



ANNUAL REPORT ON
RESEARCH
2012



PREFACE



The total number of publications for the same period stood at 516 from across AIT. The increase in publishing reinforced AIT's commitment to enhancing the quality of our research. All bring opportunities and challenges as we endeavor to contribute a leading role to the region's sustainable development.

The rapidly changing needs of the region coupled with evolving funding mechanisms has broadened the scope of our research and motivated the successful implementation of interdisciplinary-based activities.

AIT research provides underlying strength to our academic programs. Students benefit greatly from the experience of working on research projects which enhance their horizons and refine the quality of research capabilities.

The Asian Institute of Technology is pleased to release the Report on Annual Research 2012 which clearly reaffirms the Institute's commitment to its mission of promoting technological change and sustainable development in the Asian-Pacific region and beyond.

Despite the adversities and challenges faced by AIT in the aftermath of the great floods of late 2011, the Institute has been able to ensure the continuity of research and development through the whole-hearted commitment of its faculty and staff towards the realization of the project objectives and activities.

Overall, during the period January to December 2012, a total of 447 sponsored and contracted projects 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.

I would like to take this opportunity to thank all AIT faculty, staff, and students for their efforts in 2012. I look forward to working together towards achieving our collective goals by exploring new knowledge frontiers through research conducted at the Asian Institute of Technology.

Professor Kanchana Kanchanasut
Vice President for Research

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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, 2005-2012

2.1 Project Numbers and Budget 2005-2012

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 2005-2012. **Figure 2.1** gives an overview of the trend of the ongoing sponsored and contracted projects for the period 2005-2012 both in and budget value terms and in terms of the number of ongoing projects undertaken during the same period.

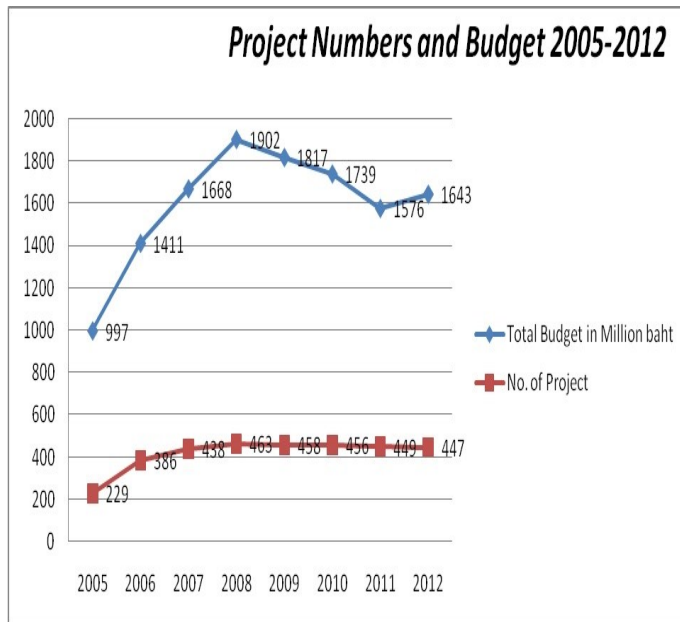


Figure 2.1: Project Budget is identified in Million ('000,000) Thai Baht.

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 2005 – 2012 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 2012 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 2005-2012.

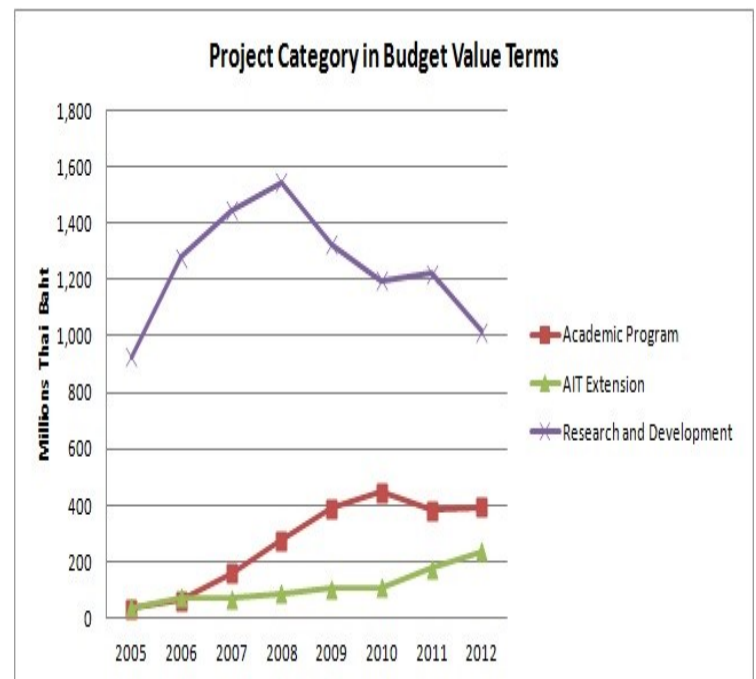


Figure 2.2 Budget Value terms 2005-2012

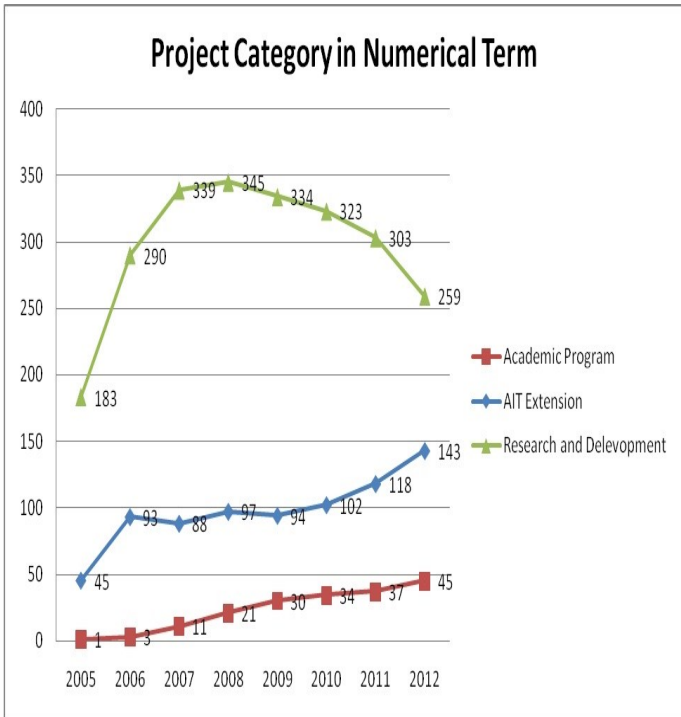


Figure 2.3 Numbers of Ongoing projects

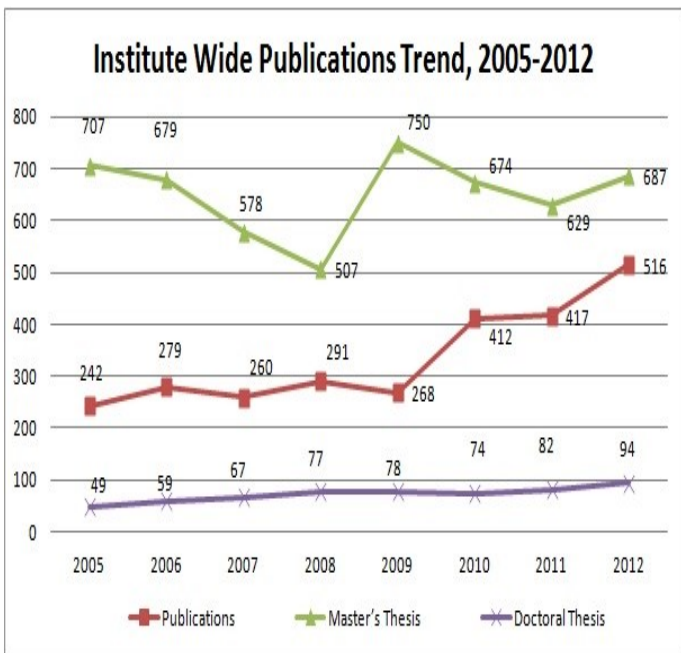


Figure 2.4: Institute Wide publications Trends

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

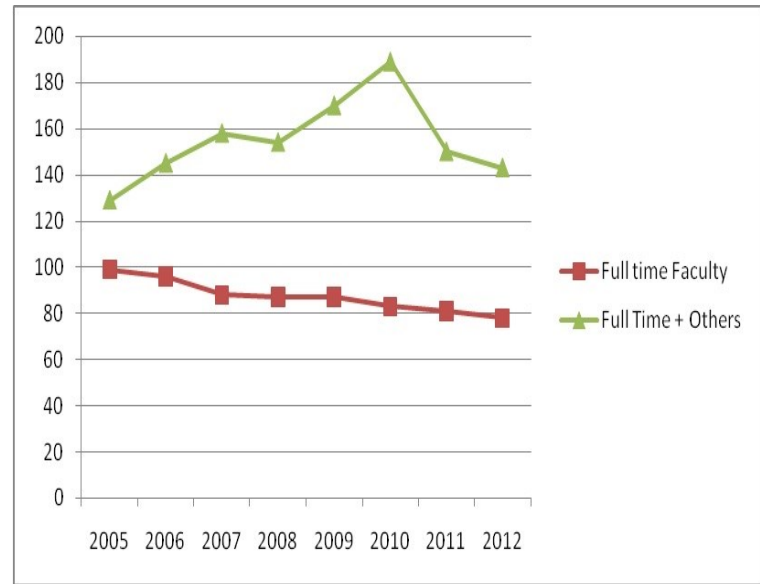


Figure 2.5: Faculty Strength 2005- 2012

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.

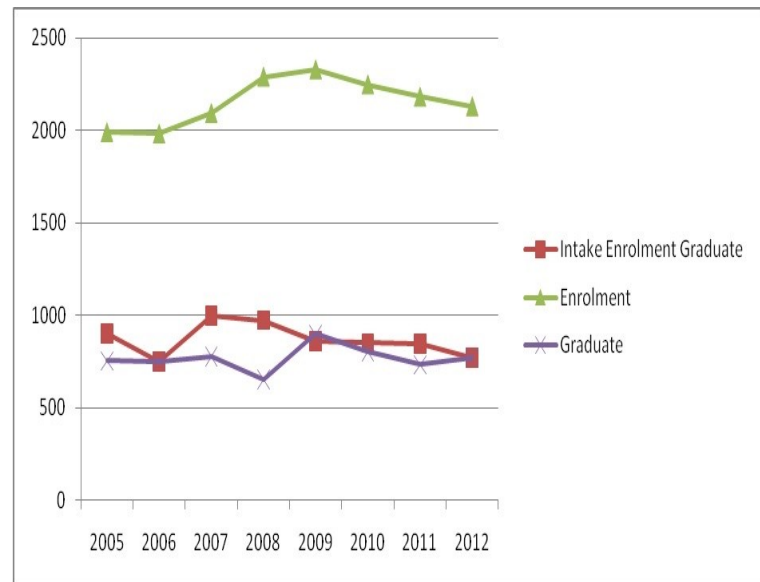


Figure 2.6: Instituted wide strength for the intake, Enrolment and graduated student strength for the period 2005-2012

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- 2012

1. On the acceptability of arguments and its fundamental role in nonmonotonic reasoning, logic programming and n-person games (Cited 1,037 time(s)) 1995; Artificial Intelligence; Dung, P.M.
2. Developments in industrially important thermostable enzymes: A review (Cited 348 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 303 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 229 time(s)) 1997; Artificial Intelligence; Bondarenko, A., Dung, P.M., Kowalski, R.A., Toni, F.
5. Membrane separation bioreactors for wastewater treatment (Cited 201 time(s)) 2000; Critical Reviews in Environmental Science and Technology; Visvanathan, C., Ben Aim, R., Parameshwaran, K.

2.4 Top 6 Researchers with the Highest Number of Projects initiated 2006- 2012

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- 2012.

Name of Faculty	No. of Projects as PI	No. of Projects as PI and Co-PI
Kanchana Kanchanasut	56	58
S. Kumar	19	44
C. Visvanathan	30	34
Mukand S. Babel	27	31
Kunnawee Kanitpong	25	28
Kyoko Kusakabe	14	21

Table2.1: Top 6 Researchers with the Highest Number of Projects initiated 2006- 2012

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 9 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 Geotechnical Earth Resources Engineering (GTE)
- 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) Chemical Engineering
- 2) Civil and Infrastructure Engineering
- 3) Computer Science/Information Technology
- 4) Electronics
- 5) Industrial Engineering

- 6) Information and Communication Technology
- 7) Mechatronics
- 8) 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

Dean

Remote Sensing and Geographic Information Systems (RS&GIS)

Remote sensing (RS); Geographic information system (GIS); Global positioning system (GPS); Digital mapping technology; Digital photogrammetry

Telecommunications, Information and Communications Technologies (TC, ICT)

Mobile Communications; Teletraffic and Network Performance Analysis; Focal Area 3: Optical Networks

Advanced Infrastructure Development

- Application of new approaches and concepts in the development of infrastructure including innovative project financing
- PPP/PFI, integrated project management
- Infrastructure asset and valuation management, and infrastructure safety and security

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 Logistics; Highway Pavement; Road Safety

Water Engineering and Management (WEM)

Integrated Water Resources Management (IWRM); Water Related Disaster Management (WRDM)

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.

ACECOMS: Asian Center for Engineering Computations and Software

The prime mission of ACECOMS with 29 satellite centers in 21 cities in Asia and other regions carries out research in engineering computations, develops computer software tools for engineering applications, and conducts training in the effective use of latest computing technology. Visit ACECOMS: <http://www.acecoms.ait.asia/>

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

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

NITIN KUMAR TRIPATHI, Ph.D. in Remote Sensing, Indian Institute of Technology, Kanpur, India, 1994, M. Tech. in Remote Sensing, Indian Institute of Technology, Kanpur, India, 1987, B. Tech.. In Civil Engineering, National Institute of Technology, Warangal, India, 1984

Associate Professor (Remote Sensing and Geographic Information Systems; Information and Communications Technologies Remote Sensing and Geographic Information Systems; Information and Communications Technologies)

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

3.2.1 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.

3.2.2 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

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)

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

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

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*)

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*)

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*)

Visiting and Adjunct Faculty

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*)

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 Recherche Agronomique Pour Le Development (CIRAD) (*Computing Modeling and Simulation, with Applications in the Environmental Sciences*)

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*)

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

PONGTAWAT CHIPPIMOLCHAI, DEng, MEng, Computer Science, Asian Institute of Technology, Thailand, BEng, Computer Engineering, Kasetsart University, Thailand.

NEELAWAT INTARAKSA, MSci, Information Management, Asian Institute of Technology, Thailand, BA, Library Science, Chulalongkorn University, Thailand.

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

3.2.3 Grants and Sponsored Research Completed in 2012

NUOL-ICT Curriculum Development

Duration: 1-JAN-2011 to 30-JUNE-2012

Project Investigator(s): Paul Jenecek

Sponsor:SIDA

Total Contracted Amount

(THB): 1,068,652.18

Microarray Analysis and Visualization Phase I

Duration: 15-AUG-2011 to 30-JUNE-2012

Project Investigator(s): Mathew N Dailey

Sponsor:Spyglass Biosecurity Inc

Total Contracted Amount (THB): 150,000

Intelligent In Vehicle Driver Awareness Detection System

Duration: 1-AUG-2010 to 30-APRI-2012

Project Investigator(s): Mathew Dailey

Sponsor: NECTEC, Thailand

Total Contracted Amount (THB): 200,000

Vision-Based Industrial Robotic Bin-Picking System (PhaseIV)

Duration: 1-FAB-2010 to 30-APRI-2012

Project Investigator(s): Mathew Dailey

Sponsor: Solimac Co, Ltd

Total Contracted Amount (THB): 880,000

3.2.4 Publications

International Journal Articles with Impact factor

Ali, I., and Dailey, M.N. (2012) Multiple human tracking in high-density crowds, *Image and Vision Computing*, 30(12): 966-977.

Bonte, B., Mathias, J-D., and Duboz, R. (2012) Moment approximation of infection dynamics in a population of moving hosts, *PLoS ONE*, Volume 7, issue 12, 18 December 2012, Article no. 51760.

Hung, N.D., Thang, P.M., and Dung, P.M. (2012) MoDiSo: A toll for building contract dispute resolution systems, *International Journal on Artificial Intelligence Tools*, Volume 21, issue 1, February 2012, Article numbr 1250002.

Rehman, M., Esichaikul, V., and Kamal, M. (2012) Factors influencing e-government adoption in Pakistan, *Transforming Government: People, Process and Policy*, Volume 6, Issue 3, July 2012, pages 258-282.

Teurlai, M., Huy, R., Cazelles, B., Duboz, R., Baehr, C., and Vong, S. (2012) Can human movements explain heterogeneous propagation of Dengue fever in Cambodia, *PLoS Neglected Tropical Diseases*, Volume 6, issue 12, December 2012, Article no. 1657.

Wongsaardsakul, T., and Kanchanasut, K. (2012) Seamless integration of MANET and the internet with terminal mobility supported by SIP, *International Journal of Ad Hoc and Ubiquitous Computing*, Volume 9, Issue 4, May 2012, Pages 211-223.

Conference Publications

Basit, A., Dailey, M.N., and Laksanacharoen, P. (2012) Model driven state estimation for target pursuit, in *Proceedings of the 12th International Conference on Automation, Robotics, and Computer Vision (ICARCV)*, Article no. 6485307, pp. 1077-1082.

Bonte, B., Muller, J.P., and Duboz, R. (2012) Modeling the Minsky triad: A framework to perform reflexive M&S studies, *Proceeding – Winter Simulation Conference, WSC 2012, Berlin, Germany*, Article number 6465110.

Doudpota, S.M., and Guha, S. (2012) Automatic actors detection in musicals, *7th International Conference on Digital Information, ICDIM 2012.*, Article number 6360136, pages 226-231.

Esichaikul, V., Aung, W.M., and Bechter, C. (2012) Development of Wiki collaboration space for e-learning, *Proceeding of the European, Mediteranean & Middle Eastern Conference on Information Systems (EMIC 2012)*, Munich, Germany, June 7-8 2012.

Guha, S., and Lamichhane, A.R. (2012) Document classification after dimension

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Pokharel, S., and Guha, S. (2012) Web forum mining based on user satisfaction, Asian Himalayas International Conference on Internet, AH-ICI 2012, Kathmandu, Nepal, Article number 6408454.

Rehman, M., Kamal, M.M., and Esichaikul, V. (2012) Determinants of trust in E-government adoption: A case study of Pakistan, 18th Americas Conference on Information Systems 2012, AMCIS 2012, Volume 1, 2012, Pages 325-334.

Rinsurongkawong, S., Ekpanyapong, M., and Dailey, M.N. (2012) Fire detection for early fire alarm based on optical flow video processing in Proceedings of ECTI-CON, pages art. No. 6254144.

Tangjittaweechai, L., Ekpanyapong, M., Kanchanasut, K., Tavares, A., Lim, S.K., and Chongstitvatana, P. (2012) Parallel VLSI detailed routing using general-purpose computing on graphics process unit in the 9th International Conference on Electrical Engineering/ Electronics, Computer, Telecommunications and Information Technology, ECTI-CON 2012, Article number 6254140.

Thang, P.M., Dung, P.M., and Hung, N.D. (2012) Towards argument-based foundation for sceptical and credulous dialogue games, Frontiers in Artificial Intelligence and Applications, Volume 245, Issue 1, 2012, pp. 398-409.

