government of Bangladesh	60	Japan, Korea and China
Total no. of courses: 18		Total no. of people trained: 424		

8.5 On-going Grants and Sponsored Projects

Project 1: Advisory and training services for the improvement of HFIC capacity	Approx. value of the contract (in current US\$): \$ 1,200,000
Country: Vietnam Location within Country: HCM City	Duration of assignment (months): 18
Name of Client: Ho Chi Minh City Finance and Investment Corporation (HFIC)	Total No of staff-months of the assignment: 6
Origin of funding AFD	Approx. value of the services provided by your firm under the contract in current Euro 867,000
Start date - Completion date (month/year): May 2012 - On-going	Name of senior professional staff of your firm involved and functions performed: Hans Stoessel, project manager, Steering Committee Iris Fang, Head Consultant, Strategy and Asset/liability management LoekHopstaken, Head Consultant, Human resource management Claude Spiese, Head Consultant, Information technology management Jeff Major, finance trainer Dung, Deputy Project Manager, Secretary for SC Dr. Amrit N. Bart – Project Director Ms. Nguyen Thu Thuy – Project Coordinator
Name of associated Consultants, if any: none	
Narrative description of Project:	
<p>HCE1 is one of the three parts of the project “Technical Assistance for the capacity enhancement of HFIC and project owners financed under AFD’s credit line’, funded by AFD through a 1.5 million euros, non-refundable aid to the Vietnam government. The loan has been assigned to HFIC to enhance the capacity of HFIC, functional organizations in HCMC, and HFIC major partners and clients, especially institutions under AFD’s credit facility in health care, education, environment, and social housing sectors</p> <p>Being an important part of the Technical Assistance project, HCE1 will be implemented within 18 months (scheduled completion in October 2013), including advisory activities in strategy and policy to increase the effectiveness of the company’s functions; technical and management training courses, coaching programs, and training-cum-study tours</p> <p>Advisory services and coaching services to strengthen HIFU’s internalmanagement capacities in the areas of strategic planning, asset & liability management (budgeting, financial management, financial controls, project – credit appraisal, etc), HR management, IT management, and the establishment and enhancement of HIFU’s information data base. This component will support HIFU in implementing practical procedures such as a system of HIFU’s information data base, credit procedures, HR procedures, and asset & liabilities management procedures in conformity with international standards.</p> <p>Training services to develop skills of HIFU’s staff:</p> <ul style="list-style-type: none"> • In-class Training – Course Curriculum: for majority of staff in risk management, financial management, managerial skills, risk management, negotiation skills, customer services...; • Professional Skills Training Program and Study tours, internship programs: for minority of staff in specific areas which have not been provided by In-class Training-Course Curriculum, and/or have been suggested by advisory services, including: managerial accounting, budgeting, asset liabilities management, introduction of international accounting system for financial institutions, money laundering, project appraisal, project finance, financial instruments, portfolio management. 	
Description of actual services provided:	
<p>AITVN will take the responsibility to consult, assess training needs and conduct capacity enhancing training programs for HFIC, functional organizations in HCMC, and HFIC major partners and clients, especially institutions under AFD’s credit facility. The project starts from May 2012. There will be 200 training days in technical and management filed.</p>	

Project 2: Training Program for the Bank of Investment and Development of Vietnam (BIDV)	Approx. value of the contract (in current US\$ or Euro): US\$ 420,000
Country: Vietnam, Taiwan, Korea Location within Country: Ho Chi Minh City, Hanoi	Duration of assignment (months):
Origin of funding World Bank	Total No of staff-months of the assignment: 05
Address: Nguyen Du, HCM City	Name of senior professional staff of your firm involved and functions performed:
Start date - Completion date (month/year): April 2008 - On-going	Ms. Nguyen Thu Thuy, Project Coordinator Ms. Pham ThiThanhThuy Ms. Le Thi Thu Hien Ms. TrieuThiThuy Dung
Name of associated Consultants, if any: none	
Narrative description of Project: This training programs aims to build capacity for management staff and senior experts of the Bank of Investment and Development of Vietnam. The program for senior experts includes in-class training and study tours	
Description of actual services provided: Management training program for heads/deputy heads of BIDV in Hanoi and Hochiminh City: <ul style="list-style-type: none"> - Teamwork and team building - Motivating staff - Effective coaching - Professional training program for senior experts - Asset Liability Management - Risk Management - Bank's Strategic Management - Mergers and Acquisitions - Project financing - Financial Accounting - Human Resource Management - Marketing Management - Security Market 	