Tongphu, S., Suntisivaraporn, B., Uyyanonvara, B., and Dailey, M.N. (2012)

Ontology-based object recognition of car sides, The 9th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, ECTI-CON 2012, Article number 6254268.

3.2.5 Doctoral Students' Dissertation

Computer Science

Bayesian Network based Student Affect Modeling Framework for an Intelligent Tutoring System

By Akhtar Hussain

Supervisor: Dr. Nitin V. Afzulpurkar

Virtual Reality Intelligent Dental Skill Trainer

By Phattanapon Rhiemora

Supervisor: Dr. Matthew Dailey

Analyzing Movies to Characterize Musical Content

By Sher Muhammad Doudpota

Supervisor: Dr. Sumanta Guha

An OpenID Enabled and Secured Web GIS Based Disease Reporting and Surveillance System

By Muhammad Asif

Supervisor: Dr. Nitin K. Tripathi

Minimalistic Adaptive Resource Management for Multi-tier Applications Hosted on Clouds

By Waheed Iqbal

Supervisor: Dr. Matthew N. Dailey

Automatic Radial Distortion Estimation from a Single Image

By Faisal Bukhari

Supervisor: Dr. Matthew N. Dailey

Information Management

Automatic Adaptive Retrieval and Composition of Learning Objects Based on Multidimensional Learner Characteristics

By Burasakorn Yoosooka

Supervisor: Prof. Vilas Wuwongse

Mapping Knowledge Flows in Scientific Research

By Saeed Ul Hassan

Supervisor: Dr. Raphael Duboz, Prof.

Peter Haddawy (Co-chairperson)

Resolving Normative Conflicts in Legal Documents using Open Document Format and Legal Ontologies

By Le Quang Huy

Supervisor: Dr. Vatcharaporn Esichaikul

3.2.6 Masters Students' Theses and Research Studies

Computer Science

Software Monitoring on Log System.

By Chaisiri Kangwalyossuk

Supervisor: Prof. Phan Minh Dung

An Expert Doctor Finder using Linked Open Data.

By Chirawadee Saensuriwong

Supervisor: Prof. Vilas Wuwongse

Markerless Tracking for Augmented Reality Systems on Android Tablets.

By Sirisilp Kongsilp

Supervisor: Dr. Matthew Dailey

A Job Recruitment System using Semantic Web Technology.

By Pongporn Nilaphruek

Supervisor: Prof. Vilas Wuwongse

Cloud Infrastructure Simulation and Optimal Tier Placement for Multi-Tier Web Applications.

By Prashant Kumar

Supervisor: Dr. Matthew Dailey

Voice, Gesture, and Web Interface for Human-Robot Interaction in Service Environments.

By Mintra Ruensuk

Supervisor: Dr. Matthew Dailey

Semantic Enrichment of Workflow Logs.

By Mondri Ravi

Supervisor: Prof. Vilas Wuwongse

A Comparison of Three Agent-Based Platforms on the Basis of a Simple Epidemiological Model.

By Kishoj Bajracharya

Supervisor: Dr. Raphael Duboz

OpenGL Tutorial on Android. By Chayakorn Pornnutvuttikul Supervisor: Prof. Sumanta Guha	Supervisor: Prof. Vilas Wuwongse Thailand Personal Income Tax Advisory System. By Thaweeapol Nuangnong Supervisor: Prof. Phan Minh Dung	Determining the Appropriate Inventory Level by ERP Implementation in SMEs. By Sun Lei Supervisor: Dr. Vatcharaporn Esichaikul
Audio-Video Transmission Technology for Assistance of The Blind. By Basanta Raj Onta Supervisor: Dr. Matthew Dailey	Information Management	E-Tax Filling Adoption in Thailand. By Suretan Thirapochna Supervisor: Dr. Vatcharaporn Esichaikul
Mesh Segmentation Implementation. By Pierre Corsini Supervisor: Prof. Sumanta Guha	Extension of Heuristic Evaluation Method for Evaluating Government Website: A Case Study of Lao PDR. By Vilachith Phommasack Supervisor: Dr. Vatcharaporn Esichaikul	The Challenges of E-Government Procurement in Thailand. By Pariyawan Ratanakrong Supervisor: Dr. Vatcharaporn Esichaikul
iPen-Intelligent Powered Pen. By Nicolas Fernandez Supervisor: Prof. Sumanta Guha	Development of Farmers Classification Model Using the Decision Tree Technique: A Case Study of Chaiyaphum Provincial Land Reform Areas Northeast of Thailand. By Krisana Nuch-issara Supervisor: Prof. Sumanta Guha	Internet Based Distance Education for National University of Laos in Lao PDR. By Bouakham Douangpanya Supervisor: Prof. Kanchana Kanchanasut
Lift Insurance Recommendation System by Implementing Sla Negotiation in Web Service. By Mutita Donsomsakunkij Supervisor: Prof. Phan Minh Dung	Market Basket Analysis using Data Mining: A Case Study of a Thai Silk Company. By Nattida Supittayaporn Supervisor: Dr. Vatcharaporn Esichaikul	Ontology Development for the Communication of Disaster Management Systems. By Hitesh N. Sharma Supervisor: Prof. Vilas Wuwongse
An Automated Presentation Schedule for CSIM: A Matching Algorithm Approach. By Parinya Boonthima Supervisor: Prof. Sumanta Guha	Spatially Explicit Model to Visualize the Spread of Epidemic Disease in a Network. By Mohan Timilsina Supervisor: Dr. Raphael Duboz	Assisting Business Process Design with Activity Recommendations. By Nattawat Nonsung Supervisor: Dr. Matthew Dailey
Collaborative Planning using Hierarchical Task Network. By Teeradaj Racharak Supervisor: Prof. Phan Minh Dung	Decision Support to Determine the Price Trends and Industry to Invest using Directional Movement Estimation in a Stock Market. By Noi The Nghiep Supervisor: Dr. Vatcharaporn Esichaikul	A Formal Approach to Digital Archives. By Rathachai Chawuthai Supervisor: Prof. Vilas Wuwongse
Realistic Cooperative Its Simulation on 3D Multiuser Driving Simulation. By Sra Sontisirikit Supervisor: Prof. Sumanta Guha	Privacy in the Health Information System. By Rabindra Acharya Supervisor: Prof. Phan Minh Dung	Proximity Based Localization Algorithm for Manets. By Sarita Gurung Supervisor: Prof. Kanchana Kanchanasut
A Study on Formalization of Court Proceedings. By Thanakorn Piroonsith Supervisor: Prof. Phan Minh Dung	Applying Decision Trees, Artificial Neural Networks and Support Vector Machine to Classify the Potential of Gas Stations. By Tanawat Sermvongtrakul Supervisor: Prof. Sumanta Guha	Directed Accident Information Dissemination in Vehicular Ad-Hoc Networks. By Bidur Devkota Supervisor: Prof. Kanchana Kanchanasut
Parking Eyes: Empirical Study on Video-Based Detection of License Plates and People. By Thiparat Jirawattanakitja Supervisor: Dr. Matthew Dailey	Wavellets: Overview, Applications and Curve Simplification. By Yann Sciardis Supervisor: Prof. Sumanta Guha	Predicting Treatment Outcome and Drug Adverse Effects by Temporal Data Mining and Interactive Visualization. By Wipada Chanthaweethip Supervisor: Prof. Sumanta Guha
Optimization of Sample Size and Epidemic Model Parameters by using the Differential Evolution and Optimization Algorithms. By Perantham Uruthiran Supervisor: Dr. Raphael Duboz		
A Linked Thai Herb Information System. By Pasinee Apisakmontri		

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 2012

Professional Master Project Management Hanoi September 2011

Duration: 1-Sept-11 to 31-Dec-12
Project Investigator(s): BHW Hadikusumo , Chotchai Charoenngam
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 4,536,630

Professional Master Project Management Ho Chiminh Class A September 2011

Duration: 1-Sept-11 to 31-Dec-12
Project Investigator(s): BHW Hadikusumo , Chotchai Charoenngam
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 6,216,630

Professional Master Project Management Ho Chiminh Class B September 2011

Duration: 1-Sept-11 to 31-Dec-12
Project Investigator(s): BHW Hadikusumo , Chotchai Charoenngam
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 6,507,000

3.3.4 On-going Grants and Sponsored Research

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

Professional Master Project Management Hanoi Sept 2012

Duration: 1-Sep-12 to 31-Dec-13
Project Investigator(s): Dr. BHW Hadikusumo and Dr. Chotchai C.
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 4,730,017.5

Professional Master Project Management Can Tho City 2012

Duration: 1-March-12 to 31-Dec-13
Project Investigator(s): Dr. BHW Hadikusumo and Dr. Chotchai C.
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 5,533,661.25

Professional Master Project Management HoChiMinh Class A Sep 2012

Duration: 1-Sep-12 to 31-Dec-13
Project Investigator(s): Dr. BHW Hadikusumo and Dr. Chotchai C.
Sponsor: Construction Corporations in Vietnam
Total Contracted Amount (THB) 8,877,462.17

3.3.5 Publications

International Journal Articles with Impact factor

Joewono, T.B., Santoso, D.S. and Ningtyas, D.U., 2012, "The causal relationship of the service quality of the

TransJakarta Busway". Public Transport, Vol. 4 Issue 2 pp. 77-100.

Nguyen, T. T. and Hadikusumo, B. "Identification of Operational Trust Factors in Contractor-Owner Relationships: A Case Study in Vietnam" International Journal of Project Organization and Management (accepted)

Santoso, D.S., Joewono, T.B., Wibowo, A., Sinaga, H.P.A. and Santosa, W., 2012, "Public-Private Partnerships of Tollway Construction and Operation: Risk Assessment and Allocation from the Perspective of Investors". *Journal of Construction in Developing Countries*, Vol. 17 Issue 2 pp. 45-66.

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

Santoso, D.S., Yajima, M., Sakamoto, K. and Kubota, H., 2012, "Opportunities and strategies for increasing bus ridership in rural Japan: A case study of Hidaka City". *Transport Policy*, Vol. 24 pp. 320-329.

3.3.6 Doctoral Students' Dissertation

Roles of Organizational Factors on Workplace Safety Work Behaviors of Construction Workers - A Bayesian Belief Network Approach
By Pongkorn Jitpornkulwasin
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

3.3.7 Masters Students' Theses and Projects

A Risk Management Framework for Highway Construction Companies in Vietnam
By Pham Quang Cuong
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Variation Claims in a High-Rise Building Project

By Krisana Juanwanpen
Supervisor: Dr. Chotchai Charoenngam

Structural Equation Models of Service Quality, Customer Satisfaction, and Behavioral Intention in Small and Medium Construction Projects in Thailand

By Thanawat Phangchunun
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Rework in Residential Construction in Cambodia

By San Visal
Supervisor: Dr. Chotchai Charoenngam

Application of the Last Planner System in the Indian Building Construction Industry

By Senjam Romero Singh
Supervisor: Dr. Chotchai Charoenngam

Lean Construction: Development of Assessment Criteria and Implementation Strategy for Indian Contractor Companies

By Ranjeet Sandeep Pundlik
Supervisor: Dr. Chotchai Charoenngam

Project Quality Management in High Rise Building Project: A Case Study of Diamond Island Project, District 2, HCM Construction Industry, Vietnam

By Chau Anh Tuan
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Contractor's Practices for Managing Subcontractors: A Case Study of the Ever Rich II Project in Ho Chi Minh City

By Vo Khac Kien
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Organizational Factors Affecting Behavior Based Safety Program and Performance: A Study in Oil and Gas Construction Projects in Thailand

By Jittanun Phuangphay
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Precast Concrete Application and Logistics Management of Precast Concrete Construction in Vietnam
By To Thanh Huyen

Supervisor: Dr. Chotchai Charoenngam

Delay in High-rise Building Project in Vietnam

By Tran Phi Long
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Strategic Behavior Application in Medium-Size Construction: A Case Study of Cambodian Contractor

By Vannaro Kao
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Risks on Schedule of Nuclear Power Plant Project in Vietnam

By Nguyen The Phuong
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Quality Management System and Performance of Building Contractors in Vietnam

By Bui Cong Luan
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Risks Factors and Management in an Oil and Gas Offshore Platform and Pipelines Construction Project: A Case Study of

"Hai Su Trang (HST) Full Field Development and Hai Su Den (HSD) Early Production System Development"

By Bui Thanh Nam
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Safety Management in Construction: A Case Study of C59 Construction Company

By Ngo Thanh Duc
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Business Process Model of the Project Management Process: A Case Study of Water Supply Contractor in Vietnam

By Nguyen Thanh Tung
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Constructability Implementation during Construction Phase in a Large High-Rise Building Project in Vietnam

By Nguyen Anh Khoa
Supervisor: Dr. Chotchai Charoenngam

Design Management in Infrastructure Project: A Case Study of the Phu My 3 Project

By Nguyen Nong Truong Thanh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Management in Supermarket Development: A Case Study of Supermarket Project in Vietnam

By Tran Minh Nghia
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Owner's Constructability Management: A Case Study of South Rach Chiec Resettlement and Residential Project

By Nguyen Hong Thanh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Quantitative Risk Assessment for Crude Oil Exploration Podium: A Case Study of Podium. DH-1 of PVEP

By Nguyen Lam Bang
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Safety Improvement Program in an Oil and Gas Company: A Study of PTSC Production Services JSC (A Subsidiary of Petrovietnam Technical Services Corporation)

By Nguyen Quang Thuong
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Interface Management for Conflicts Avoidance between Owner, Employer's Representative, and Contractors in High-Rise Building Projects

By Porntanat Kongsrisawat
Supervisor: Dr. Chotchai Charoenngam

Defect Cost Reduction in High-Rise Building Projects in Bangkok by Using Value Engineering Concept

By Wattanachai Tanjedreu
Supervisor: Dr. Chotchai Charoenngam

Safety Management in High-Rise Construction: A Case Study for 5 Star Hotel Pullman Saigon Center

By Nguyen Phu Hoi
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Contract Management Strategy for Design Bid-Build Project: A Case Study of Exhibition and Convention Center Projects in Ho Chi Minh City

By Bui Duy Khanh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Owner's Quality Management System: A Case Study of Phu Tho Building Resettlement Project

By Nguyen Huu Ky
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Organizational Structure of Highway Contractors: A Case Study of National Highway No. 51 Project

By Pham Hai Chien
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Quality Management System for Consultant Supervision of a Building Construction Project

By Nguyen Tien Dung
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Application of Lean Production Approach in Integrated Project Scheduling Management

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

Owner Project Management Approach for Quality Performance of a School Project

By Nguyen An Vi Nghia
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Management Approaches of a Japanese Construction Company in Vietnam: Procurement Management, Organizational Structure, Subcontractors

By Le Hoang Nguyen
Supervisor: Dr. Chotchai Charoenngam

Factors Affecting Financial Performance of a Project in Times of Economic Crisis: A Case Study of Commercial and Office Center Projects in Ho Chi Minh City

By Hoang Quynh Anh
Supervisor: Dr. Chotchai Charoenngam

Contract Project Risk Management Strategy in an Unstable Market Situation in Vietnam: A Case Study of the Canary Resident Phase 2 Project in the Proposed Guocoland Mixed Development at VSIPI Thuan An District, Binh Duong Province

By Nguyen Truong Hung
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Balanced Scorecard and KPIs for Small and Medium Sized Contractors in Vietnam

By Tran Xuan Le
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Project Schedule and Quality Planning and Control in Construction Management: A Case Study of the New Facility Development at Saigon Hightech Park-Jabil Vietnam

By Pham Van Long
Supervisor: Dr. Chotchai Charoenngam

Quality Management in Design Process: A Case Study of TAT & Associates D' Architectura Co., LTD

By Doan Ngoc Hoai Vinh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Quality Assurance System of Vietnam to Manage Public Infrastructure

By Le Quoc Anh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Quality Management System for Design Firm

By Dinh Trung Thanh
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

World Bank Tendering and Contract Administration Procedure: A Case Study of Trung Son Hydropower Project

By Hoang Viet Ngo
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

Township Project Development Approaches and Risks

By Nguyen Mai Nhat Huy
Supervisor: Dr. Bonaventura H.W.
Hadikusumo

FIDIC Contract Application in an International Infrastructure Project: A Case Study of Ho Chi Minh City Water Environment Improvement Project
By Dang Ngoc Hoi
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Turnkey/EPC Contract Administration for Chemical & Fertilizer Project: A Case Study of Di-Ammonia Phosphat (Fertilizer) Project in Vietnam
By Nguyen Hong Hanh

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 Geo-

engineering (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, Geoexploration & 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, pressure-meter 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

DENNES T BERGADO, BSCE, Mindanao State Univ, Philippines; MEng, AIT, Thailand; PhD, Utah State Univ, USA

Professor (*Ground improvement techniques and geosynthetics, In-situ testing, Geotechnical disaster mitigation, and Probabilistic/ numerical methods in geotechnical engineering*)

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*)

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*)

3.4.4 Grants and Sponsored Research Completed in 2012

Evaluations and Tests of Greenway Powder for Soil Stabilization

Duration: 1-Jun-11 to 29-Feb-12

Project Investigator(s): Dennes

T.Bergado

Sponsor: Loxley Public Company Limited

Total Contracted Amount (THB) 450,000

Investigation on Flooding at Tank terminal of MC Siam, Pra Pradaeng

Duration: 1-Jun-10 to 30-Jun-12

Project Investigator(s): Noppadol Phien-wej

wej

Sponsor: OY Corporation Ltd

Total Contracted Amount

(THB) 1,356,225

Investigation on Bank Slope Failure, Taluang Cement Factory

Duration: 12-Feb-10 to 31-Dec-12

Project Investigator(s): Noppadol Phien-wej

Sponsor: Siam City Cement Public Co Ltd

Total Contracted Amount

(THB) 1,412,400

Global Center of excellence on Human Security Engineering for Infrastructure Management of Kyoto University Phase1

Duration: 1-Jan-09 to 31-Dec-12

Project Investigator(s): Noppadol Phien-wej

Sponsor: University of Kyoto

Total Contracted Amount

(THB) 2,754,662

Services on Design of Civil works of Prototype Underground unit substations

Duration: 15-Jan-09 to 31-Aug-12

Project Investigator(s): Noppadol Phien-wej

Sponsor: Metropolitan Electricity

Authority

Total Contracted Amount

(THB) 1,850,000

PM&E Program in Geoexploration and Geoengineering Batch III

Duration: 1-Sep-10 to 30-May-12

Project Investigator(s): Pham Huy

Giao, Noppadol Phien-Wej

Sponsor: Oil and Gas Company, Vietnam

Total Contracted Amount (THB)

3,850,143

3.4.5 On-going Grants and Sponsored Research

Instrumentation Interpretation of Nam Ngum 2 CFRD

Duration: 1-Jan-10 to 31-Dec-13

Project Investigator(s): Noppadol Phien-wej

Sponsor: Ch Karnchang Lao Ltd

Total Contracted Amount

(THB) 1,170,000

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: Multi donors
 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
 Sponsor: Professional Managers
 Total Contracted Amount (THB) 3,379,500

PME in GeoExploration & Petroleum Geoengineering (PME-GEPG05)

Duration: 10-Jan-12 to 1-March-14
 Project Investigator(s): Dr. P.H. Giao
 Sponsor: Oil and Gas Company in Vietnam
 Total Contracted Amount (THB) 3,216,105.75

3.4.6 Publications

International Journal Articles with Impact factor

Abuel-Naga, H.M., Pender, M.J., and **Bergado, D.T.** (2012), Design Curves of Prefabricated Vertical Drains Including Smear and Transition Zones Effects. *Geotextiles and Geomembranes*, Vol. 32, pp. 1-9.

Amornfa, K., **Phienweij, N.** and Kitpayuck, P. (2012) Current Practice On Foundation Design Of High-Rise Buildings In Bangkok, Thailand, *Journal Of Lowland Technology International*, Issn 1344-9656, Volume 14, Number 2, December 2012

Fowze, J.S.M., **Bergado, D.T.**, Sorulump, S., Voottipruex, P., and Dechasakulsom, M. (2012), Rain-triggered Landslide Hazards and Mitigation Measures in Thailand: From Research to Practice, *Geotextiles and Geomembranes*, Vol. 30, pp. 50-64.

Conference Publications

Bergado, D.T., Nualkiang, M., Keereelang, S., Baral, P. and Dechasakulsom, M. (2012), Behavior of Wall/Embankment with Geogrid and Metallic Reinforcements on Hard Foundation, Proc. *International Conference on Highway Engineering*, Vol. 1, pp. 267-274.

Giao P. H. (2012), Application of Resistivity Forward and Inverse Analyses to Add geophysical mapping of Buried Utilities in Bangkok Clays, Proc. Intl. Symp. on Sustainable Geosynthetics and Green Technology for Climate Change (SGCC), 20 June 2012, Bangkok, Thailand.

Giao, P.H. and Binh, M. V. (2012), Petrophysical Analysis of Initial Water Saturation Using J-function for a HC Reservoir in the Cuu Long Basin, Vietnam, *KSEG International Symposium on "Geophysics for Discovery and Exploration"* Sept 19 – 21, 2012, ICC, Jeju, Republic of Korea

Giao P.H., Cuong N.Q. and Loke M. H., (2012), *Monitoring the Chemical Grouting in Sandy Soil by Electrical Resistivity Tomography (ERT)*, Geoelectric Monitoring, Current Research and Perspectives for the Future, Book of extended abstracts, Intl'. Workshop within the frame of the FWF project TEMPEL (TRP 175-N21) and the 7th FP *European project Safe Land, Vienna*, p. 168-178, *Berichte Geol. B.-A.*, 93, ISSN 1017-8880

Giao, P. H., Trung, B. D. and Minh, N. H. (2012), Reservoir in Fractured Granite Basement (FGRB); *Unconventional or Conventional*, paper no. IPTC 15465,

International Petroleum Technology Conference (IPTC), 7-9 February 2012.

Khin M. L. and **Giao P. H.** (2012), Model-based Inversion of Magneto-telluric (MT) Data in the Fang Basin, The 6th Intl' Conference on Applied Geophysics, Kanchanaburi, Thailand.

Phienweij, N. (2012). Tunnelling Induced Ground Movement and Effect on Buildings and Structures, *ITACET International Training Course*, 18-19 May 2012, Bangkok.

Phienweij, N. (2012). Underground Space Engineering for Infrastructure Development in Thailand, Keynote Lecture, World Tunnel Congress, *International and Underground Space Technology*, May 2012. Bangkok Thailand.

Phienweij, N. (2012). Activities of AIT-KU Joint Research Global Center of Excellence for Human Security Engineering. Kyoto University HSE Symposium, 2 December 2012, Kyoto, Japan.

Wiwattanachang, N. and **Giao, P. H.** (2012), *Investigation of the Flood-Affected Concrete Structures Using Resistivity Measurements*, The 6th Intl' Conference on Applied Geophysics, Mahidol University, Kanchanaburi, Thailand

Theme Papers, Keynote Lectures, Invited Lectures and Special Lectures

Phienweij, N. (2012), Design and Construction of Tunnel, Special Expert Lecture, Chai Muktabhan Foundation, 16 August 2012, Khon Kaen.

Phienweij, N. (2012), Earth Retaining Structures and Foundation of Tall Buildings. Seminar on Tall Buildings Analysis and Design, Engineering Institute of Thailand, 25-28 October 2012, Bangkok.

Phienweij, N. (2012). Alternative Floodway Solutions for Bangkok Flood Prevention from Hydrological and

Geotechnical Point of View , Proc. 2012 AIT-NUS-ITB-KU Joint Symposium On Human Security Engineering Establishing The Discipline Of Human Security Engineering And Broadening A Network For Human Security In Asian Megacities, November 19-20, 2012 Bangkok, Thailand

Phienwej, N. (2012). Urban Tunnel Construction and Related Constraints & Potential, Seminar organized by AIT-FECON, 12 December, Hanoi, Vietnam

Phienwej, N. (2012) Analysis Of Piled Raft Foundation In Bangkok Soil Condition Plaxis FEM Analysis For Geotechnical Engineering: Applications And Advancements, 18 December 2012, Bangkok

Phienwej, N. (2012) Disaster Prevention: River/Coastal Erosion, 18th Kyoto University International Symposium: Partnering Asian Academics toward Human Security Development, 24 May 2012, Bangkok.

3.4.7 Doctoral Students' Theses

Analysis of Piled Raft Foundations with their Application to Bangkok Subsoil Condition
By Kamol Amornfa
Supervisor: Dr. Noppadol Phien-wej

3.4.8 Masters Students' Theses

Determination of Hardening Soil Parameters for Bangkok Soft Clay and Stiff Clay
By Nopparat Thrithavone
Supervisor: Dr. Noppadol Phien-wej

Simulations and Back-Analyses of Design Parameters of MSE Wall/Embankment on Hard Foundation Using PLAXIS 3D Software
By Pankaj Baral
Supervisor: Prof. Dennes T. Bergado

Analysis of Reinforced Embankment on Soft and Hard Ground Using Working Stress K-Stiffness Method
By Barry Teatro Oca
Supervisor: Prof. Dennes T. Bergado

Numerical Simulations of Embankments on Soft Ground Reinforced by Kenaf Limited Life Geosynthetics (LLGs) Using 2D and 3D Plaxis Software
By Salisa Chaiyaput
Supervisor: Prof. Dennes T. Bergado

Applicability of Material Balance Method for OHIP Estimation of Multiple Gas Condensate Reservoirs
By Sutthipat Phummanee
Supervisor: Dr. Pham Huy Giao

Review of Guidance on Onland Seismic Data Acquisition and HSE Pertinent to Applications in Thailand
By Pongpol Chongcharernrat
Supervisor: Dr. Pham Huy Giao

Comparison of Tunnel Analysis in Plaxis Using the Three Methods of Inputting Amount of Ground Loss
By Kyaw Aung Soe
Supervisor: Dr. Noppadol Phien-wej

Analysis of Geotechnical-Geophysical Investigation Data for a Hi-Rise Construction Site in Ho Chi Minh City
By Le Cao Dat
Supervisor: Dr. Pham Huy Giao

Finite Element Simulations of Field Behavior of Flexible Pavements with and without Geosynthetic Reinforcements Using Plaxis 2D
By Nutthachai Prongmanee
Supervisor: Prof. Dennes T. Bergado

Facies Analysis with Reference to Distribution of the 50-Sand, Jasmine Field, Gulf of Thailand
By Nguyen Thi Thu Thao
Supervisor: Dr. Pham Huy Giao

Erosion Control Using Water Hyacinth Limited Life Geosynthetics (LLGs) With and Without Ruzi and Vetiver Grasses
By Wah Wah Htwe
Supervisor: Prof. Dennes T. Bergado

Prediction of Permeability and Water Saturation Using Neuron Networks and Fuzzy Logic for a Clastic Reservoir in the Gulf of Thailand
By Trinant Foongthongcharoen
Supervisor: Dr. Pham Huy Giao

Intergration of Wellog and Seismic Attribute Data to Predict Porosity Along A 2-D Seismic Line in Nam Con Son Basin Using Ann Analysis
By Tran Quang Huy
Supervisor: Dr. Pham Huy Giao

Verification of K-Stiffness Method for Polymer and Steel Grids Reinforcements in MSE Structures on Hard Foundation
By Chen Chao-Ting
Supervisor: Prof. Dennes T. Bergado

Shaft Grouting for the Improvement of Load Carrying Capacity of Bored Piles in Ho Chi Minh City, Vietnam
By Le Cao Minh
Supervisor: Dr. Noppadol Phien-wej

Effects of Ground Movements Induced by Excavations on Adjacent Structures
By Nguyen Ngoc Lan
Supervisor: Dr. Noppadol Phien-wej

Soft Ground Improvement Using Vacuum Consolidation for Long Thanh-Dau Giay Expressway
By Nguyen Tuan Dung
Supervisor: Dr. Pham Huy Giao

Geotechnical Characterization of Subsoil along the Trung Luong - My Thuan Highway
By Ly Van Chien
Supervisor: Dr. Pham Huy Giao

Groundwater Development for the Bac An Thanh Industrial Zone, Long An Province
By Vu Van Thuy
Supervisor: Dr. Pham Huy Giao

Correlation Between Natural Water Content and Undrained Shear Strength of Soft Clay in Tien Giang Province, Vietnam
By Ho Hai
Supervisor: Dr. Pham Huy Giao

Assessment of The Effect of Hydrocarbon Saturation on Seismic Data Using 2D AVO Forward Modeling
By Le Anh Tuan
Supervisor: Dr. Pham Huy Giao

3D Geological Static Modeling for an Offshore Structure in the Red River Basin
By Truong Thanh An
Supervisor: Dr. Pham Huy Giao

Application of Halo-Bypass Model to Recognize Fracture Systems for the Black Gold Field, Cuu Long Basin
By Huynh Ho Phuong
Supervisor: Dr. Pham Huy Giao

Investigation of Actual Performance of SCC in Cut Slope Stabilization in Bangkok Soft Soil Projects by an Aid of 3D-FEM
By Akkarapon Naksomboon
Supervisor: Dr. Noppadol Phien-wej

A Comparative Study of Methods to Estimate Water Saturation for a Clastic Reservoir in Block XY, Cuu Long Basin
By Nguyen Van Hoang
Supervisor: Dr. Pham Huy Giao

Well Logging Interpretation with Reference to Geological Modeling of the Miocene Clastic Reservoir in the Su Tu Den Structure
By Tran Thi Thuy Van
Supervisor: Dr. Pham Huy Giao

Investigation on Equivalent Soil Properties Parameters Suitable for Undrained Analysis of Excavation and Embankment Problems in Bangkok Soils Using Methods, A, B and C in PLAXIS
By Doan Duy Thinh
Supervisor: Dr. Noppadol Phien-wej

Assessment of Effectiveness of Ground Improvement by Vacuum with PVD Method for Sai Gon - Dong Nai Clay, Southern Vietnam
By Hoang Hiep
Supervisor: Dr. Pham Huy Giao

Fractures Analysis for Granite Basement Reservoir in the Cuu Long Basin Using Formation Micro Image (FMI) and Sonic Scanner (SS)
By Phung Nguyen Thanh
Supervisor: Dr. Pham Huy Giao

FMI Data Analysis to Add the Design of Borehole Orientation in a Fractured Reservoir in the Cuu Long Basin
By Nguyen Van Trieu
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

ERIK L J BOHEZ, Burgerlijk Werktuig Kundig Electro- TechnischIngenieur, Rijks Universiteit Gent (State University Ghent, Belgium); Kandidatuur BurgerlijkIngenieur, RijksUniversiteit Gent (State University Ghent, Belgium); TechnischIngenieur Electro-Mechanica, Hoger TechnischInstituut Sint Antonius Gent, (High Technical Institute Saint Antonius Ghent; Belgium).

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]

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]

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]

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)

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]

Visiting Faculty

Dr. Sanjay Jharkharia, Ph.D. in Management from Indian Institute of Technology Delhi India

Visiting Professor, currently Associate Professor in Operations Management at the Indian Institute of Management Kozhikode, India

Dr. Siba Sankar Mahapatra, Ph.D. in Industrial Engineering from Indian Institute of Technology Kharagpur, India

Visiting Professor, currently Professor in Mechanical Engineering at National Institute of Technology Rourkela, India

Dr. Thimmegowda Rangaswamy Ph. D. in Mechanical Engineering from Anna University, Chennai, India

Visiting Professor, currently Professor in Mechanical Engineering, Government Engineering College, Hassan, India

3.5.4 Grants and Sponsored Research Completed in 2012

Product Design & Development for Thai Ceramic Co.,Ltd.

Duration: May 2010-December 2012
Project Investigator (s): Dr. Pisut Koomsap
Sponsor: Thai Ceramic Co.,Ltd.
Total Contracted Amount (THB): 325,000

Product Design & Development for SCG Building Materials 2009

Duration: August 2009-December 2011
Project Investigator (s): Dr. Pisut Koomsap
Sponsor: SCG Building Materials Co.,Ltd.
Total Contracted Amount (THB): 225,000

Development of Automatic Flat Screen Printing Machine

Duration: August 2009-July 2011
Project Investigator (s) Dr. Pisut Koomsap
Sponsor: RTG
Total Contracted Amount (THB): 950,000

Multi-Objectives, Multi-Echelon Location Routing Problem: A Case Study in Bagasses Ethanol Plant in Northeastern of Thailand

Duration: August 2009-July 2011
Project Investigator (s): Prof. Voratas Kachitvichyanukul
Sponsor: RTG
Total Contracted Amount (THB): 1,000,000

The 4th International Conference on Modeling and Simulation

Duration: February 2011-August 2012
Project Investigator (s): Prof. Voratas Kachitvichyanukul
Sponsor: Conference Participants/Sponsor Agencies
Total Contracted Amount (THB): 1,000,000.00

Carbon Foot Print of Double A Paper and Development (RTG/Advanced Agro Project)

Duration: November 2009 to June 2012
Project Investigator (s): Ir. Erik L.J. Bohez
Sponsor: RTG/Advanced Agro
Total Contracted Amount (THB): 2,000,000.00

3.5.5 On-going Grants and Sponsored Research

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

Duration: May 2012-May 2014
Project Investigator (s): Ir. Erik L.J. Bohez
Sponsor: Provincial Electricity Authority
Total Contracted Amount (THB): 8,292,000

Life Cycle Assessment Fine Paper

Duration: June 2008-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: February 2007-May 2013
Project Investigator (s): Ir. Erik L.J. Bohez

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

Product Design & Development for Nawaplastic Industries

Duration: July 2011-December 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: June 2012-December 2013
Project Investigator (s): Prof. Voratas Kachitvichyanukul
Sponsor: Industrial/Universities Sponsors
Total Contracted Amount (THB): 1,000,000

3.5.6 Publications

International Journal Articles with Impact factor

Astanti, R.D. and Luong, H.T. (2012). "A Repetitive Forward Rolling Technique for Inventory Policy with Nonlinear Increasing Demand Pattern Considering Shortage," International Journal of Mathematics in Operational Research, (accepted).

Aziz, M.H. , Bohez E.L.J. "Petri Net model of repetitive push manufacturing with Polca to minimize value added WIP" International Journal of Production Research

Dang, L.V., Luong, H.T., Claudiu, C.V., and Achim, M. (2012). "The impact of inventory sharing on the bullwhip effect in decentralized inventory systems," Logistics Research, DOI: 10.1007/s12159-012-0096-7. (accepted)

Kachitvichyanukul, V., (2012). "Comparison of Three Evolutionary Algorithms: GA, PSO, and DE," Industrial Engineering and Management Systems, Vol. 11, No 3, pp.215-223.

- Kachitvichyanukul, V.** and Kunnapapdeelert, S., (2012). "New Mutation Method for Improving Performance of Artificial Immune System Algorithm," *International Journal of Logistics and SCM Systems*, Vol. 6, No.1, pp. 87-94.
- Kasemset, C. and **Kachitvichyanukul, V.**, (2012). "A PSO Based Procedure for a Bi-level Multi-objective TOC-based Job-Shop Scheduling Problem," *International Journal of Operational Research*, Vol. 14, No. 1, pp. 50–69.
- Kasi, A.K., Kasi, J.K., Afzulpurkar, N., **Bohez, E.L.J.**, and Tuantranont, A., (2012). "Continuous Voltage Detachment and Etching (CVDE) Technique for Fabrication of Nano-Porous Anodic Aluminum Oxide (AAO) Tubular Membrane," *Nanoscience and Nanotechnology Letters*, Vol. 4, No. 5, pp. 530-536.
- Khan, N.M., Babel, M.S., Tingsanchali, T., Clemente, R.S., and **Luong, H.T.**, (2012). "Reservoir Optimization-Simulation with a Sediment Evacuation Model to Minimize Irrigation Deficits," *Water Resources Management*, Vol. 26, No. 11, pp. 3173-3193. DOI10.1007/s11269-012-0066-5.
- Lin, T., Lee J.W., and **Bohez, E.L.J.**, (2012) "New integrated model to estimate the manufacturing cost and production system performance at the conceptual design stage of helicopter blade assembly," *International Journal of Production Research*, DOI:10.1080/00207543.2011.644818.
- Phattanaphibul, T., **Koomsap, P.**, Irwansyah, and Nachaisit, S., (2012). "Development of SVM RP technique for PLA-Based Scaffolds," *Rapid Prototyping Journal* (accepted)
- Samattapapong N., Afzulpurkar N., Parnichkun M., **Bohez E.L.J.** "A new forecasting method for hard disk drive manufacturing throughput with a hybrid neural network model" *ICMT 2012 - 16th International Conference on Mechatronics Technology*
- Senjuntichai, A., and **Luong, H.T.** (2013). The Research, Development and Acquisition Selection Policies. *Advanced Science Letters*, Vol. 19(1), 252-259
- Sirikasemsuk, K. and **Luong, H.T.** (2012). "Measure of Bullwhip Effect – A Dual Sourcing Model," *International Journal of Operational Research*,(accepted)
- Sooksaksun, N., **Kachitvichyanukul, V.**, and Gong, D.C., (2012). "A Class-Based Storage Warehouse Design using a Particle Swarm Optimization Algorithm," *International Journal of Operational Research*, Vol. 13, No. 2, pp. 219-237.
- Su, N., and **Kachitvichyanukul, V.**, (2012). "An efficient differential evolution algorithm for multi-mode resource-constrained project scheduling problems," *Journal International Journal of Operational Research*, Vol. 15, No. 4, pp. 466-481. DOI 10.1504/IJOR.2012.050149.
- Thang, P.M. and **Luong, H.T.** (2012). Translating Preferred Subtheories into Structured Argumentation. *Journal of Logic and Computation* (accepted).
- Thammachot, N., Dulyapraphant, P., and **Bohez, E.L.J.**, (2012). "Optimal gating system design for investment casting of sterling silver by computer-assisted simulation," *International Journal of Advanced Manufacturing Technology*, DOI: 10.1007/s00170-012-4523-3.
- Trinh, T. H., **Kachitvichyanukul, V.**, and **Luong, H. T.**, (2012). "A Tradeoff Between Customer Efficiency and Firm Productivity in Service Delivery Systems," *Industrial Engineering and Management Systems*, Vol.11, No. 3, pp.224-232.
- Van Chung N., **Bohez E.L.J.**, Belforte G., Phong H.T. "A new conceptual approach for systematic error correction in CNC machine tools minimizing worst case prediction error" ISBN 2683768 *International Journal of Advanced Manufacturing Technology* Vol. 60 Issue 1-4
- Wannarumon, S., Pradujphongphet, P., **Bohez E.L.J.** "The development of shape transformation tool used in computer-based jewelry design system Proceedings" - 2012 7th International Conference on Computing and Convergence Technology (ICCT, ICEI and ICACT), ICCCT 2012
- Wongwiwat, A., **Bohez, E.L.J.** "Production Scheduling for Injection Manufacture using Petri Net Mode" *Assembly Automation*
- Yiangkamolsing, C.**, "Universal Design (UD) Principles for Flexible Packaging and Corresponding Minimal Customer Requirement Set", *Packaging Technology and Science*

Conference Publications

Akkakarn, S., Phattanaphibul, T., and **Koomsap, P.**, "Development of Rubber Artifacts via SVM Rapid Prototyping," the 13th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2012), Phuket, Thailand, December 2012

Janokul, K., Chansri, N., **Koomsap, P.**, and Akkarn, S., "Effect of Flour Type on Cavity Forming for Selective Vacuum Manufacturing," the 13th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2012), Phuket, Thailand, December 2012

Jewpanya, P. and **Kachitvichyanukul, V.**, "A Particle Swarm Optimization for Cross-docking Distribution Planning Problem," *Proceedings of the 13th Asia Pacific Industrial Engineering and Management Systems Conference*, Phuket, Thailand, December 2012, pp464-472

Jewpanya, P. and **Kachitvichyanukul, V.**, "General model of Cross-docking distribution planning problem," *Proceedings of the 7th International Congress on Logistics and SCM Systems*, Seoul, Korea, June 2012.