Project 3: GetGreen Vietnam: Sustainable Consumption in Vietnam	Approx. value of the contract (in current US\$ or Euro): US\$ 1,850,000
Country: Vietnam	Duration of assignment (months):
Client: Consumer groups in Vietnam	Total No of staff-months of the assignment: 6
Origin of funding: EU – DG Development and Co-operation	Name of consortium members, if any: AITVN TUDelft VNCPC VCCI
Start date - Completion date (month/year): Jan 2011 – Dec 2014	
Name of associated Consultants, if any: none	
Narrative description of Project: GetGreen Vietnam has as specific objectives: <ul style="list-style-type: none"> - Improved opportunities to shift consumption choices of 10 selected test groups of households and office workforces towards more sustainable behaviour. - Replicate the tested approaches for transition towards more sustainable consumption to a large group of household consumers and office workers in Vietnam divided in 50 'Get Green VN' Groups – meaning improved availability of well over 1000 Vietnamese consumers as change agents for the transition towards sustainable consumption. - Increased linkage of greensupply side to emerging sustainable consumption patterns 	

<p>Target Groups: Direct target group of consumers groups in Vietnam based on either their living or their working situation. Indirect target group: consumer organisations like VINASTAS, CUTS, MUTRAP, VACOD and additional NGOs such as WWF, SNV, IGES, SIDA</p>
<p>Description of actual services provided:</p> <p><i>TU Delft Valorisation Centre:</i> Overall project management, financial and administrative support. This includes the preparation, execution and reporting of all consortium meetings and kick-off meeting, preparation of quarterly and yearly progress reports, preparation of all budget planning, reporting and amendments, all formal financial reporting and auditing. Development and implementation of project management and communication tools. Training of local partners in Asia on the requirements and systems needed for sound project administration and financial administration according to EU requirements. All arrangements for International experts contracting and reporting all travel and meeting arrangements.</p> <p><i>TU Delft Faculty of Industrial Design:</i> Overall Technical project coordination, methodological development, expert advice and assistance and expert advice on replication and dissemination, as well as training and capacity building. The Faculty is expert in product innovation co-creation for innovation, and consumer behaviour, and the Design For Sustainability programme of the Faculty is specialist in SCP and SCP related product development and innovation methodologies. Practices and theoretical background.</p> <p><i>AIT in Vietnam:</i> Senior staff involvement in technical implementation, with a focus on co-creation approaches with food/agrorelated consumption issues, technical and socio-economic issues of sustainable consumption. Responsible for all training and capacity building activities in the project.</p>