Kunnapapdeelert, S. and **Kachitvichyanukul, V.**, "Improved Artificial Immune System for Capacitated

Vehicle Routing Problem,” Proceedings of the 7th International Congress on Logistics and SCM Systems, Seoul, Korea, June 2012.

Kurniawan, T. O., and **Koomsap, P.**, “Development of Screen Making System for Rapid Customized T-Shirt Printing,” the 13th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2012), Phuket, Thailand, December 2012

Liu, J. and Kachitvichyanukul, V., “Particle swarm optimization for solving location routing problem,” Proceedings of the 13th Asia Pacific Industrial Engineering and Management Systems Conference, Phuket, Thailand, December 2012, pp1891-1899

Lumsakul, P., and **Luong, H.T. (2012)**. Development of a Composite Revenue Sharing Quantity Flexibility Contract. Proceedings of the 13th Asia Pacific Industrial Engineering and Management Conference (APIEMS2012), Thailand.

Saithong, C., and **Luong, H.T. (2012)**. Supply Chain Contract with Put and Call Option: The Case of Nonlinear Option Premium Price. Proceedings of the 13th Asia Pacific Industrial Engineering and Management Conference (APIEMS2012), Thailand.

Senjuntichai, A., Techanitisawad, A, and **Luong, H.T. (2012)**. The RDA Selection Policy. International conference of Advanced Materials, Science and Engineering (ICAMSE-12), Colombo, Sri Lanka.

Wettasinghe, J., and **Luong, H.T. (2012)**. An Optimal Preventive Maintenance Policy for a Component with Two Failure Modes. Proceedings of the 13th Asia Pacific Industrial Engineering and Management Conference (APIEMS2012), Thailand.

3.5.7 Doctoral Students’ Dissertation

Design Manufacturing Engineering

Universal Design for Flexible Packaging
By Chana Yiangkamolsing
Supervisor: Assoc.Prof. Erik Bohez

An Investigation in Investment Casting of Sterling Silver to Improve Productivity
By Narongsak Thammachot
Supervisor: Assco.Prof. Erik Bohez

Industrial and Manufacturing Engineering

Scaffold Fabrication by using Selective Vacuum Manufacturing
By Thittikorn Phattanaphibul
Supervisor: Dr. Pisut Koomsap

Establishing a Framework for Design by Customer Concept
By Risdiyono
Supervisor: Dr. Pisut Koomsap

A Unified Framework for the Design of Service Systems: A Co-Production Approach
By Trunong Hong Trinh
Supervisor: Prof. Voratas Kachitvichyanukul

3.5.8 Masters Students Theses and Projects

Industrial and Manufacturing Engineering

General Cross-Docking Distribution Planning Problem
By Parida Jewpanya
Supervisor: Prof. Voratas Kachitvichyanukul

Allocation Methods for a Multicommodity Distribution Network Design Problem
By Miss Saowanit Lekhavat
Supervisor: Prof. Voratas Kachitvichyanukul

Investigation of applying electrospinning in fused deposition modeling for scaffold fabrication
By Kampanat Auyson
Supervisor: Dr. Pisut Koomsap

A Supply Contract Model with Call Options: The Case of Normally Distributed Demand
By Parida Wipoopinyo
Supervisor: Dr. H.T. Luong

Supply chain Contract with Put and call option: The case of non-linear option premium price
By Chirakiat Saithong
Supervisor: Dr. H.T. Luong

Development of a Composite Revenue Sharing-Quantity Flexibility Contract
By Pasuree Lumsakul
Supervisor: Dr. H.T. Luong

Design and Simulation of Ascending and Descending Curvilinear Micro Channels for Cancer Cell Separation from the Blood
By W.A.H.S.S. Wewala
Supervisor: Dr. Nitin Afzulpurkar

An Optimal Preventive Maintenance Policy for a Component with Two Failure Modes
By Jayalal Wettasinghe
Supervisor: Dr. H.T. Luong

Development of Screen Making System to Support the Design by Customer Concept in T-Shirt Printing Production
By Thomas Ony Kurniawan
Supervisor: Dr. Pisut Koomsap

Design and Simulation of a Sinusoidal Microchannel for Cell Separation System Using Inertial Focusing Technique
By Muhammad Ishaque
Supervisor: Dr. Nitin Afzulpurkar

Product Design for Service Excellence
By Peangkwon Suwannimitr
Supervisor: Dr. Pisut Koomsap

Improvement of SVM Technique for Rubber Artifacts
By Saranrat Akkakarn
Supervisor: Dr. Pisut Koomsap

Direct Contour Generation for Structure Light System-Based Selective Data Acquisition
By Kritsada Nakthewan
Supervisor: Dr. Pisut Koomsap

Design and Development of a System to Support Design by Customer Concept in Mosaic Tile Pattern Products
By Nuntaporn Phooripoom
Supervisor: Dr. Pisut Koomsap

Development a Multi-State Preventive Maintenance Policy using Semi-Markhov Process
By Le Van Dang
Supervisor: Dr. H.T. Luong

Toolpath Generation for Image-Based Direct Slicing in Additive Manufacturing
By Sarinya Putthawong

Supervisor: Dr. Pisut Koomsap

Environmental Impacts of LeLe Catfish (*Clarias gariepinus*) Farming in Borgor Regency, Province of West Java, Indonesia

By Sa'dilah Fauzi

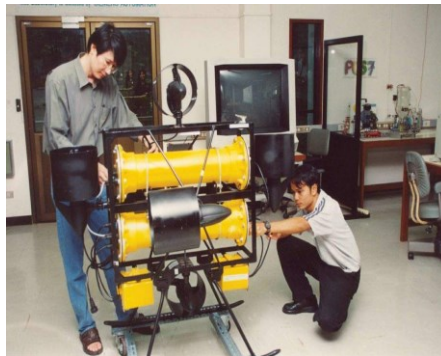
Supervisor: Assoc.Prof. Erik L J Bohez

Adaptive Variable Neighborhood Search Algorithms for Solving Capacitated Vehicle Routing Problems
By Sikarin Vinyoopradit
Supervisor: Prof. Voratas Kachitvichyanukul

Research Study: A Multi-Item Joint Replenishment and Joint Delivery Model in a System of Multiple Warehouse and Multiple Retailers

By Muhammad Shafiq

Supervisor: Dr. H.T. Luong



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, ANYSIM, 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

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]

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]*

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]*

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]*

Visiting Faculty

Krit Chongsrid, Ph.D. (1996) at Tokyo Institute of Technology, Japan.

Adjunct Faculty, currently he is working as a Managing Director, Mobilis Automata Co., Ltd. He had worked as a researcher on Manufacturing Automation Laboratory at NECTEC.

Pasin Israsena, Ph.D., U. of Warwick, U.K.

Adjunct Faculty [VLSI and FPGA Implementation of Signal Processing and Communications Systems; Low Power Design and CAD]

Waleed Mohammed, Ph.D. in Optics from College of Optic and Photonics/ CREOL, University of Central Florida, Orlando, FL, USA.

Adjunct Faculty, currently he is an instructor of International School of Engineering (ISE), Faculty of Engineering, Chulalongkorn University.

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

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

3.6.4 Grants and Sponsored Research Completed in 2012

Development of an Automatic Steering Cruise Control System for Passenger Car

Duration: Nov-2007 to Dec-2012
Project Investigator (s): Dr. Manukid Parnichkun
Sponsor: National Electronics and Computer Technology Center
Total Contracted Amount (THB): 1,988,800

Police Eyes

Duration: Aug-2010 to Dec-2011
Project Investigator (s): Dr. Mongkol Ekpanyapong
Sponsor: NECTEC
Total Contracted Amount (THB): 200,000

Electronic Design Automation using GP-GPU for performance improvement

Duration: June-2010 to Dec- 2012
Project Investigator (s): Dr. Mongkol Ekpanyapong,
Sponsor: Thailand Research Fund
Total contracted Amount (THB): 360,000

Robotic Mobile Routers for Disaster Emergency Communication Networks"

Duration: 21-Sep-2011 to 31-Dec-2012
Project Investigator (s): Dr. Apinun (IntERLab), Dr. Thavida (FIBO), Dr. Mongkol Ekpanyapong(ISE), Dr. Chalermopol (NECTEC), Dr. Aimaschana (NECTEC)

Sponsor: NECTEC/NSTDA,
Total Contracted Amount
(THB): 1,850,000

3.6.5 On-going Grants and Sponsored Research

Development of Imbalance Monitoring and Balancing Control System for Two-Wheel Vehicle

Duration: 2011 to Dec-12
Project Investigator (s): Manukid Parnichkun

Sponsor: National Science and Technology Development Agency
Total Contracted Amount
(THB): 1,991,000

Development of Robot Controller

Duration: 01-Nov-08 to 31-Oct-12
Project Investigator (s): Manukid Parnichkun
Sponsor: Aerofluid Co.,Ltd and Royal Thai Government,
Total Contracted Amount
(THB): 2,000,000

Master Degree in HDD Engineering Technology #4

Duration: 01-Jul-10 to 01-Jul-12
Project Investigator(s): Nitin Afzulpurkar
Sponsor: Western Digital Co. Ltd.
Total Contracted Amount
(THB): 10,528,000

Master Degree in HDD Engineering Technology #5

Duration: 01-Jul-11 to 01-Jul-13
Project Investigator(s): Nitin Afzulpurkar
Sponsor: Western Digital Co. Ltd.
Total Contracted Amount
(THB): 9,776,000

Master Degree in HDD Engineering Technology #6

Duration: 01 Jul 12 - 01 Jul 14
Project Investigator(s): Nitin Afzulpurkar
Sponsor: Western Digital Co. Ltd.
Total Contracted Amount (THB):
6,016,000

NSTDA Investorday Award 2013

Duration: June-2013 to May-2014
Project Investigator (s): Dr. Mongkol Ekpanyapong

Sponsor: National Science and Technology Development Agency
Total Contracted Amount (THB): 500,000

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

Project Investigator (s): Dr. Mongkol Ekpanyapong

Duration: June-2012 to Dec-2013
Sponsor: National Science and Technology Development Agency
Total Contracted Amount
(THB): 1,360,000

DTNC-CAST: A DTN-NC overlay service for many-to-many bulk file dissemination among OLSR-driven mobile ad hoc network partitions for disaster emergency responses",

Duration: 1-Feb-2012 to 31-Jan-2013
Sponsor (s): CISCO (through the Silicon Valley Community Foundation),
Project investigator (s): Dr. Apinun (IntERLab), Dr. Mongkol Ekpanyapong(ISE), Dr. Mahtab (IntERLab)
Total Contracted Amount
(THB): 1,600,000

Car talk as a Service (CaaS)

Duration: 18-June-2012 to 17-June-2013
Project Investigator (s): Professor Kanchana, Dr. Teerapat (TC), Dr. Donya (SOM), Dr. Apinun (IntERLab), Dr. Mongkol Ekpanyapong (ISE), Dr. Saroch (KU), Dr. Wasan (NECTEC), Dr. Ravipat (NECTEC).
Sponsor (s): NSTDA
Total Contracted Amount
(THB): 1,890,000

3.6.6 Publications

Book chapter

Tavares, A., **Ekpanyapong, M.**, Cabral, J., Cardoso, P., Mendes, j. and Monteiro, j. "Experiments with Embedded System Design at UMinho and AIT", in *Advances in Intelligent and Soft Computing*, Ed. Khine Soe Thaug, Vol. 126/2012, Springer Berlin/Heidelberg, 2012, pp.41-48

Journal Paper

Cardoso, N. Rodrigues, P., Vale, J., Garcia, P., Cardoso, P., Monteiro, J., Cabral, J., Mendes, J., **Ekpanyapong, M.** and Tavares, A. A Generative-Oriented Model-Driven Design Environment for Customizable Video Surveillance Systems, in *EURASIP Journal on Embedded Systems 2012*

Parnichkun, M. "Robotics Activities in Thailand at a Crossroad," *Journal of Robotics Society of Japan*, Vol. 30, No. 10, pp 946 (2012).

Rokunuzzaman, Md., **Afzulpurkar, V.N. and Parnichkun, M.** "A Computer Vision Algorithm for Defect Detection and Sorting of Tomatoes," *International Journal of Advanced Manufacturing Systems*, International Science Press: Vol 3, No.2, pp 129-138 (2012).

Rokunuzzaman, Md., **Parnichkun, M. and Afzulpurkar, V.N.** "Automated Identification of Various Defects in Tomatoes and It's Sorting," *International Journal of Advanced Mechatronics and Robotics*, International Science Press: Vol 4, No.2, pp 89-97 (2012).

Conference Paper

Aphiratsakun, N., Chairungsarpsook, K. and **Parnichkun, M.** "ZMP Based Gait Generation of AIT Leg Exoskeleton-A Further Gaits Generation," *Proceedings of the International Conference on Manufacturing and Industrial Engineering (ICMIE2012)*, pp. 886-890, Singapore, 26-28 February 2012.

Chuaypen, C. and **Parnichkun, M.** "Sliding Mode Control based Balance Control of a Bicycle Robot Using Centrifugal Force," *Proceedings of the 2012 International Conference on Automotive Engineering, ICAE 2012*, 2012

Garcia, P., Gomes, T., Salgado, F., Cabral, J., **Ekpanyapong, M.**, Monteiro, J. and Tavares, A. Exploring Metrics Tradeoffs in a Multithreading Extensible Processor, *IEEE International Symposium on Industrial Electronics (ISIE) 2012*

Garcia, P., Gomes, T., Salgado, F., Rodrigues, P., Cardoso, P., **Ekpanyapong, M.** and Cabral J., "Reliability Correlation Between Physical and Virtual Cores At The ISA Level", to be appeared in the 17th IEEE International Conference on Emerging Technologies & Factory Automation 2012

Gomes, T., Garcia, P., Salgado, F., Cabral, J., Cardoso, P., Tavares, A. and **Ekpanyapong, M.** A Fault Tolerant Design Methodology for a FPGA-based Softcore Processor, *IFAC Conference on Embedded Systems, Computational Intelligence and Telematics in Control (CESCIT) 2012*

Huy, V.P.T., Nonthakarn, P. and **Ekpanyapong, M.** Solar-cell based In-Vehicle Cooling System, Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON) 2012

Rinsurongkawong, S., **Ekpanyapong, M.**, Dailey, N. M., Fire Detection for Early Fire Alarming Based on Optical Flow Video Processing, Electrical Engineering /Electronics, Computer, *Telecommunications and Information Technology (ECTI-CON) 2012*

Salgado, F., Garcia, P., Gomes, T., Cabral, J., Mendes, J., **Ekpanyapong, M.** and Tavares A. "A Customizable Processor Architecture for a Design Space Exploration Framework", *IEEE International Conference on Industrial Technology (ICIT2012)*, Athens, Greece, March 2012. Cited by Scopus: 1

Seekhao, P. and **Parnichkun, M.** "Balancing Control of Bicycle Robot Using Mass-Moving Stabilization," *Proceedings of the 2012 TRS Conference on Robotics and Industrial Technology, CRIT 2012*, 2012.

Sukvichai, K. and **Parnichkun, M.** "Design and Balancing Control of Double-Level Ball-Riding Robot," *Proceedings of the 2012 TRS Conference on Robotics and Industrial Technology, CRIT 2012*, 2012.

Tangjittaweechai, L., **Ekpanyapong, M.**, Kanchanasut, K., Lim, K. S., Tavares, A. and Chongstitvatana, P. Parallel VLSI

Detailed Routing Using General-Purpose Computing on Graphics Processing Unit, Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON) 2012

Tavares, A., Cardoso, P., Mendes, J., Monteiro, J., **Ekpanyapong, M.** and Burrows, T., Industry Trends, Learner Needs (A Case Study of a Student Centered Approach to Integrated Curriculum Design for an Embedded Systems Program), *IEEE Engineering Education Conference (EDUCON) 2012*

Tavares, A., Carvalho, A., Rodrigues, P., Garcia, P., Gomes, T., Cabral, J., Cardoso, P., Montenegro, S. and **Ekpanyapong, M.**, RodosVisor - An Object-Oriented and Customizable Hypervisor: *The CPU virtualization, Computational Intelligence and Telematics in Control (CESCIT) 2012*. Cited by Scopus: 1

Tavares, A., Carvalho, A., Rodrigues, P., Garcia, P., Gomes, T., Cabral, J., Cardoso, P., Montenegro, S. and **Ekpanyapong, M.**, A Customizable and ARINC 653 Quasi-compliant Hypervisor (CPU and Memory virtualization), *IEEE International Conference on Industrial Technology (ICIT), 2012*

Thanok, S. and **Parnichkun, M.** "Adaptive Cruise Control of a Passenger Car Using Hybrid of Sliding Mode Control and Fuzzy Logic Control," *Proceedings of the 2012 International Conference on Automotive Engineering, ICAE 2012*, 2012.

Tuvayanond, W. and **Parnichkun, M.** "Control of Pneumatic Surgical Robot," *Proceedings of the 2012 TRS Conference on Robotics and Industrial Technology, CRIT 2012*, 2012.