<p>Project 4: Establishing a Vietnam Climate Innovation Center (VCIC)</p>	<p>Approx. value of the contract (in current US\$ or Euro): USD 4,950,000</p>
<p>Country: Vietnam</p>	<p>Duration of assignment (months): 60</p>
<p>Client: SMEs</p>	<p>Total No of staff-months of the assignment: 6</p>
<p>Origin of funding: WorldBank</p>	<p>Name of consortium members, if any: AITVN</p>
<p>Start date - Completion date (month/year): Nov 2013 – on going</p>	<p>TU Delft SPARK</p>
<p>Name of associated Consultants, if any: none</p>	<p>LOTUS IMPACT FUND</p>
<p>Narrative description of Project:</p> <p>InfoDev (www.infodev.org), a Global Partnership Program of The World Bank, with support from the Australian Government’s Overseas Aid Program AusAID and the United Kingdom’s UKAid is launching a Climate Innovation Center(CIC) in Vietnam. The Vietnam CIC will provide a country-driven approach to addressing climate change and support the government of Vietnam’s National Strategy for Green Growth. As one of the first in a global network of CICs supported by infoDev’s Climate Technology Program in Asia, the Vietnam CIC will be a high-visibility organization that will attract attention from international organizations, regional bodies, governments, investors, multi-national corporations, and others. Each CIC provides a range of services to enable domestic entrepreneurs and new ventures to pro-actively and profitably develop innovative climate technology (clean tech) solutions. This supports countries’ economic development, job creation and green growth objectives.</p> <p>The proposed services to be provided by the CIC include Access to Finance, Technology Commercialization, Venture Acceleration, and Market Development. Additional background on the infoDev Climate Technology Program is available at: http://www.infodev.org/highlights/climate-technology-program-informational-brochure.</p> <p>AITCV-led consortium has been awarded the World Bank Grant to establish Vietnam Climate Innovation Center. An initial grant award of up to USD 5.00mil will be made to support the 2 phases of CIC establishment, including Phase 1: Launch (year 1 to 2) and Phase 2: Scale-Up (year 3 to 5). This funding will cover programs and implementation</p>	

<p>Description of actual services provided:</p> <p>Access to Finance</p> <ul style="list-style-type: none"> • Syndicating and promoting investment between VCIC companies and private financiers, state development banks, and the Vietnamese diaspora to build local investment capacity. <p>Technology Commercialization</p> <ul style="list-style-type: none"> • Offering proof-of-concept grants (up to USD 50k) that enable local innovators to demonstrate and scale their clean tech solutions. • Promoting collaborative industry partnerships, supported by a technology database. • Linking local innovators to technical facility providers for prototyping, testing, production and other logistical needs. <p>Venture Acceleration</p> <ul style="list-style-type: none"> • Training individuals who are eligible for VCIC financing on business planning and financial management • Organizing seminars and university partnerships to promote professional development, business administration, entrepreneurship, and awareness of climate technology issues. • Networking new ventures with angel investors, business mentors and technical experts at the national, regional and global levels. <p>Market Development</p> <ul style="list-style-type: none"> • Producing market studies, cases, analytical reports and other content on climate technology sectors and opportunities. • Encouraging dialogue between government and the private sector to strengthen Vietnam’s policy framework around R&D, innovation, green growth, taxation, and exports. • Supporting the growth and establishment of climate sector business associations in Vietnam. <p>Networking Vietnam’s climate innovators regionally by hosting an annual CIC Forum and facilitating trade or capacity-building relationships.</p>

<p>Project 5: Establishing Learning Center for Capacity Building on Environmental and Social Safeguards in Vietnam</p>	<p>Approx. value of the contract (in current US\$ or Euro): USD 3,000,000</p>
<p>Country: Vietnam</p>	<p>Duration of assignment (months): 36</p>
<p>Client: relevant participants in infrastructure projects Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) consultants learning institutions, professional or industry associations and/or experts</p>	<p>Total No of staff-months of the assignment: 6</p>
<p>Origin of funding: WorldBank</p>	<p>Name of consortium members, if any:</p>
<p>Start date - Completion date (month/year): Oct 2013 – on going</p>	
<p>Name of associated Consultants, if any: none</p>	
<p>Narrative description of Project:</p> <p>Part of AusAID-World Bank partnership on environmental and socially sustainable infrastructure in East Asia and the Pacific aims to create Learning Centers in Vietnam, Indonesia and the Philippines.</p> <p>The WB has identified suitable institutions in the region of South East Asia in the three countries Philippines, Indonesia and Vietnam</p>	

WB evaluated six prominent national and three regional and one international institution. AIT in Vietnam was recommended for selection based on its technical capacity, financial sustainability and coverage in Vietnam.

Description of actual services provided:

The learning center supports environmentally and socially sustainable infrastructure in Vietnam and the Mekong Sub-Region. Specifically, the Learning Center would provide training to relevant participants in infrastructure projects, certify Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) consultants, and work closely with other learning institutions, professional or industry associations and/or experts.

8.6 Highlights in 2013

- Strategic meeting with Vietnam Ministry of Education and Training (MoET)
- Project winning achievements.
- AITVN Vietnam continues to invest in employee development.

Chapter 9: CENTER OF EXCELLENCE ON SUSTAINABLE DEVELOPMENT IN THE CONTEXT of CLIMATE CHANGE (Coe SDCC)



9.1 Background

AIT's Centre of Excellence on Sustainable Development in the Context of Climate Change (CoE SDCC) was established on 24th September, 2009 to support AIT's vision of responding to global climate change challenges and encouraging trans-disciplinary efforts leading towards a more sustainable society. The Centre consolidates the Institute's research efforts and extends its networks and partnerships by providing a platform to discuss and launch shared initiatives, and pool resources to effectively address issues and challenges in sustainable development and climate change.

9.2 SDCC structure

The Center activities are managed by a Senior Program officer working under the leadership of the recently appointed Director (Mukand S. Babel, Professor of Water Engineering and Management) in December 2013, who devotes 20% of his time for SDCC and reports to the Vice-President for Research. SDCC works closely with AIT faculty, staff, researchers, students and external partners based on the requirements of the projects. Regular activities include

liaison with the leaders of the five thematic research areas, organizing interdisciplinary meetings to respond to call for proposals, circulation of relevant announcements on climate change, assistance on routine administration activities. The five thematic research areas of SDCC are:

1. Disaster Risk Management (DRM) (Thematic leader: Dr. M. Hazarika)
2. Sustainable Land and Water Resources Management (SLWRM) (Thematic leader: Dr. P. Kumar)
3. Business and Innovation Models for a Green Economy (BIMGE) (Thematic leader: Dr. Y. Badir)
4. Urban and Rural Quality of Life and Sustainability (URQLS) (Thematic leader: Dr. E. Sajor)
5. Low Carbon and Sustainable Production & Consumption Technologies and Management (LCSPCTM) (Thematic leader: Prof. S. Kumar/Dr. P. A. Salam)

9.3 Overview of Activities in Year 2013

Climate Technology Center and Network (CTCN)

AIT is part of a consortium of 11 partners across the globe lead by UNEP and UNIDO who successfully bid for the prestigious CTCN initiative of the UNFCCC. The other partners include Bariloche Foundation (BF), Argentina; Council for Scientific and Industrial Research (CSIR), South Africa; The Energy and Research Institute (TERI), India; Environment and Development Action in the Third World (ENDA-TM), Senegal; Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica; World Agroforestry Centre (ICRAF), Kenya; Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany; Energy Research Centre of the Netherlands (ECN), Netherlands; National Renewable Energy Laboratory (NREL), United States of America; and UNEP Risø Centre (URC), including expertise from UNEP-DHI Centre, Denmark.

The CTCN is the operational arm of the UNFCCC Technology Mechanism. The CTCN mission is to stimulate technology cooperation and enhance the development and transfer of technologies to developing country parties at their request. The scope of services include strengthening capacities of developing countries to identify

technology needs; facilitating preparation and implementation of technology projects and strategies; and supporting action on mitigation and adaptation to enhance low-emission and climate-resilient development.

Several projects are expected under this initiative of UNFCCC and some of them have already been implemented by SDCC.

Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI)

Asian Center of Innovation for Sustainable Agriculture Intensification (ACISAI) was established in January 2013, under the SDCC platform, to strengthen SLWRM research theme of SDCC.

The goal of the Center is to develop multi-stakeholder network for co-generation of knowledge, capacity building of the agricultural professionals and institutions to strengthen Agricultural Research for Development (AR4D) issues, and foster linkages between local, national, and international institutions for inclusive dialogue, knowledge sharing and dissemination on convergent subject areas such as food security, climate change and global partnerships for achieving international public goods and finally develop committed young professionals with new knowledge and skills required to realize the potential of sustainable agriculture intensification (SAI) in Asia and beyond. The funding support for the ACISAI comes from a European Union Funded AR4D project "Sustaining and Enhancing the Momentum for Innovation and Learning around the System of Rice Intensification (SRI) in the Lower Mekong River Basin".