Patent

Yoowattana, S., Rinsurongkawong, S., Ekpanyapong, M., Dailey, N. M., Marikhu R. S., Moonrinta, J. and Siddhichai, S. Automated lane violation detection system, (Thai patent submitted 21 Feb. 2012, owned by AIT and NSTDA)

3.6.7 Doctoral Students' Dissertation

Microelectronics

Fabrication of three dimensional Anodic Aluminum Oxide micro shapes
By Jafar Khan Kasi
Supervisor: Dr. Nitin Afzulpurkar

Mechatronics

Fabrication of Anodic Aluminium Oxide (AAO) Based Mini Dialyzer for Hemo Dialysis Device
By Ajab Khan Kasi
Supervisor: Dr. Nitin Afzulpurkar

Hybrid System-based Fuzzy-PID Control of High Speed Nonlinear Hydraulic Servo System and Simulation Analysis
By Dechrit Maneetham
Supervisor: Dr. Nitin Afzulpurkar

3.6.8 Masters Students' Theses and Projects

A New Approach For Object Recognition Using Image Fusion
By Nachiket Datta Kulkarni
Supervisor: Dr. Nitin Afzulpurkar

Development of Friction Coefficient Determination System for a Two Wheel Vehicle
By Kiran Thapa
Supervisor: Dr. Manukid Parnichkun

Fire Detection for Early Fire Alarm Based on Optical Flow Video Processing
By Suchet Rinsurongkawong
Supervisor: Dr. Mongkol Ekpanyapong

Fabrication of Nanoporous Anodic Alumina Oxide (AAO) Membrane Based Microchannels
By Mahadi Hasan
Supervisor: Dr. Nitin Afzulpurkar
Balancing Control of A Double-Gyroscope BicyRobo
By Rewat Bunchan
Supervisor: Manukid Parnichkun

Development of Delta Robot
By Jakkrit Sivapornsatian

Supervisor: Dr. Mongkol Ekpanyapong
 Development of a Ball Balancing Robot
 By Som Apiwatcharoenkul
 Supervisor: Dr. Manukid Parnichkun

Design of s Self - Balancing Unicycle.
 By Abhishesh Silwal
 Supervisor: Dr. Manukid Parnichkun

Control of a Dual Rotary Inverted Pendulum
 By Sondarangallage D.A. Sanjeewa
 Supervisor: Dr. Manukid Parnichkun

Triangle Clipper Unit Design Graphics Processing Unit
 By Randil Lalinda Gajasinghe
 Supervisor: Dr. Mongkol Ekpanyapong

Design and Simulation of Low Voltage and DC Contacts RF MEMS Switches for Reconfigurable Antennas
 By Sardar M. Rana
 Supervisor: Dr. Nitin Afzulpurkar

Development of Pitch Distance Controllable End Effector using Parallel Linkages
 By Satyajeet Sunil Chafekar
 Supervisor: Dr. Manukid Parnichkun

Design, Simulation and Fabrication of Serpentine Microchannel with Split Flow Based on Hydrodynamics for Continuous Cell Sorting System
 By Miss Elizabeth George
 Supervisor: Dr. Nitin Afzulpurkar

The Solar Concentrator System
 By Pramote Koowattanasuchat
 Supervisor: Dr. Mongkol Ekpanyapong

Automatic Rice Planting Robot
 By Chatchai Pruetong
 Supervisor: Dr. Mongkol Ekpanyapong

Design and Fabrication of a MEMS based Spiral Microchannel using Inertia Coupled Dielectrophoresis Technique for Cell Separation
 By Zahnupriya Kalita
 Supervisor: Dr. Nitin Afzulpurkar

Development of Single-Legged Hopping Robot Using Two-Axis Reaction Wheels
 By Satianpong Somjit
 Supervisor: Dr. Manukid Parnichkun

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

Development of Single-Legged Hopping Robot Using Two-Axis Reaction Wheels
 By Satianpong Somjit
 Supervisor: Dr. Manukid Parnichkun

Prototype Development of A 3D Vision-Guided Industrial Robotic of a Detail Surf Workpiece
 By Pravee Kruachottikul
 Supervisor: Dr. Manukid Parnichkun



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

ANIL KUMAR ANAL, DVM., University of Agriculture, Pakistan; MSc. and Ph.D., 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)

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]

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)

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)

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)

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)

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)

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

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)

HANCHANA 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)

Research Staff

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)

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

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

KARTHIK LAKSHMAN KUNJALI, B.E. Power Electronics, Pune University, India; M.Eng (2011) Nanotechnology, AIT, Thailand

Research Associate (Quantum Dots Based Solar Cell, Hydrogen generation, Dye Sensitized Solar Cell)

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 2012

Nanotechnology Center of Excellence (COE), NANOTEC, NSTDA & Royal Thai Govt. – AIT project

Duration: 2006-2011

Project Investigator(s): The Center of Excellence in Nanotechnology (CoEN) supported jointly by the National Nanotechnology Center (NANOTEC) of the National Science and Technology Development Agency (NSTDA) of Thailand and the Asian Institute of technology (AIT). Current research activities at the CoEN 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. The center's researchers carry out cutting-edge cross-disciplinary research. The CoE supports 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.

Total Contracted Amount

(THB): 50,000,000

Flow Modeling in Hard disc Drives

Duration: 15 Dec 09 - 31 Dec 11

Project Investigator(s): Joydeep Dutta, Huynh Trung Luong, Pisut Koomsap

Sponsor: Donaldson Company Thailand

Total Contracted Amount

(THB): 1,000,000

Photocatalytic thin film coating technology

Duration: 16 Jun 08 - 31 Dec 11

Project Investigator(s): Joydeep Dutta

Sponsor: National Electronic and Computer Technology Center, National Science and Technology Development Agency, Thailand

Total Contracted Amount

(THB): 1,870,940

Printed Electronics using Direct Writing Technology

Duration: 08 Mar 05 - 31 Dec 11

Project Investigator(s): Joydeep Dutta

Sponsor: NSTDA

Total Contracted Amount

(THB): 2,498,776

Zinc Oxide nanorods as filtration Media for multifunctional applications

Duration: 15 Dec 09 - 31 Dec 11

Project Investigator(s): Joydeep Dutta

Sponsor: Donaldson Company Thailand

Total Contracted Amount

(THB): 1,000,000

3.7.5 On-going Grants and Sponsored Research

Photocatalytic material for degradation azo dyes in waste water

Duration: June 2012 – September 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

Baruah, S., Jaisai, M. and Dutta, J. Development of a visible light active photocatalytic portable water purification unit using ZnO nanorods. *Catalysis Science and Technology*, 2 (2012) 918-921 [JCR 2012 Impact Factor ~3.753]

Baruah, S., Ortinero, C., Shipin, V. O. and Dutta J. Manganese Doped Zinc Sulfide Quantum Dots for Detection of Escherichia coli. *Journal of Fluorescence*, 22 (2012) 403-408 [JCR 2012 Impact Factor ~ 1.789]

Baruah, S., Pal, K. S. and Dutta, J. Nanostructured Zinc Oxide for Water Treatment., *Nanoscience & Nanotechnology – Asia*, 2 (2012) 90-102

Bora, T., Kyaw, H. H. and Dutta, J. Zinc oxide-zinc stannate core-shell nanorod arrays for CdS quantum dot sensitized solar cells. *Electrochimica Acta*, 68 (2012) 141-145 [JCR 2012 Impact Factor ~ 3.777]

Chaudhari, B.M., Mohammed, S.W., Hornyak, L.G. and Dutta, J. Chromatic tuning plasmon resonance of tri-layered composites: silver, gold and copper nanoparticles for optical thin film colour filter. *Micro & Nano Letters*, 7 (2012) 146-148 [JCR 2012 Impact Factor ~ 0.845]

Danwittayakul, S. and Dutta, J. Zinc Oxide Nanorods Based Catalysts for Hydrogen Production by Steam Reforming of Methanol. *International Journal of Hydrogen Energy*, 37(2012) 5518-5526 [JCR 2012 Impact Factor ~ 3.548]

Jaisai, M., Baruah, S. and Dutta, J. Paper modified with ZnO nanorods – antimicrobial studies. Beilstein, *Journal of Nanotechnology*, 3 (2012) 684-691 [JCR 2012 Impact Factor ~ 2.374]

Khan, A. Z., Kumar, R, and Dutta, J. Multilayer Thin Films on Colloidal Gold and Silica Nanoparticles: Effect of

Polyelectrolyte Coating. *The Canadian Journal of Chemical Engineering*, 90 (2012) 919-924 [JCR 2012 Impact Factor ~ 1.003]

Kyaw, H. H., Bora, T. and Dutta, J. One-Diode Model Equivalent Circuit Analysis for ZnO Nanorod-Based Dye-Sensitized Solar Cells: Effects of Annealing and Active Area, *IEEE Transactions on Nanotechnology*, 11 (2012) 763-768 [JCR 2012 Impact Factor ~ 1.8]

Mahmood, A. M., Baruah, S., Anal, A. K. and Dutta, J. Heterogeneous photocatalysis for removal of microbes from water. *Environmental Chemistry Letters*, 10 (2012) 145-151 [JCR 2012 Impact Factor ~ 1.623]

Mahmood, A. M. and Dutta, J. Microwave assisted hydrothermal synthesis of zinc hydroxystannate films on glass substrates., *Journal of Sol-Gel Science and Technology*, 10 (2012) 495-504 [JCR 2012 Impact Factor ~ 1.66]

Myint, Z.T.M. and Dutta, J. Fabrication of zinc oxide nanorods modified activated carbon cloth electrode for desalination of brackish water using capacitive deionization approach., *Desalination*, 305 (2012) 24-30 [JCR 2012 Impact Factor ~ 3.041]

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

Promnimit, S. and Dutta, J. Self-Organization of Colloidal Nanoparticles Into Functional Pressure Sensing Device. *Journal of Nanoscience and Nanotechnology*, 12 (2012), 8143-8146 [JCR 2012 Impact Factor ~ 1.149]

Sarkar, S., Makhil, A., Bora, T., Lakhsman, K., Singha, A., Dutta, J. and Pal, K. S. Hematoporphyrin-ZnO Nanohybrids: Twin Applications in Efficient Visible-Light Photocatalysis and Dye-Sensitized Solar Cells. *ACS Applied Materials & Interfaces*, 4 (2012) 7027–7035 [JCR 2012 Impact Factor ~5.008]

Sarkar, S., Makhal, A., Baruah, S., Mahmood, A. M., Dutta, J. and Pal, K. S. Nanoparticle – Sensitized Photodegradation of Bilirubin and Potential Therapeutic Application. *Journal of Physical Chemistry C*, 116 (2012) 9608-9615 [JCR 2012 Impact Factor ~ 4.814]

Sarkar, S., Makhal, A., Lakshman, K., Bora, T., Dutta, J. and Kumar, S. Dual-Sabah, A., Dakua, I., Kumar, P., Mohammed, S. W. and Dutta, J. Growth of Templated Gold Microwires by Self Organization of Colloids on *Aspergillus Niger*. *Digest Journal of Nanomaterials and Biostructures*, 7 (2012) 583-591 [JCR 2012 Impact Factor ~ 1.092]

Sensitization via Electron and Energy Harvesting in CdTe Quantum Dots Decorated ZnO Nanorod-Based Dye-Sensitized Solar Cells. *Pal Journal of Physical Chemistry C*, 116 (2012) 14248-14256 [JCR 2012 Impact Factor ~ 4.814]

Teesetsopon, P., Kumar, S. and Dutta, J. Photoelectrode Optimization of Zinc Oxide Nanoparticle Based Dye-Sensitized Solar Cell by Thermal Treatment. *International Journal of Electrochemical Science*, 7 (2012) 4988-4999

Book Chapters

Mahmood, A. M., Baruah, S., Anal, K. A. and Dutta, J. Microbial Pathogen Inactivation Using Heterogeneous Photocatalysis. *Environmental Chemistry for a Sustainable World Vol. 2: Remediation of Air and Water Pollution*, Eds. Eric Lichtfouse, Jan Schwarzbauer and Didier Robert (2012), pp 511-541, Springer, ISBN 978-94-007-2438-9

International Conference Publications

Bora, T., Kyaw, H. H. and Dutta, J. Hydrothermally grown zinc oxide/zinc stannate core/shell nanorods and their application in quantum dot sensitized solar cells. *Proceedings of the NanoThailand 2012* “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p155

Danwittayakul, S., Jaisai, M., Muangkasem, P. and Koottatep, T. Synthesis Zinc Oxide/Zinc Stannate Composite Oxides by Hydrothermal Process for Photocatalysis Application., *Proceedings of the 6th International Workshop on Advanced Materials Science and Technology (IWAMSN-2012)*, Grand Halong Hotel, Halong City, Vietnam, October 30 - November 2, 2012, p180

Danwittayakul, S., Lakshman, K. and Dutta, J. Preparation of Cu-ZnO Nanocatalysts for Methanol Steam Reformation. *Proceedings of the NanoThailand 2012* “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p150

Jaisai, M., Kitsomboonloha, R. and Dutta, J. Aqueous paint with silver nanoparticle inclusions antibacterial activities., *Proceedings of the NanoThailand 2012* “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p160

Jaisai, M., Muangkasem, P., Danwittayakul, S. and Koottatep, T. Photocatalytic Degradation of Methyl Orange using Zinc Oxide Nanorods/Zinc Stannate (ZnO/ZTO) Catalysts. *Proceedings of the 6th International Workshop on Advanced Materials Science and Technology (IWAMSN-2012)*, Grand Halong Hotel, Halong City, Vietnam, October 30 - November 2, 2012, p176

Kanoknukulchai, K., Myint, Z. T. M., Dutta, J. and Hornyak, L. G. Porous membrane-supported synthesis of carbon nanotubes., *Proceedings of the NanoThailand 2012* “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p88

Kunjali, L. K., Sarkar, S., Bora, T., Pal, K. S. and Dutta, J. Quantum dot solar cells by improved zinc oxide nanorod sensitization with cadmium telluride nanoparticles. *Proceedings of the*

NanoThailand 2012 “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p148

Muangkasem, P., Danwittayakul, S., Jaisai, M., and Koottatep, T. Photocatalytic Degradation of Methylene Blue using Zinc Oxide Nanorods. *Proceedings of the 6th International Workshop on Advanced Materials Science and Technology (IWAMSN-2012)*, Grand Halong Hotel, Halong City, Vietnam, October 30 - November 2, 2012, p359

Waleed, C., Mohammed, S., Hornyak, L. G. and Dutta, J. Anisotropic nanostructured metamaterials with negative refraction: A theoretical approach. Mayur B., *Proceedings of the NanoThailand 2012* “Nanotechnology for the benefits of mankind”, Pullman Raja Orchid Khon Kaen Hotel, Khon Kaen, Thailand, April 9 – 12, 2012, p83

3.7.7 Doctoral Students’ Dissertation

Hydrothermal ZnO Nanorod Supports for Photothermal Hydrogen Production by Methanol Reforming
By Supamas Danwittayakul
Supervisor: Prof. Joydeep Dutta

Studies on zinc oxide nanostructures for dye sensitized type solar cells and photocatalysis applications
By Tanujjal Bora
Supervisor: Prof. Joydeep Dutta

Studies on surface functionalization with zinc oxide micro/nanostructures for brackish water desalination using capacitive deionization
By Myo Tay Zar Myint
Supervisor: Prof. Joydeep Dutta

Studies on Photoelectrode Optimization for Energy Efficiency Enhancement in Nanostructured Zinc Oxide Dye-Sensitized Solar Cells
By Pichanan Teesetsopon
Co-Supervisor: Prof. Joydeep Dutta

3.7.8 Masters Students' Theses and Research Studies

Developing Integrated Optical Characterization Bench for Sensing Microfluidic Channel
By Charusluk Viphavakit
Supervisor: Prof. Joydeep Dutta

Studies on the Synthesis of Carbon Nanotubes by Chemical Vapor Deposition using a Low Vacuum Process
By Kataguna Kanoknukulchai
Supervisor: Prof. Joydeep Dutta

Surface Plasmon Resonance Sensor: Detection of Heavy Metal Ions
By Htet Htet Kyaw
Supervisor: Prof. Joydeep Dutta

Characterization of Layer-by-Layer Electrostatically Self-Assembled Thin Films of Chitosan Capped Gold and Silica Nanoparticles on Conducting Substrates and its Potential Application as a Pressure Sensor
By Anwesh Das
Supervisor: Prof. Joydeep Dutta

3.7.9 Notable Visitors

Mr. Tomas A. Rival and colleagues
Oriental Port & Allied Services Corporation, Cebu, Philippines
December 7, 2012

Mr. Fredrik Johansson
Marketing Development Office, F.O.V Textiles AB., Boras, Sweden
November 8, 2012

Dr. Samir Kumar Pal
Associate Professor, Department of Chemical, Biological & Macromolecular Sciences, Unit for Nanoscience & Technology, S.N.Bose National Centre for Basic Sciences, Kolkata, India
February 25 – 27, 2012

3.7.10 Research Work

ZnO nanostructures for solar cells and photocatalysis

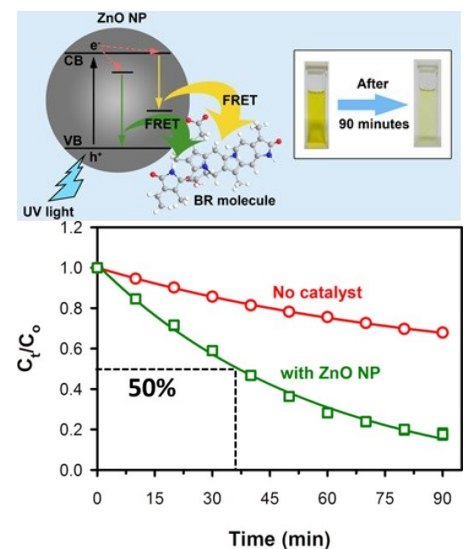
Nanostructures of zinc oxide (ZnO) were synthesized and used for dye sensitized type solar cells and photocatalysis applications. Hydrothermal technique was used for the synthesis of vertically aligned ZnO nanorods, which were sensitized with hematoporphyrin (HP) molecules to harvest sun light. Applications of porphyrin molecules to harvest solar energy efficiently and cost effectively is an upcoming research area in the field of DSSCs. The ZnO nanostructures sensitized with hematoporphyrin (HP) was used as a potential light harvesting electrode for efficient DSSCs as well as visible light photocatalysis. Hematoporphyrin molecules conjugated to the ZnO nanostructures through the carboxylic groups of HP. Efficient fluorescence quenching of HP in the resulting HP-ZnO nanorods implied ultrafast electron migration process from photoexcited HP to ZnO nanorods and this photoinduced event find its application in the utilization of the HP-ZnO nanostructures for the fabrication of efficient DSSCs. The photocatalytic degradation of a dye, methylene blue, under visible light irradiation was studied in the presence of oxygen where the photocatalytic activity was found to be influenced by HP sensitization time and the presence of inert gas.

Utilization of ZnO nanoparticles for the efficient degradation of bilirubin (BR) via photocatalysis technique was also explored. BR is a water insoluble byproduct of heme catabolism and can cause jaundice when its excretion is impaired.

• Hematoporphyrin Sensitized ZnO Nanorods: Dual Applications



The ZnO nanoparticle activated photocatalytic degradation of BR through a non-radiative energy transfer pathway was greatly influenced by the surface defect states (mainly oxygen vacancies) of the nanoparticles. The possible mechanism of energy transfer process between the ZnO nanoparticles and the surface adsorbed BR molecules has been studied through picosecond-resolved TCSPC technique. Correlation of photocatalytic degradation and TCSPC studies showed that the defect engineered ZnO nanoparticles obtained through annealing, led to an efficient decomposition of BR molecules enabled by Förster resonance energy transfer (FRET) process.



Surface functionalization with zinc oxide micro/nanostructures for brackish water desalination using capacitive deionization

Surface wetting behavior of micro/nanostructured zinc oxide (ZnO) synthesized by simple hydrothermal process on different surface morphologies was studied. Naturally hydrophilic material ZnO can be turned into hydrophobic as well as superhydrophobic nature. Surface structuring and wettability on flat and flexible substrates was studied and applied to the water desalination and disinfection (removal of microbes from contaminated water) process.

Capacitive deionization (CDI) is one of the most promising technologies for removing dissolved ions from saline

water. CDI technology is a novel, environmentally friendly and less energy consuming process. This method works on electrochemical control to remove ions (reduce the salinity of water) from aqueous solution upon electrically charging the electrodes (anode and cathode). In this research work, modified highly porous and conducting activated carbon cloth material modified with ZnO micro/nanorods was used and fabricated the electrodes for CDI cell. The desalination process was conducted with 100 ppm sodium chloride (NaCl) solution through CDI cell equipped with ZnO nanorods modified activated carbon cloth (ACC) electrodes. Enhancement of salt removal (desalination) and regeneration efficiency were achieved by CDI cell equipped with ZnO micro/nanostructure modified ACC electrodes. Moreover, antibacterial property of ZnO micro/nanostructure was conducted which can be reduced the electrode fouling in CDI cell as well as disinfected the desalinated water. Thus, nanocomposite materials (ACC:ZnO) has a potential to circumvent the disadvantages of CDI technology available today and assist in resolving some of the problems related to water crisis.

Surface Plasmon resonance optical sensor: Detection of heavy metal ions by electric field assisted

Metal ion sensor is the process to detect one type or different types of ions into the solution. Different techniques of metal ions sensor have been proposed and are in used nowadays. These are inductively couple plasma mass spectroscopy (ICP-MS), atomic absorption spectroscopy and different types of biosensors or optical sensors. The general concept of heavy metal ions sensor is to detect the adsorbed ions (monovalent or divalent ions: Cd, Pb, Hg, Cu, etc) on the sensor surface and turns it into a detectable signal (electronic signal). Different sensing methods have been developed to overcome disadvantages of each method. The performance of a metal ion sensor is

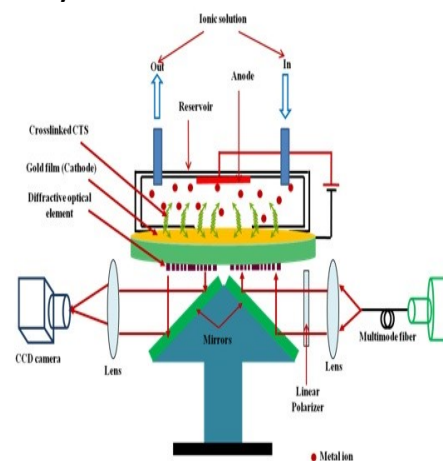
relying on several factors such as selectivity, sensitivity, detection limit, dynamic range, response time, reusability and reproducibility. Surface Plasmon resonance (SPR) based heavy metal ions sensor is one of the most sensitive sensor for detecting toxic metal ions. It is an inexpensive, portable and also feasible for real time detection. SPR sensor is a type of optical sensor in which toxic metal ions get adsorbed on the functionalized metal (mostly Au) film causes the change in refractive index of the metal (Au)-dielectric (sensing) medium. The change of the refractive index leads to a shift in the angular spectrum of the reflected light and can be accurately monitored by optical methods.

In this study, molecular self-assembly and spray deposition techniques were employed to functionalize the sensor surface by using crosslinked chitosan (CTS) (CTS crosslinked with glutaraldehyde). Diffractive optical coupling elements (DOE) were used for input and output coupling of light to excite the surface plasmon wave. Diffractive optical elements played a vital role to reduce the complexity of SPR system. Nanoimprint lithography technique was applied to the replication of the diffractive optical elements by using original master template. DOE master template contained holographic lens was fabricated by using interference lithography technique. DOEs embedded SPR sensor chip was utilized for the detection of heavy metal ions namely lead (Pb) and cadmium (Cd).

Functionalization of sensor surface (Au surface) with crosslinked chitosan (CTS) (CTS crosslinked with glutaraldehyde) was capable of sensing the heavy metal ions in concentrations of 10, 50, 70 and 100 ppm ranges. Moreover, application of electric potential across the electrodes (electric potential of 1.2 V, DC) enhanced the attraction of heavy metal ions on the sensing surface which led to higher sensitivity. Metal ions in ppb ranges (10, 50, 70, 100, 350, 500, 700 and 1000 ppb) were studied by using functionalized Au surface (crosslinked CTS) and applying an

electric potential of 1.2 V. The applied potential was maintained at 1.2 V which is less than water hydrolysed potential of 1.23 V. This combined method enhanced the adsorption of metal ions onto the SPR surface due to chelate properties of amine group as well as applied electric potential. The proposed sensor can be detected in the ppb range (less than 10 ppb) of heavy metal ions such as Pb²⁺ and Cd²⁺. Simple and inexpensive process which diffractive optical elements embedded highly sensitive metal ions sensor has a potential to overcome the drawbacks of SPR sensor available today.

Heavy metal ions sensor structure



Zinc stannate (ZTO) and ZTO/ZnO for photocatalysis

Zinc stannate, a ternary semiconducting oxide has shown promise to be useful in applications under extreme conditions such as in acidic environments where ZnO and TiO₂ are not so efficient. Due to its high stability it can be an appropriate material for photodegradation of various contaminants including phenol which is present in large amount in both waste water and ground water. Zinc stannate was synthesized both at room temperature and high temperature and optimization of growth parameters such as effect of temperature on growth, effect of concentration of mineralizers, effect of time were studied. Zinc stannate nanoparticles were synthesized hydrothermally at room temperature.

The room temperature synthesis was novel technique as all previous schemes for ZTO utilized high temperatures. Work was done in close collaboration with Sultan Qaboos University, Oman.

Zinc stannate / Zinc oxide composite were also synthesized by using sodium stannate as precursor for tin ions at room temperature. Composite materials are class of nanostructures that assimilate different dissimilar building blocks to multifunctional entities. The coupling of two semiconductors provides enhanced charge separation, and interfacial charge transfers for adsorbing contaminants. Figure given below shows the both ZTO nanoparticles synthesized at room temperature (1a) and composite ZTO/ZnO nanoparticles shown in figure (1b)

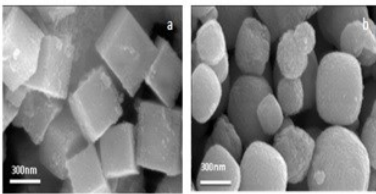


Figure 1 ZTO and ZTO/ZnO composites synthesized at room Temperature a) ZTO, b) ZTO/ZnO composites

Photodegradation of Contaminants

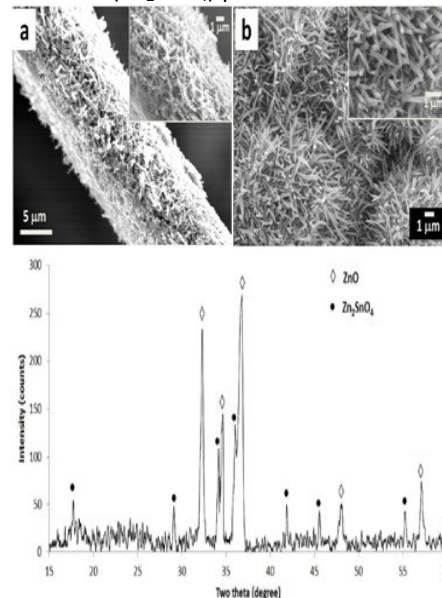
Composite semiconductors offer fascinating way to increase the photocatalytic activity of semiconductors by enhancing the energy range for absorption of photon. Photocatalytic activity of ZTO/ZnO composite and only ZTO nanoparticles was observed using methylene blue as test contaminant irradiated under visible light. Effect of catalyst concentration and intensity was studied on photocatalytic activity. Composite ZTO/ZnO showed good photocatalytic under visible light for methylene blue. Photodegradation of phenol was studied under UV light with ZTO nanoparticles, ZTO/ZnO composites, ZnO nanoparticles and TiO₂. ZTO/ZnO composites showed maximum photodegradation of phenol under UV light followed by composites ZnO, ZTO and TiO₂ nanoparticles.

A manuscript is under review based on above mentioned techniques and

subsequent results in International Journal of Photoenergy.

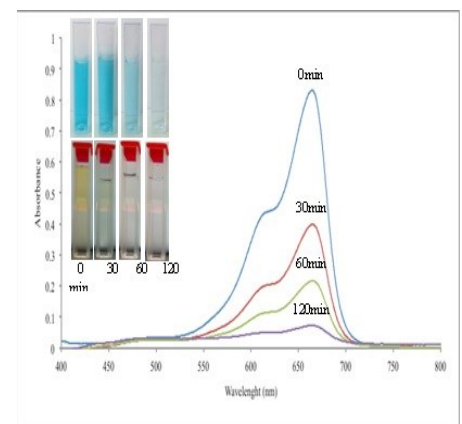
Photocatalytic material for degradation dyes in wastewater

Dye wastewaters, drained by textile industries, have been reported as the main cause of river water contamination. The application of photocatalysis has attracted increasing attention for the treatment of dye waste from textile industries. Nanostructures of zinc oxide nanorods and zinc tin oxide or zinc stannate (ZTO) were synthesized and applied for photodegradation catalyst. ZnO nanorods/ ZTO were grown directly on ZnO nanorods coated polyester fiber membranes and porous ceramic substrates by a mild hydrothermal method where the nanorods supplied zinc ions for the zinc stannate growth. The SEM images of (a) polyester fiber membranes and (b) porous ceramic substrate coated ZnO nanorods synthesized by hydrothermal process using equimolar (5 mM) aqueous solution of zinc nitrate hexahydrate (Zn(NO₃)₂·6H₂O) and hexamine at 95 °C for 15 h. X-ray diffraction pattern of ZnO/10mM ZTO nanocomposite showing mixed ZnO zincite and zinc stannate (Zn₂SnO₄) phases.

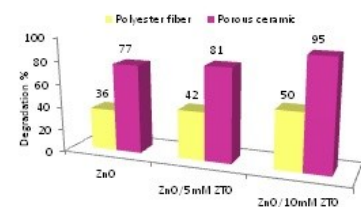


Methyl orange and methylene blue were chosen as dyes for test contamination and degradation by using ZnO nanorods/ZTO catalysts under UV and visible light irradiations. ZnO/ZTO

catalyst on ceramic substrates was given higher photocatalytic activity due to a catalyst was attributed large surface area of the nanocomposites. The results were shown about 95% methyl orange could be degraded within an hour and 3 hours of UV light irradiation respectively. For photocatalytic degradation of methylene blue, the result of a porous ceramic sample coated ZnO nanorods and ZnO NRs/ ZTO have shown that decolorizes and less concentrations of a MB+ solution after tested under visible light source. While the degradation percentages are enhanced following of degradation time.



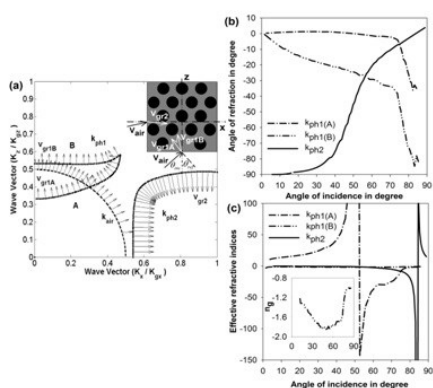
Degradation efficiency of methyl orange as a function of exposure to UV light on the ZnO nanorods and ZnO/ZTO on different catalyst supports on polyester fiber and porous ceramic. Photocatalysts efficiency on the degradation of methyl orange solution was shown the higher degradation rate in ZnO/10mM ZTO coated on a porous ceramic sample.



Metamaterial Computational Analysis

Metamaterials have been attracting lots of attentions over last two decades due to their extraordinary optical properties. They can manipulate the propagation of light, resulting in negative dispersion, sub-wavelength imaging and cloaking. Here in this work, we studied the

realization of negative index material composed of silver nanorods embedded in porous anodized aluminium oxide (AAO) in visible spectra (blue, green and red). The dispersion properties of the light propagation in a periodic structure of AAO were calculated from Helmholtz wave equation and discrete Fourier transform. The solution of these equations gives the frequency of propagation inside periodic structure and can be studied in two dimension (2D-Brillouin zone), generally called as Equi-Frequency Contour (EFC). From the gradients of EFCs, group velocity, strength and direction can be extracted.

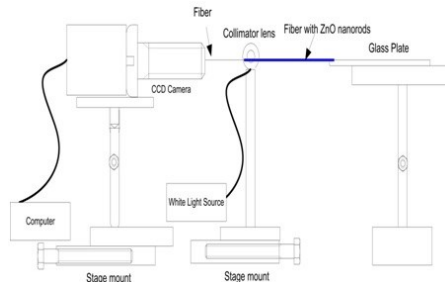


When the gradient results in a group velocity direction opposite to that phase velocity (negative refraction), the behavior is referred to as metamaterial. We have demonstrated that AAO can be used as metamaterial and the propagation of light can be controlled

with manipulation of its periodic structure.

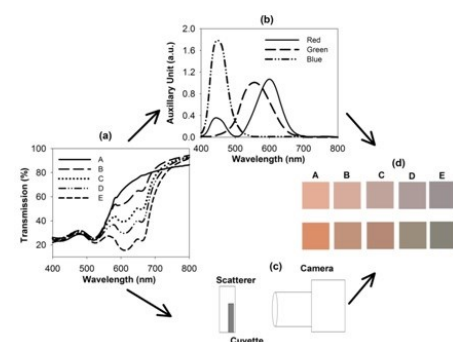
Optical properties of multimode optical fiber coated with zinc oxide nanorods

An optical fiber is a transparent, flexible made of glass. It generally used as waveguides, end to end transmission and optical sensors (DVD, core processor, video raster scanner, etc.). Depends on size of the fiber core, it can be divided into two types: Multimode (50-100 microns) and single mode fiber (8 micron). As the diameter of the multimode fiber larger than single mode, the signal control and manipulation needs complex technique and methods. In this work, we proposed the fiber clad coated vertical aligned zinc rods that can be used as medium to carry signal leads to cladding mode. This technique was optimized for highest cladding mode coupling with different variation of length, diameter and density of nanorods.



Tri-chromatic filters using silver, gold nanoparticles and blue ink

Color and image sensors typically focused on dispersive medium (filters and prisms) to get dispersed light. The spectral splitting techniques are mainly tended to face challenges for size limitation and expensive components. In this work, surface plasmon (SP) based nanoparticles incorporated with ink are the main attractive attributes due to their inherent features such as small size and efficient manipulation of light via surface plasmon resonance (SPR) and color pigment. We investigate theoretically (Maxwell Garnett model) and experimentally transmission color filters (spectral color generation and taken images) using different molar concentration of silver and gold nanoparticles and blue ink.



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

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*)

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*)

Visiting Faculty

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

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

YOSHIKAZU KAMIYA, BEng, Yokohama National University, Japan; MEng, Ph.D. University of Tokyo, Japan

Visiting Faculty (*Aerospace System Engineering and Microwave Remote Sensing*)

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)

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*)

MARC SOURIS, PhD, Université de La Rochelle, France

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

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

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*)

TARAVUDH TIPDECHO, BSc, MSc, Chiangmai Univ, Thailand; DTechSc,

Remote Sensing & GIS, Asian Institute of Technology, Thailand

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

3.8.4 Grants and Sponsored Research Completed in 2012

Advance tools for GIS and Remote sensing data processing

Duration: 2-Aug-11 to 31-Aug-12
Project Investigator(s): Nitin Kumar Tripathi

Sponsor: Ministry of Finance and planning Sri Lanka, SUNTAC Myanmar, Sultan Qaboos University Oman
Total Contracted Amount (THB) 300,000

Integrated Coastal Zone Planning and Management using Geoinformation Technology

Duration: 1-Nov-09 to 31-March-12
Project Investigator(s): Nitin Kumar Tripathi

Sponsor: Multi donors
Total Contracted Amount (THB) 544,000

Training and Study tour for United Group UG Students

Duration: 1-Jun-11 to 31-May-12
Project Investigator(s): Nitin Kumar Tripathi, Nitin V. Afzulpurkar

Sponsor: United Group of Institutions, India
Total Contracted Amount (THB) 520,000

Utilization of Spatial Temporal Information Fujitsu

Duration: 1-May-11 to 31-Dec-12
Project Investigator(s): Masahiko Nagai
Sponsor: Fujitsu Systems Business (Thailand) Ltd

Total Contracted Amount (THB) 700,000

Data generation for Tsunami modeling and Risk

Duration: 1-Oct-09 to 31-Jun-12
Project Investigator(s): Kiyoshi Honda
Sponsor: Asian Disaster Preparedness Center (ADPC)

Total Contracted Amount (THB) 700,000

3.8.5 On-going Grants and Sponsored Research

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

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

Issues on Sustainable Development in Asia

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

3.8.6 Publications

International Journal Articles with Impact factor

Choengsaard, V., **Tripathi, N.K.** and Janecek, P., (2012). Effective Graphic Features for Multivariate Symbol Mapping, *The Cartographic Journal*, (the British Cartography Society, Maney Publisher, ISSN: 00087041, Online ISSN: 1743-2774, Impact Factor: 0.59)

Masumoto, S., Nonogaki, S., Nemoto, T., Sakurai, K., **Ninsawat, S.**, Iwamura, S., Shoga, H., Raghavan, V. and Shiono, K., (2012). Development of Prototype System of Three Dimensional Geologic Modelling for Providing Geologic Information using Web-GIS. *International Journal of Geoinformatics*, vol. 8, no. 1, pp. 53-60. (ISSN: 1686-6576)

Mehmood, H. and **Tripathi, N.K.**, - (2012). Cascading artificial neural networks optimized by genetic algorithms and integrated with global navigation satellite system to offer accurate ubiquitous positioning in urban environment, *Computers, Environment and Urban Systems*, 37(1), 35-44. (Elsevier, ISSN 0198-9715, Impact Factor: 1.183)

Muhammad, A. and **Tripathi, N.K.**, (2012). Evaluation of OpenID-Based Double-Factor Authentication for Preventing Session Hijacking in Web Applications, *Journal of Computers (Fin-land)*, 7 (11), pp. 2623-2628. (Academy Press, JCP, ISSN 1796-203X, I.F. 0.656)

Nakapan, S., **Tripathi, N.K.**, Tipdecho, T., Souris, M., (2012). Spatial diffusion of influenza outbreak- related climate factors in Chiang Mai Province, Thailand, 2012. *International Journal of Environmental Research and Public Health*, 9 (11), pp. 3824-3842. <http://www.mdpi.com/1660-4601/8/8/3416/> (MDPI, ISSN: 16 60-4601, Impact factor: 2.197)

Phongaksorn, N., **Tripathi, N. K.**, Kumar, S. and Soni, P., (2012). Inter-Sensor Comparison between THEOS and Landsat 5 TM Data in a Study of Two Crops Related to Biofuel in Thailand, *Remote Sensing*, doi:10.3390/rs402000x.; 4 (2), 354-376 EISSN: 2072-4292, Impact Factor: 1.832) www.mdpi.com/journal/remotesensing,

Sarfraz, M.S., **Tripathi, N.K.**, Tipdecho, T., Thongbu, T., Kerdthong, P. and Souris, M. (2012). Analyzing the spatio-temporal relationship between dengue vector larval density and land-use using vector factor analysis and spatial ring mapping, *BMC Public Health*, 12: 853. (9

October 2012) (ISSN: Impact Factor: 2.08)

Conference Proceedings

Lertlum, S. and Sokrithy, I. Exploring East-West Cultural Corridor through Ancient Communication Routes: New Paradigm in GIS-Based Cultural Studies, *The 1st International Conference of Asian Network for GIS-based for Historical Studies (ANGIS)* , 1-3 Dec 2012, University of Tokyo, Japan.