Sponsored Projects

Following sponsored research and capacity building projects were initiated/ conducted under SDCC in 2013:

Title: Sustaining and Enhancing the Momentum for Innovation and Learning around Systems of Rice Intensification (SRI) in Lower Mekong River Basin

Brief description: This 5-year project is being implemented in the rain-fed areas of Cambodia, Laos, Thailand and Vietnam. The project goal is to enhance the resilience of smallholder farmers in rain-fed regions to deal with climate change challenges.

Duration: Jan 2013 to Jan 2018

Principal Investigator(s): Dr. Abha Mishra and Dr. Prabhat Kumar

Sponsor: European Commission

Budget: 50,342,441 THB

Title: Save Food Asia and the Pacific

Brief description: This project carried out a collaborative campaign to draw attention to the issue of food losses and waste in Asia and the Pacific region, and to advocate strategic efforts and actions required to reduce these losses.

Duration: Jan 2013 – Dec 2013

Principal Investigator(s): Dr. P. Kumar, Dr. A. Mishra, Dr. A. Anal and Dr. W. Gallardo

Sponsor: FAO RAP, Thailand

Budget: 4,605,000 THB

Title: Integrated Pest Management and Production in the Context of Climate Change

Brief description: The project activities comprise of a 4-week training course on Integrated Pest Management and Production in the context of climate change involving class room lectures, field visits and laboratory exposure.

Duration: Feb 2013 – Dec 14

Principal Investigator(s): Dr. Prabhat Kumar and Dr. Abha Mishra

Sponsor: FAO Afghanistan

Budget: 2,669,041 THB

Title: Climate Technology Centre and Network (Phase -1)

Brief description: The central theme of the project is to foster capacity building in developing mitigation and adaptation strategies for the water and forestry sector in response to climate change. Diverse tools and resources have been identified to be added to the knowledge management system of UNEP. Webinars

and workshops will be conducted to enhance the capacity of NDEs.

Duration: Oct 2013 – June 2015

Principal Investigator(s): Prof. Mukand S. Babel, Dr. Rajendra Shrestha, and Dr. Sangam Shrestha

Sponsor: UNEP

Budget: 3,900,000 THB

Title: Capacity building for climate technology

Brief description: This project organized a capacity building workshop for National Designated Entities (NDEs) to sensitize them to the CTCN initiatives, and provide them with the required training to make relevant requests for assistance. The activities comprised of a 3-day workshop in Cha-Am, Thailand, with 33 national government representatives and other resource persons from Asia.

Duration: Nov 2013 – Jan 2014

Principal Investigator(s): Dr. Shobhakar Dhakal

Sponsor: UNEP

Budget: 2,787,000 THB

9.4 Ongoing Research activities 2013

A **Compendium** of climate change and sustainable development related research, and capacity building activities at AIT between 2008 and 2013, is under development. A total of 162 research theses (143 Master and 19 PhD) and several research and capacity building projects carried out within five thematic areas of SDCC will be included in the compendium.

9.5 Related activities

Apart from the research and sponsored projects mentioned here, several climate change and sustainable development related activities have also been carried out by the Schools, which have been presented under the respective Schools/Fields of Study.

Chapter 10: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS

10.1 Grants and Sponsored Research Completed in 2013

Training on Strategic Community Investment

Duration: 15-Jan-2013 to 31-May-2013
Project Investigator(s): Leena Workeck
Sponsor: Mubadala Petroleum (Thailand) Ltd.
Total Contracted Amount (THB): 144,096

Development and Delivery of A Course on CSR

Duration: 1-Feb-2013 to 31-Aug-2013
Project Investigator(s): Leena Workeck
Sponsor: HOGSKOLANIBORAS
Total Contracted Amount (THB): 600,000

CSR, Good Economic Growth and Sustainable Development in Mongolia- Developing Effective Tool for the Mining Sector