Losiri, C., **Ninsawat, S.** and Honda, K., (2012). Data Assimilation of DSSAT Model with Remote Sensing for Yield Estimation in Rainfed Rice Field Area, *GIS-IDEAS 2012*, 16-20 October 2012, Ho Chi Minh City, Vietnam, 8 pages.

Miphokasap, P., **Honda, K.**, Vaiphasa, C., Souris, M. and **Nagai, M.**, (2012). "Estimating Canopy Nitrogen Concentration in Sugarcane Using Field Imaging Spectroscopy", *Remote Sensing*, 4(6),1651-1670; doi:10.3390/rs4061651.

Mozumder, C. and **Tripathi, N.K.**, (2012). "Impact of Monsoon Flooding On Ramsar Wetland In North East India". *Proceedings 4th International Conference on Geo-Information Technology for Natural Disaster Management*. Colombo, Sri Lanka. 7-8 November, 2012

Mozumder, C. and **Tripathi, N.K.**, (2012). "Use of Multiple Satellite Images In Multiple Scales For Feature Extraction And Image Classification: A Case Study Of Ramsar Wetland In North East India". *Proceedings 33rd Asian conference on remote sensing: Aiming Smart Space Sensing*, Pattaya, Thailand, 26-30 November 2012. 288-294.

Nagai, M., Ono, M. and Shibasaki, R., (2012). "EARTH OBSERVATION DATA INTEROPERABILITY ARRANGEMENT WITH ONTOLOGY REGISTRY", *ISPRS Annals – Volume I-2*, 2012, pp.235-239.

Nagai, M., Ono, M., Shibasaki, R., Sakaji, K. and Okada, Y., (2012). "Development of Data Model Registry for Earth Observation Data Interoperability"

Theory and Application of GIS, Vol.20, No.2, pp.71-81.

Nagai, M., Witayagkurn, A., Honda, K. and Shibasaki, R., (2012). "UAV-Based Sensor Web Monitoring System", International Journal of Navigation and Observation, Volume 2012 (2012), Article ID 858792.

Ninsawat, S., (2012). Satellite Field Integrator based on OGC Web Services to enhance GEO science study, APAN 33 Workshop, 13- 17 February 2012, Chaing Mai, Thailand.

Ohira, W., **Honda, K., Nagai, M.** and Ratanasuwan, A., (2012), "Mangrove stilt root morphology modeling for estimating hydraulic drag in tsunami inundation simulation", Springer-Verlag Berlin Heidelberg, DOI: 10.1007/s00468-012-0782-8.
(<http://www.springerlink.com/content/9352272173442ux5/>)

3.8.7 Doctoral Students' Dissertation

Estimation of Sugarcane Biophysical and Biochemical Parameters from Hyperspectral Remote Sensing
By Poonsak Miphokasap
Supervisor: Dr. Kiyoshi Honda

Dialectical Proof Procedures and Applications in Contract Dispute Resolution
By Nguyen Duy Hung
Supervisor: Prof. Phan Minh Dung

Effective Visual Perception of Multivariate Location-based Graph Symbol Design for Information Augmentation in Mapping
By Vasan Choengsa-ard
Supervisor: Dr. Nitin K. Tripathi
Geospatial Analysis of Contributing Factors on Nitrate-Nitrogen Content in Groundwater in Nakhonpathom, Thailand
By Yongyoot Witheetrirong
Supervisor: Dr. Nitin K. Tripathi

Geospatial Land Suitability Modeling for Biofuel Crop Using Fuzzy AHP
By Naruemon Phongaksorn

Supervisor: Dr. Nitin K. Tripathi

Influence of Urban and Peri-urban Habitat Dynamics on Dengue Vector Larval Density and Its Epidemic Implications: A Geoinformatics based Holistic Analysis for Dengue Risk Zonation
By Muhammad Shahzad Sarfraz
Supervisor: Dr. Nitin K. Tripathi

Optimizing Mangrove Formation Based on Tsunami Inundation Simulation with Stilt Root Morphological Modeling
By Wataru Ohira
Supervisor: Dr. Kiyoshi Honda

3.8.8 Masters Students' Theses

Geospatial Analysis of Climate Change Impacts on Flood Frequency and Flood Risk in Mandalay, Myanmar
By Kyu Kyu Sein
Supervisor: Dr. Nitin K. Tripathi

Modeling Agricultural Land Use Change in Upper Ping River Basin, Thailand
By Aparna Phalke
Supervisor: Dr. Nitin K. Tripathi

Moving Object Filtered 3D Mapping of Indoor Environment Using Kinect Sensor
By Vaibhav Katiyar
Supervisor: Dr. Masahiko Nagai

A Game Theory Analysis of Transboundary Impacts of Hydropower Development in the Mekong: Case of 3S Sub-Basin
By Seemanta Sharma Bhagabati
Supervisor: Dr. Sarawut Ninsawat

Integration of Spatial and Policy-Based Interventions in Simulating the Land Use and Land Cover (LU/LC) of Upper Marikina Watershed (UMW), Philippines
By Enrico M. Lalan
Supervisor: Dr. Nitin K. Tripathi

Topic-Geo Mapping of Disaster Information Using Ontology
By Ashik Rajbhandari
Supervisor: Dr. Masahiko Nagai

Above Ground Biomass Study in Dipterocarp Forest, Southeast Asia by ALOS AVNIR-2 and PALSAR
By Natthasiree Chulinrak
Supervisor: Dr. Yoshikazu Kamiya

Geospatial Site Suitability for Medicinal Plants in Chiang Mai Province, Thailand
By Huma Shahzada
Supervisor: Dr. Nitin K. Tripathi

Geospatial Risk Mapping of Respiratory Diseases Related to Particulate Matter Pollution (PM10) in Chiang Mai, Thailand
By Nguyen Ha Trang
Supervisor: Dr. Nitin K. Tripathi

Spatio-Temporal Cellular Automata-Based Urban Growth Modeling in Chiang Mai, Thailand
By Nhiep Seila
Supervisor: Dr. Nitin K. Tripathi

Development of Location Based Application on Android Platform for Environmental Monitoring
By Thanuttha Juldalai
Supervisor: Dr. Masahiko Nagai

Integration of Geoinformatic and Archaeology Based Historical Phenomena Explanation in Case of Wiang Kumkam, Chiang Mai, Thailand
By Parinya Boonrodyu
Supervisor: Dr. Nitin K. Tripathi

Flood Monitoring Using Multi Sources Digital Elevation Model in the Lower Nam Ngum River Basin, Lao PDR
By Phonesavanh Sivanthong
Supervisor: Dr. Sarawut Ninsawat

Validation of Palsar Soil Moisture Measurement with Ground Measurement Data in Tsukuba, Japan
By Ishida Tsushima
Supervisor: Dr. Sarawut Ninsawat
Plant Identification through Object-Based Image Analysis Approach
By Jiraporn Kulsoontornrat
Supervisor: Dr. Sarawut Ninsawat

Improving Real-Time PPP Positioning by Combining QZSS-LEX Message and IGS Ultra-Rapid Products
By Chathura Hasanka Wickramasinghe
Supervisor: Dr. Lal Samarakoon

A Study of Agriculture Land Expansion and Deforestation in Protected Areas Using Multi-Temporal Remote Sensing Data: A Case Study of Pineapple and Rubber Tree Plantations

By Chaiyasith Boonyasirinan

Supervisor: Dr. Sarawut Ninsawat

Seismic Risk Zonation Using Geospatial Analysis of Kohima, Nagaland, India

By Keneizhatuo Kuotsu

Supervisor: Dr. Nitin Tripathi



3.9: SET – STRUCTURAL ENGINEERING FIELD OF STUDY

4.9.1 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-valve 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*]

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)*]

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*]

Visiting/Adjunct/Affiliated Faculty

KI-DU KIM, Ph.D Imperial College of Science Technology and Medicine, England; M.S., AIT, Thailand, B.S., Hanyang, Korea.

Visiting Professor [Development of general purpose nonlinear dynamic finite element software; Large displacement elastoplastic analysis of steel shell structures with initial imperfection; Development of non-linear solid, shell and thin-walled beam element Postbuckling behavior of unstiffened and stiffened composite plate and shell structures using finite element method; Nonlinear analysis of reinforced concrete & prestressed concrete structures; Non-linear dynamic analysis of suspension bridge]

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

Adjunct Assistant Professor [*Advanced Concrete Technology; Forensic Engineering Structural Evaluation and Retrofitting of Structures; Dynamic soil-structure interaction; Seismic behavior of under ground structure; Seismic behavior of earth structure; Multi-Agent simulation; Development of Virtual Clearing-house for earthquake disaster reconnaissance*]

RAKTIPONG 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*]

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

Affiliated Faculty and Senior Research Associate [*Computational Mechanics; Finite Element Analysis; Structural Analysis; Fluid-Structure Interaction; Parallel Computing; Software Development*]

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*]

3.9.4 Grants and Sponsored Research Completed in 2012

Capacity Building of Faculty of Engineering, Balkh University, Afghanistan

Duration: 1-Jan-08 to 30-Jun-12
Project Investigator(s): Naveed Anwar
Sponsor: Balkh University, Ministry of Higher Education, Islamic Republic of Afghanistan
Total Contracted Amount (THB):42,979,260

Building Energy Code

Duration: 1-Jan-01 to 30-Jun-12
Project Investigator(s): Worsak Kanok-Nukulchai
Sponsor: Dansk Energi Management A/S, Denmark
Total Contracted Amount (THB): 14,040,001

Preparation of the Structural Assessment Guideline for Offshore Petroleum Platform and Pipeline

Duration: 29-Dec-07 to 30-Jun-12
Project Investigator(s): Worsak Kanok-Nukulchai, Joko Widjaja
Sponsor: Department of Mineral Fuel, Thailand
Total Contracted Amount (THB): 3,774,000

Mix design of RCC for Upper Pandas Hydropower

Duration: 1-Sep-09 to 30-Aug-12
Project Investigator(s): Sun Sayamipuk

Sponsor: Upper Pandas Hydropower Consultants
Total Contracted Amount (THB):2,006,400

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

3.9.7 Doctoral Students' Dissertation

Structural Health Monitoring of Continuous Prestressed Concrete

Bridges Using Ambient Thermal Responses
By Nonthachart Kulprapha
Supervisor: Assoc. Prof. Pennung Warnitchai

Health Assessment of Concrete Structures by Resistivity Testing and Electric Imaging
By Narongchai Wiwattanachang
Supervisor: Dr. Pham Huy Giao

3.9.8 Masters Students' Theses

Impact of Reinforcement over Design on the Seismic Performance of RC Buildings
By Supamon Wongpiyaboworn
Supervisor: Assoc. Prof. Pennung Warnitchai

Seismic Evaluation of Mid-Rise GLD Buildings with Asymmetric RC Wall System
By Intan Permatasari Hadiwijaya
Supervisor: Assoc. Prof. Pennung Warnitchai

Effect of Connecting Bridge on Seismic Response of Tall Buildings
By Wanassanun Karlken
Supervisor: Dr. Naveed Anwar

The Nonlinear Behavior of Offshore Wind Turbine Structures with Grouted Transition Piece using the Finite Element Method
By Thirawat Termsinsawat
Supervisor: Prof. Kidu Kim

Development of hardness testing technique for the evaluation of localized yielding in steel reinforcement
By Jayasinghe Arachchilage Supun Chamara
Supervisor: Dr. Punctet Thammarak

Development of Nonlinear Spring Model for Simplification of Dynamic Barge-Bridge Impact Analysis
By Niluka Suarangi Bandara
Supervisor: Dr. Punctet Thammarak

Design of Transfer Girder Systems for Seismic Effects in Tall Buildings
By Pragna Nando Roy
Supervisor: Dr. Naveed Anwar

Seismic Performance Evaluation of a Typical Mid-Rise Gravity Load Designed Building in Pakistan
By Mir Shabir Ali Talpur
Supervisor: Assoc. Prof. Pennung Warnitchai

Parametric Study on Vibration of Laterally-Loaded Single Piles
By Mohiul Islam Ahmed
Supervisor: Dr. Punctet Thammarak

Effective Modeling of Basement on Seismic Response of Tall Buildings
By Atta Mohammad
Supervisor: Dr. Naveed Anwar

Forensic Study of a Reinforced Concrete Wharf Structure Damaged due to Overloading
By Patumma Potsungnoen
Supervisor: Dr. Thanakorn Pheeraphan

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 telecommunication 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

KAZI MOHIUDDIN AHMED, MSc, Inst of Communications, Leningrad, USSR; PhD, Univ of Newcastle, Australia.

Professor (*Telecommunication Networks; Digital Modulation Techniques; Satellite Communications; Cellular Mobile Communications; Digital Transmission and Communications*)

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)*)

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*)

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*]

Visiting Faculty

TAPIO J ERKE, MSc, Helsinki Univ of Tech, Finland.

Visiting Associate Professor [*Traffic measurements, modeling, and performance in various telecommunication networks, PSTN, Cellular, Internet, ATM, and optical networks; Resource allocation for different services, network dimensioning and optimization, and switching structures*]

3.10.4 Publications

International Journal Articles with Impact factor

Banjade, V. R. and **Rajatheva, N.** (2012). Performance Analysis of Energy Detection with Multiple Correlated Antenna Cognitive Radio in Nakagami-m Fading, *IEEE Communication Letters*. Vol. 16, Issue 4, pp. 502-505.

Chaudury H. and **Rajatheva N.**, (2012). Performance Analysis of Analog Network Coding based Two-Way Amplify-and-Forward System in Mixed Rician and Nakagami-m fading Environment, *EURASIP Journal on Wireless Communications and Networking*, July, Article 209.

Dhungana, Y., **Rajatheva N.** and **Tellambura, C.**, (2012). Impact of Antenna Correlation on LMS based Dual Hop AF MIMO Systems with Beam forming. *IEEE Transactions on Vehicular Technology*, Vol. 61, Issue 8, pp. 3590-3602.

Dhungana, Y., **Rajatheva, N.** and **Tellambura, C.**, (2012). Impact of Antenna Correlation on LMS based Dual Hop AF MIMO Systems with beam forming, *IEEE Wireless Communications Letters*. Vol. 1, Issue 2, pp 105-108.

Ferdinand, N., Jayasinghe, U., **Rajatheva, N.** and Latva-aho, M., (2012). Impact of Antenna Correlation on the Performance of Partial Relay Selection, *EURASIP Journal on Wireless Communications and Networking*, August, Article 261.

Khan, A.N. and **Saengudomlert, P.** "Design based routing with waveband and wavelength assignment in wavelength division multiplexing

networks using multi-granular optical cross-connects," *Journal of Communications*, vol. 7, no. 11, pp. 821-831, November 2012.

Kunavut, K. and **Sanguankotchakorn, T.** *Generalized Multi-constrained Path (G_MCP) QoS Routing for Mobile Ad Hoc Networks*, *Journal of Communications*, Vol.7, No.3, pp.246-256, March 2012.

Nuwan, S., Ferdinand, N., **Rajatheva, N.** and Latva-aho, M., (2012). Effects of Feedback Delay in Partial Relay Selection over Nakagami-m Fading Channels *IEEE Transactions on Vehicular Technology*, Vol 61, Issue 4, pp 1620-1634.

Tarnoi, S., Kumwilaisak, W. and **Saengudomlert, P.** "On the decidability of random linear network coding in acyclic networks," *IEICE Transactions on Communications*, vol. E95-B, no. 10, pp. 3120-3129, October 2012.

Conference Publications

Adhikari, S., Farahbakhsh, R., Mani, M., Crespi, N., Cuevas, A. and **Sanguankotchakorn, T.** *socP2P: P2P Content Discovery Enhancement by considering Social Networks Characteristics*, *IEEE International Conference on Communications (IEEE ICC 2012)*, Ottawa, Canada, June 10th-15th, 2012.

Hu, F., **Rajatheva, N.**, Latva-aho, M. and You, X., (2012). Sensor Integration to LTE/LTE-A Network through MC CDMA and Relaying, *IEEE VTC 2012 spring*, Japan

Jayasinghe, L. K. S., **Rajatheva, N.** and Latva-aho, M., (2012). Energy Efficient MIMO Two-Way Relay System with Physical Layer Network Coding, *IEEE WCNC Conference*, Paris.

Jayasinghe, L. K. S., **Rajatheva, N.** and Latva-aho, M., (2012). Joint Pre-coder and Decoder Design for Physical Layer Network Coding based MIMO Two-Way Relay System, *ICC 2012*, June, Ottawa.
Bokhari, M. and Saengudomlert, P. "Integrated sleep mode for improving energy efficiency of NG-PONs," in

Proceedings of ICOCN 2012, Thailand, 28–30 November 2012.

Maharjan, R., Saengudomlert, P. and Issariyakul, T. “Performance analysis of using frequent visitors as information carriers for delay tolerant contents,” in Proceedings of ECTI-CON 2012, Thailand, 16–18 June 2012.

Manosha, K. B. S., Joshi, S., **Rajatheva, N.** and Latva-aho, M., (2012). Energy Efficiency Improvement in Multi-cell Networks with Binary Power Control, Wireless Advanced (WiAd) 2012, and London, UK.

Manosha, K. B. S., Joshi, S., **Rajatheva, N.** and Latva-aho, M., (2012). Energy Efficient Power Control and Beam forming in Multi-Antenna enabled Femtocells, IEEE Globecom 2012, USA,

Sanguanpuak, T., **Rajatheva, N.** and Attaphognse T. (2012). Performance of Energy Detector over Nakagami-m Fading for Relay-based Cognitive Radio Networks, IEEE ISWCS, Paris.

Sanguankotchakorn, T., Shrestha, S. and Sugino, N. *Effective Ad Hoc Social Networking on OLSR MANET using Similarity Approach*, Internet and Distributed Computing Systems (Lecture Note in Computer Science, Springer), The 5th International Conference on Internet and Distributed Computing

Systems (IDCS 2012), Wu Yi Shan, Fu Jian, China, pp. 15-28, November 21st-23rd, 2012.

3.10.5 Doctoral Students’ Dissertation

Multi-Constrained Path (MCP) QoS Routing for Mobile Ad Hoc Networks
By Kunagorn Kunavut
Supervisor: Dr. Teerapat Sanguankotchakorn

Cooperative Relaying in a Hybrid /Integrated Satellite-Terrestrial System
By Arif Iqbal
Supervisor: Prof. Kazi Mohiuddin Ahmed

3.10.6 Masters Students’ Theses and Research Studies

Fractional Frequency Reuse Based Downlink Resource Allocation for Two Tier Femtocell Networks
By Lakshika Prabodini Semasinghe
Supervisor: Dr. R.M.A.P. Rajatheva

Performance of OFDM-Based LMSS with Pre-Distortion over Shadowed Rician Fading Channel
By Ajay Kumar Gupta
Supervisor: Prof. Kazi Mohiuddin Ahmed

Energy-Efficient Routing and Wavelength Assignment for WDM Networks with Mixed Line Rates

By Phatheera Jaisin
Supervisor: Dr. Poompat Saengudomlert

Distributed Energy Scheduling in Smart Grids Subjected to Dynamic Demands Using Game Theory
By Bidushi Barua
Supervisor: Dr. Poompat Saengudomlert

Energy Efficiency in Femtocell for Green Communications within LTE Environment
By Mohammad Yaqoob
Supervisor: Prof. Kazi Mohiuddin Ahmed

A Novel Algorithm for Multi-Constrained QoS Routing Using Nonlinear Function and Priority Metrics
By Alangkan Jearakul
Supervisor: Dr. Teerapat Sanguankotchakorn

Improving Routing Protocols of Vehicular Ad Hoc Networks by Using Position-Based Routing
By Binh Tuan Vo
Supervisor: Dr. Poompat Saengudomlert

A Cross-Layer Design Approach in OLSR MANET using BER and Weighted Connectivity Index
By Sanika Krishnamali Wijayasekara
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 imbibes 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)

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

Assistant Professor (Sustainable transport, travel demand, transportation planning, traffic engineering, transport energy planning, intelligent transportation system)

Visiting / Adjunct Faculty

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)

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)

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

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

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

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

Research Staff

Research Assistant

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

Research Associate

PREDA JATURABONG, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering), Kasetsart University, Bangkok, Thailand.