Duration: 1-Jan-2013 to 31-Jul-2013
Project Investigator(s): Leena Workeck
Sponsor: The German Agency for International Cooperation (GIZ)
Total Contracted Amount (THB): 257,350.37

Oxfam Business Engagement for sustainable Development

Duration: 15-Feb-2013 to 15-May-2013
Project Investigator(s): Leena Workeck
Sponsor: Oxfam
Total Contracted Amount (THB): 104,000

CSR Manager Certification Course for GIZ and CGDC

Duration: 15-Aug-2013 to 31-Dec-2013
Project Investigator(s): Leena Workeck, Jonathan Shaw
Sponsor: The German Agency for International Cooperation (GIZ)
Total Contracted Amount (THB): 875,003.5

10.2 On-going Grants and Sponsored Research

Oxfam Business Engagement for sustainable Development

Duration: 15-Dec-2013 to 31-Mar-2014
Project Investigator(s): Leena Workeck, Jonathan Shaw
Sponsor: Oxfam
Total Contracted Amount (THB): 701757.44

Organization of Capacity Building Workshop for Different Sectors/ Stakeholders Small Scale Funding Agreement

Duration: 1-Jan-2013 to 30-Jun-2014
Project Investigator(s): Ahmed Amjad Ali
Sponsor: United Nation Environment Programme (UNEP)
Total Contracted Amount (THB): 5,490,000

Kombifinanzierung EU-Forderung der landlichen Entwicklung

Duration: 1-Nov-2013 to 31-Mar-2014
Project Investigator(s): Dr. Theo Ebbers
Sponsor: German International Cooperation (GIZ)
Total Contracted Amount (THB): 2,079,000

Capacity Building for climate technology

Duration: 1-Nov-2013 to 31-Aug-2014
Project Investigator(s): Dr. Shobhakar Dhakal
Sponsor: UNEP, Thailand
Total Contracted Amount (THB): 2,787,000

Corporate Social Responsibility (CSR) Initiative Onyx Hospitality Group

Duration: 30-Jun-2013 to 30-Mar-2014
Project Investigator(s): Leena Workeck, Jonathan Shaw
Sponsor: ONYX Hospitality Group
Total Contracted Amount (THB): 600,000

Save Food Asia and the Pacific

Duration: 1-Feb-2013 to 30-Mar-2014
Project Investigator(s): Dr. Prabhat Kumar, Dr. Abha Mishra, Dr. Anil Anal and Dr. W. Gallarrdo
Sponsor: FAO RAP Office, Bangkok, Thailand

Total Contracted Amount (THB): 4,605,000

CSR Asia Summit 2013

Duration: 1-May-2013 to 31-Mar-2014
Project Investigator(s): Leena Workeck
Sponsor: CSR Asia LTD.,
Total Contracted Amount (THB): 1,578,418.8

Integrated Pest and Production Management in the Context of Climate Training

Duration: 1-Feb-2013 to 30-Dec-2014
Project Investigator(s): Dr. Prabhat Kumar and Dr. Abha Mishra
Sponsor: FAO Afghanistan
Total Contracted Amount (THB): 2,597,985

Climate Technology Centre and Network phase 1

Duration: 1-Sep-2013 to 30-Jun-2015
Project Investigator(s): Prof. Mukand S. Bable, Dr. Sangam Shrestha and Dr. Rejendra Shrestha
Sponsor: UNEP, Kenya
Total Contracted Amount (THB): 579,846

Strengthening Higher Education Program Grant No. H162-AF

Duration: 1-Aug-2012 to 31-Aug-2014
Project Investigator(s): Dr. Naveed Anwar
Sponsor: Ministry of Higher Education, Bhabul, Afghanistan
Total Contracted Amount (THB): 22,383,100

Hand in Hand Micro Finance Private Limited

Duration: 1-Jul-2012 to 1-Jun-2015
Project Investigator(s): Dr. Theo Ebbers
Sponsor: HiHMFPL
Total Contracted Amount (THB): 2,620,000

Development of Innovative Technology and Integrate Management Systems for Sustainable Sanitation in ASEAN

Duration: 10-Dec-2013 to 9-Dec-2014
Project Investigator(s): Dr. Thammarat Koottatep

Sponsor: Korea Institute of Science and Technology (KIST)

Total Contracted Amount (THB): 2,420,000

Taking Stock How SMART Food Product and Processing Food Losses and GHG Emissions

Duration: 1-Dec-2013 to 30-Jun-2014
Project Investigator(s): Dr. Anal Kumar Anal

Sponsor: Food and Agriculture Organization

Total Contracted Amount (THB): 480,000

Development of a Membrane Based Treatment of TEG for Gas Separation Plant's Wastewater

Duration: 20-Feb-2013 to 31-Sep-2014
Project Investigator(s): Prof C. Visvanathan

Sponsor: Ptt Public Company Limited, Thailand

Total Contracted Amount (THB): 2,287,500

Partnership for Market Readiness

Duration: 1-Mar-2013 to 31-May-2014
Project Investigator(s): Prof. S. Kumar and Dr. Abdul Salam

Sponsor: TGO (Thailand Greenhouse Gas Management)

Total Contracted Amount (THB): 180,000

Measuring the influence of sound material society in Thailand

Duration: 18-Apr-2013 to 30-Apr-2014
Project Investigator(s): Dr. Vilas Nitivattananon

Sponsor: Sumitomo Foundation

Total Contracted Amount (THB): 0

ICUE 2014-Green Energy for Sustainable Development International Conference

Duration: 1-Jun-2013 to 31-Dec-2014
Project Investigator(s): Dr. Shobhakar Dhakal, Dr. Weerakorn Ongsakul, Dr. P. Abdul Salam, Prof. S. Kumar, Dr. Jai Govind Singh, Dr. Charles OP Marpaung

Sponsor: Registration revenues/sponsorships/grants

Total Contracted Amount (THB): 1,859,790

Impacts, Treatment and Management of Acid Mine Drange (ITMAM)

Duration: 1-Apr-2013 to 30-Jun-2014
Project Investigator(s): Prof. Ajit P. Annachhatre

Sponsor: UNESCO-IHE Partnership Research Fund (UPaRF)

Total Contracted Amount (THB): 0

Strengthening institutional capacity extension services and Rural Livelihood

Duration: 1-Jan-2013 to 31-Dec-2016
Project Investigator(s): Dr. Clemens Grunbuhel

Sponsor: ACIAR

Total Contracted Amount (THB): 16,449,382

Sustainable Mekong Research Network II

Duration: 10-Aug-2013 to 31-Jan-2014
Project Investigator(s): Prof. Sivanappan Kumar and Dr. Kyoko Kusakabe

Sponsor: Stockholm Environment Institute (SEI)

Total Contracted Amount (THB): 232,000

Laboratory Training program in Food Engineering and Advanced Technologies

Duration: 24-Oct-2013 to 31-Jan-2014
Project Investigator(s): Dr. Anil Kumar Anal and Mr. Imran Ahmad

Sponsor: Sultan Qubooos University Oman

Total Contracted Amount (THB): 63,320

Survey and assessment of street vending policies and regulation: Focuc on Thailand Case

Duration: 1-Nov-2013 to 30-Apr-2014
Project Investigator(s): Dr. Kyoko Kusakabe

Sponsor: International Labour Office (ILO)

Total Contracted Amount (THB): 301,266

Characterization of Municipal Solid Waste in Phetchaburi Province, Thailand

Duration: 1-Sep-2013 to 31-May-2014
Project Investigator(s): Prof. C. Visvanathan

Sponsor: Phetchaburi Green Energy Co. Ltd., AMC Power PCL, Thailand

Total Contracted Amount (THB): 450,000

AIT's Green Campus Initiatives

Duration: 1-Dec-2013 to 30-Jun-2015
Project Investigator(s): Prof. Sivanappan Kumar and Prof. C. Visvanathan

Sponsor: ADEME, France

Total Contracted Amount (THB): 2,200,000

Study of Ground-level Ozone in Bangkok Metropolitan Region by Advance Mathematical Modeling for Air Quality Management

Duration: 1-Sep-2012 to 1-Sep-2014
Project Investigator(s): Prof. Nguyen Thi Kom Oanh

Sponsor: Ptt Public Company Limited

Total Contracted Amount (THB): 1,797,600

Evaluation of Two Technologies for Heavy Metals Removal under Tropical condition (EVOTEC)

Duration: 1-Sep-2012 to 31-May-2014
Project Investigator(s): Prof. Ajit P. Annachhatre

Sponsor: UNESCO-IHE Partnership Research Fund (UPaRF)

Total Contracted Amount (THB): 487,500

Chapter 11: OVERVIEW OF RESEARCH ACTIVITIES FOR 2013

Overall during the period January to December of 2013 there were **367** sponsored and contracted projects which were conducted by the faculty and staff from within the Fields of Study (FoS) of the three schools, SET, SERD and SOM, as well as in AIT Extension, IntERLab, and Institute wide projects. The total Publications for the same period stood at **457** from across AIT. The breakdown of which is indicated in the table below.

SCHOOL/FoS	SPONSORED & CONTRACTED PROJECTS		TOTAL PROJECTS	PUBLICATIONS				TOTAL PUBLICATIONS
	Completed	On-going		Refereed Journals	Conference Proceedings	Refereed Books/ Chapters	Other Publications	
SET	39	37	76	117	66	2	3	188
CS/IM	2		2	16	6			22
CEIM	5	3	8	4	5			9
GTE	4	2	6	5	15			20
IME	5	1	6	17	12			29
Mech/MES	2	5	7	7				7
Nano		1	1	12				12
RSGIS	7	14	21	10	3		2	15
StE	2	3	5	1				1
TC				5	6			11
TrE	4	2	6	3				3
WEM	8	6	14	37	19	2	1	50
OTM								0
SERD	46	74	120	135	38	35	45	253
SERD	4	3	7					0
ASE	3	2	5	17	1	1	5	24
AARM	1	1	2	5	6			11
E	9	11	20	31	6			37
EEM	9	16	25	23	13	3	12	51
FEBT	3	7	10	15	5	17	10	47
GDS	11	20	31	9	5	2	18	34
NRM	2	11	13	22		2		24
PPT			0					0
RRDP	1		1	6		7		13
UEM	2	3	5	5	2	3		10
ABM	1		1	2				2
DPMM	3	2	5					0
SOM	9	13	22	16				16
intERLab	4	3	8					0
AIT Ext	66	39	105					0
Inst-wide	5	26	31					0
TOTAL	169	192	367	268	104	37	48	457

For the same period January to December of 2013 there was a total of **78** Doctoral Dissertations which were undertaken by the faculty from within the Fields Study (FoS) of the three schools, SET, SERD and SOM. The total Masters Student Research for the same period stood at **663** from within the three schools. The breakdown of which is indicated in the table below.

SCHOOL/FoS	DOCTORAL STUDENTS' DISSERTATION	MASTERS STUDENTS RESEARCH				TOTAL MASTERS STUDENTS RESEARCH
		Thesis	Research Studies	Projects	Internships	
SET	37	197	38	48	1	284
CS/IM	9	8	8			16
CEIM	1	17	1	36		54
GTE	4	16	14			30
IME	4	14		12		26
Mech/MES	1	13				13
RSGIS	3	16				16
StE	2	18				18
TC	5	8	1			9
TrE	1	11				11
WEM	1	38	3			41
ICT	1	5	5			10
OTM		12			1	13
IM	3	7	6			13
ME	1	11				11
MI	1	1				1
NT	1	2				2
SERD	26	160	6	26	0	192
ASE	3	7				7
AARM	3	5				5
E	1	26	2			28
EEM	3	39	2			41
FEBT	4	17				17
GDS	4	13				13
NRM	2	9				9
PPT		6		3		9
RRDP	2	22	2			24
UEM	3	4		23		27
ABM	1	12				12
DPMM		8				8
SOM	15		8	165		153
TOTAL	78	371	52	239	1	663