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

SATTRAWUT PONBOON, M. Eng. (Transportation Engineering), Asian Institute of Technology, Thailand; B.Eng. (Transportation Engineering), Suranaree University of Tech., Nakhon Ratchasima, Thailand.

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

SUPATTRA SAMRANJIT, M.A. (Library and Information Science), Ramkhamhaeng University; B.A. (Communication Arts) Bangkok University, Bangkok, Thailand.

SUMETHEE SONTIKUL, M. Eng. (Transportation Engineering), Asian Institute of Technology; B. Eng. (Civil

Engineering), King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand.

3.11.3 Grants and Sponsored Research Completed in 2012

Road Safety Watch-Central Region 2011

Duration: 1-Jun 11 to 30-Jun-12
 Project Investigator(s): Dr. Kunnawee Kanitpong
 Sponsor: ThaiRoads Foundation
 Total Contracted Amount (THB): 725,320

Road Safety Knowledge Development and Dissemination

Duration: 01-Jun-08 to 30-Jun-12
 Project Investigator(s): Kunnawee Kanitpong
 Sponsor: Department of Highways, Thailand
 Total Contracted Amount (THB): 7,756,000

Improving Road Traffic safety in Thailand: A common challenge for European and Thai Universities

Duration: 24-Dec-08 to 30-Apr-12
 Project Investigator(s): Kunnawee Kanitpong
 Sponsor: Commission of the European Communities
 Total Contracted Amount (THB): 8,317,938

Road Safety for Rural Community in Chacheongsao Province

Duration: 20-Mar-11 to 31-Dec-12
 Project Investigator(s): Dr. Kunnawee Kanitpong
 Sponsor: Toyota Motor Thailand Co., Ltd.
 Total Contracted Amount (THB): 706,200

3.11.4 On-going Grants and Sponsored Research

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

Duration: Jun-12 to Dec-13
 Project Investigator(s): Dr. Kunnawee Kanitpong
 Sponsor: Toyota Motor Thailand Co. Ltd.
 Total Contracted Amount (THB):

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: May-11 to 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

Description: *To analyze roadside accident situation and study the appropriate use of roadside barriers and other safety devices for Thai national highways*
 Sponsor: Department of Highways, Thailand
 Duration: Mar-11 to Dec-13

Role in Project: Principal Investigator
 Total Contracted Amount (THB): 13,040,500

3.11.5 Publications

International Journal Articles with Impact factor

Charoentham, N. and **Kanitpong, K.** "Development of Proposed Performance Grading System for Asphalt Binder used in Thailand," the Asian Transport Studies, Vol.2, Issue 2, 2012.

Hamzah, M.O., Jamshidi, A., **Kanitpong, K.** and Aman, M.Y.B. "Parameters to Characterize the Effects of Sasobit® Content on the Rheological Properties of Unaged and Aged Asphalt Binders," the International Journal of Road Materials and Pavement Design, Vol.13 (2), pp. 368-375, 2012. (IF = 0.373)

Kanitpong, K., Charoentham, N. and Likitlersuang, S. "Investigation on Effects of Gradation and Aggregate Type to Moisture Damage of WMA Modified with

Sasobit," the International Journal of Pavement Engineering, Vol.13, Issue 5, pp.451-458, 2012. (IF = 0.402)

Lim, Y., Kim H., **Limanond, T.** and An, S.H. Passenger Transfer Time in the Seoul Metropolitan Intermodal System: Can Smart Card Data Assist in Evaluating and Improving the Transit System? *ITE Journal*, in press.

Tamba, J.G., Njomo,, D. and **Limanond, T.** Causality analysis of diesel consumption and economic growth in Cameroon. *Energy Policy* 2012; 45: 567-575.

Tipakornkiat, C., **Limanond, T.** and Kim, H. Determining an influencing area affecting walking speed on footpath: A case study of a footpath in CBD Bangkok, Thailand. *Physica A: Statistical Mechanics and its Applications* 2012; 391(22): 5453-5464. (IF = 1.521)

Conference publications

Taonthong, S., Jiwattanakulpaisarn, P. and **Kanitpong, K.** "Empirical Analysis of Success and Failure Factors for Public-Private Partnerships in Toll Road Investments," the 91th Annual Meeting of Transportation Research Board, 2012.

3.11.6 Masters Students' Theses and Research Studies

Evaluation of the Performance of U-Turn Movement by the Delay and Travel Time Analysis: A Case Study at Burlian Road, Palembang, Indonesia
 By Rhaptalyani Herno Della
 Supervisor: Dr. Thirayoot Limanond

Influence of Highway Geometry on Driver Stress
 By Rattaphong Meesit
 Supervisor: Dr. Kunnawee Kanitpong
 Future Diesel Consumption Trends in the Transport Sector and Potential of Biodiesel as Substitution inThailand
 By Thanatip Wipulanusat
 Supervisor: Dr. Thirayoot Limanond

Evaluating Green Transportation Options for Dhaka Megacity using MCDA Approaches

By Md. Moniruzzaman
Supervisor: Dr. Thirayoot Limanond

Analysis and Projection of Household
Private Vehicle Ownership in Kathmandu
Valley

By Bibhuti Sharma
Supervisor: Dr. Thirayoot Limanond

Intersection Accident Severity Analysis
Using Ordered Probit Model

By Sharad Bajracharya
Supervisor: Dr. Kunrawee Kanitpong

Heavy Vehicle Speeding-Related
Accidents Analysis in Thailand

By Mamunul Islam
Supervisor: Dr. Kunrawee Kanitpong

Analysis of Transport Demand Elasticity
in Bangkok and Thailand: Impacts of Oil
Price Volatility on Fuel Consumption and
Travel Demand

By Ampon Sanimthong
Supervisor: Dr. Thirayoot Limanond

Impacts of Road Crashes on Poverty in
Myanmar: A Case Study in Yangon

By Phyu Phyu Thwe
Supervisor: Dr. Kunrawee Kanitpong

Trends and Forecast of Gasoline and Jet
Fuel Consumption in Thailand

By Rattanaporn Kasemsri
Supervisor: Dr. Thirayoot Limanond

Performance-Related Properties of the
Second Pavement Recycling

By Pantima Samart
Supervisor: Dr. Kunrawee 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 Manage-

ment 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

GUPTA ASHIM DAS, 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*]

ROBERTO S 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]

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

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

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

PARESH CHANDRA DEKA, BEng. National Institute of Technology., M.E. Guwahati Univ., PhD. Indian Institute of Tech. Guwahati, India.

Visiting Assistant Professor [*Civil Engineering, Watershed Management & Flood Control and Water Resources Engineering*]

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]

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*]

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*]

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 2012

Providing Two Week Training on Modern irrigation practices

Duration: 1-Oct-11 to 31-Aug-12
Project Investigator(s): Mukand S. Babel
Sponsor: Ministry of Energy and Water, Afghanistan
Total Contracted Amount (THB): 840,000

Training course on Integrated Watershed Management and reforestation

Duration: 1-May-11 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCAP Thailand
Total Contracted Amount (THB): 2,298,000

Training Course on Irrigation Systems and Hydraulic Structures for Participants from Afghanistan

Duration: 1-Nov-10 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: DAI, ACDI/VOCA, USA
Total Contracted Amount (THB): 2,039,820

Assistance in developing a Trainers Manual on Integrated Watershed Management on the Basis of the MRC-GTZ Watershed Management Projects Experiences and materials

Duration: 1-July-10 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: RECOFTC Thailand
Total Contracted Amount (THB): 418,500

Post Doctoral Research Programme on Adaptation to Climate change (PRoACC) in River Basin development

Duration: 1-Apr-10 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCO-IHE Delft Netherlands
Total Contracted Amount

(THB): 1,504,800

Regional Refresher Seminar on Disaster Management of Urban Water systems under Climate Change

Duration: 1-Oct-09 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: UNESCO-IHE
Total Contracted Amount (THB): 1,372,800

PhD Short Course cum Workshop on “Advances in Agricultural Water Productivity assessment and improvement in irrigation schemes”

Duration: 1-Sep-09 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: FIVA, DWF, University of Copenhagen
Total Contracted Amount (THB): 1,440,000

4th Batch of E- Learning Program on Integrated Water resource Management

Duration: 1-Sep-09 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: UNU-INWEH and participants
Total Contracted Amount (THB): 878,000

Training Course on IWRM: Principle and Practices

Duration: 1-Oct-08 to 31-Dec-12
Project Investigator(s): Mukand S. Babel (71%), Robert Clemente (29%)
Sponsor: DWI, BAPPENAS (State Ministry of National Development Planning/National Development Planning Agency), Indonesia
Total Contracted Amount (THB): 6,232,347

Groundwater Quality Management Research in Bangkok

Duration: 1-Aug-07 to 31-Dec-12
Project Investigator(s): Mukand S. Babel
Sponsor: Institute for Global Environmental Strategies, Japan
Total Contracted Amount (THB): 1,094,931

APWF Regional Water Knowledge Hub for Groundwater Management

Duration: 1-Jun-11 to 31-Aug-12
Project Investigator(s): Sangam Shrestha

Sponsor: Institute for Global Environmental Strategies, Japan
Total Contracted Amount (THB): 93,000

Implementation of a Workshop and Exposure Visit in Integrated Water Resources Management in Thailand

Duration: 1-Jun-11 to 31-Aug-12
Project Investigator(s): Sangam Shrestha
Sponsor: WWF Nepal
Total Contracted Amount (THB): 243,500

Estimation of water foot print and virtual water flow related to agricultural products in Nepal

Duration: 1-Sep-10 to 31-Jun-12
Project Investigator(s): Sangam Shrestha
Sponsor: Center for Research for Environment Energy and Water (CREEW) Nepal
Total Contracted Amount (THB): 142,000

Hydraulic Model Study of Side Channel Spillway, Nam Ken Dam, Lao PDR

Duration: April 2011 – July 2012
Project Investigator (s): Mr. Arturo G. Roa, Dr. Sutat Weesakul
Sponsor: Thaiwat Engineering Co. Ltd.
Total Contracted Amount (THB): 4,250,000

3.12.4 On-going Grants and Sponsored Research

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 Yamanashi

Japan

Total Contracted Amount

(THB): 2,988,466

3.12.5 Publications**International Journal Articles with Impact factor**

Agarwal, A., Babel, M.S., Maskey, S., Shrestha, S., Kawasaki, A. and Tripathi, N.K., (2012). Quantifying uncertainty in temperature predictions using multi model ensembles in a Himalayan River Basin. *Theoretical and Applied Climatology*, Publisher: Springer. Impact Factor: 1.942 (2011). [Under Review, submitted in, October 2012; proof is attached]

Ahmad, S., Perret, S.R., Nawaz, R. and Shivakoti, G.P., (2012) Relationships between farm size and operational performances in irrigated cropping systems under contrasted governance systems in Punjab (Pakistan). *Journal of Food, Agriculture and Environment*, 10(2): 463-467

Akter, A. and M. S. Babel., (2012). Hydrological Modeling of the Mun River Basin in Thailand, *Journal of Hydrology*, Vol. 452-453 (2012), 232-246. Publisher: Elsevier, Impact factor: 2.514 (2010). Citation: -

Babel, M.S., Mullick, M.R.A, Yudianto, D., Prasad, K. C., Perret, S.R., Triweko, R.W. and Wahid, S. M., (2012). Drops Cascading and Successive Economic Values of Water in the Konto River System, Indonesia: A Contribution to the Optimal System Operation Considering Environmental Criteria, Submitted to *Journal of Hydro-environment Research*, Publisher: Elsevier, Impact factor: 0.907 (2010). Citation: -

Babel, M. S., Rivas, A., Das, G. A. and Kataoka, Y., (2012). Improving Ground-water Quality Management for the Sustainable Utilization of the Bangkok Aquifer System, *International Journal of Water Resources Development*, Vol. 28(2), 355-371. Publisher: Taylor & Francis, Impact factor: 0.871 (2010). Citation: -

Babel, M. S., Chien, N. D., Mullick, M. R. A. and Nanduri U. V., (2012). Operation of Hydropower System Considering

Environmental Flow Requirements, *Journal of Hydro-environment Research*, Vol. 6(1), 63-73. Publisher: Elsevier, Impact factor: 0.907 (2010). Citation: -

Bastakoti, R.C., Gupta, J., Babel, M. S. and Van Dijk, M. P., (2012). Redesigning Incentives for Effective Adaptation Policy in the Lower Mekong River basin, Submitted to *Climate Policy*, Publisher: Earthscan/Taylor and Francis Group, Impact factor: 1.630 (2010). Citation: -

Bhagabati, S., Kawasaki, A., Babel, M. S., Rogers, P. and Ninsawat, S., (2012). A Game Theory Analysis of Transboundary Impacts of Hydropower Development in the Mekong: Case of 3S Sub-basins, Submitted to *Water Resources Management*. Publisher: Springer, Impact factor: 2.201 (2010). Citation: -

Chaponniere, A., Marlet, S., Perret, S.R., Bouleau, G. and Zairi, A., (2012) Methodological pathways to improvements of evaluation approaches: the case of irrigated agriculture performance evaluation. *Journal of Multidisciplinary Evaluation*, 8(18): 47-57

Gupta, J., Li, H., Bastakoti, R.C., Van Dijk, M. P. and Babel, M. S., (2012). Comparative Adaptation Policy in the Mekong and Relationship with Autonomous Actions of Farmers. Submitted to *Environmental Science and Policy*, Publisher: Elsevier, Impact factor: 3.024 (2011). Citation: -

Henry, M., Kawasaki, A. and Meguro, K., (2012) Foreigners' post-disaster relocation or evacuation from Japan and their disaster information gathering behavior after the 2011 Tohoku Earthquake. *Journal of Social Safety Sciences*, 18, 381-390.

Ishikawa, T., Kawasaki, A. and Meguro, K., (2012) Investigation of information sharing by Twitter users during the 2011 heavy snow disaster in San-in region of western Japan. *Journal of Social Safety Sciences*, 17, 135-143.

Jayathilaka, P.M.S., Soni, P., Perret, S.R., Jayasuriya, H.P.W. and Salokhe, V.M., (2012) Spatial assessment of climate

change effects on crop suitability for major plantation crops in Sri Lanka. *Regional Environmental Change*, 12(1): 55-68

Kawasaki, A., Henry, M. and Meguro, K., (2012) Disaster information collection of foreigners after the 2011 Tohoku Earthquake considering the difference in language ability. *Journal of Social Safety Sciences*, 18, 373-380.

Kawasaki, A., Komori, D., Nakamura, S., Kiguchi, M., Nishijima, A., Oki, K., Oki, T. and Meguro, K., (2012) Emergency response during the 2011 Chao Phraya River flood in Thailand focusing on information sharing and coordination among governmental agencies. *Journal of Social Safety Sciences*, 17, 109-117.

Khan, N. M., **Babel. M. S.**, Clemente, R. S. and Luong H. T., (2012). Reservoir Optimization-Simulation with Sediment Evacuation Model (the ROSSE Model) to Minimize Irrigation Deficits, *Water Resources Management*, Vol. 26(11), 3173-3193. Publisher: Springer, Impact factor: 2.201 (2010). Citation: -

Komori, D., Nakamura, S., Kiguchi, M., Nishijima, A., Yamazaki, D., Suzuki, S., **Kawasaki, A.**, Oki, K. and Oki, T., (2012) Characteristics of the 2011 Chao Phraya River flood in Central Thailand. *Hydrological Research Letters*, 6, 41-46.

Longpichai, O., **Perret, S.R.** and Shivakoti, G., (2012). Role of livelihood capital in shaping the farming strategies and outcomes of smallholder rubber producers in southern Thailand. *Outlook on Agriculture*, 41(2): 117-124

Mahmood, R. and **Babel M. S.**, (2012). Future Changes in Max Temperature, Min Temperature and Precipitation Using Statistical Downscaling in Jhelum River Basin, Pakistan, Submitted to *Stochastic Environmental Research and Risk Assessment*, Publisher: Springer, Impact factor: 1.523 (2011), Citation: -

Mahmood, R. and **Babel M. S.**, (2012). Evaluation of SDSM developed by annual and monthly sub-models for downscaling temperature and

precipitation in the Jhelum basin, Pakistan and India, Accepted in *Theoretical and Applied Climatology*, Publisher: Springer, Impact factor: 1.942 (2011). Citation: -

Muangthong, S., Clemente, R. S., **Babel. M. S.**, Gallardo, W. and Weesakul, S., (2012). Assessment of Wetland Ecosystem Health in Lower Songkhram, Thailand, *International Journal of Sustainable Development & World Ecology*, Vol. 19(3), 238-246. Publisher: Taylor & Francis, Impact factor: 1.213 (2012). Citation: -

Mullick, M. R. A., **Babel, M. S.** and Perret, S. R., (2011). Incorporating Discharge-based Marginal Values of In- and Off-stream Water Uses in Optimal Water Allocation – A Case Study from Bangladesh, Accepted in *Water Policy*, Publisher: IWA Publishing, Impact Factor: 0.903 (2010). Citation: -

Nishijima, A., Nakamura, S., Komori, D., Kiguchi, M., Fernandez, J., Kakehashi, J., Mateo, C., Okaneya, M., Tsunekawa, T., Yutani, H., **Kawasaki, A.**, Oki, K., Noda, K., Tobino, T., Chaminda, G.G.T., Katayama, H. and Oki, T., (2012) Survey of water quality of the chao phraya river flood in Thailand in 2011: Focusing on flow and status of floodwater. *Journal of Japan Society on Water Environment*, 187-195

Pandey, V.P., **Shrestha, S.**, and Kazama, F., (2012). Groundwater in Kathmandu Valley: development dynamics, consequences and prospects for sustainable management, *European Water*, 37:3-14. Publisher: European Water Resources Association (EWRA), Impact factor: - . SCOPUS citation:-

Parajuli, K., Kang, K. and **Shrestha, S.**, (2012). Statistical GCM Downscaling and its Precipitation Map Development in Mekong region. *Hydrological Processes*, Publisher: Wiley. Impact Factor: 2.48 (2011) [Submitted in December, 2012]

Plangoen, P., Clemente, R.S., Babel, M.S. and **Shrestha, S.**, (2012). Estimation of Rainfall Erosivity under Climate Change in the Upper Nan Watershed, Thailand.

Climate Research, Publisher: Inter-Research Science Center., Impact factor: 1.99 (2011) [Under Review]

Plangoen, P., Clemente, R.S., **Babel, M. S.**, and Shrestha S., (2012). Estimation of Rainfall Erosivity under Climate Change in The Upper Nan Watershed, Thailand, Submitted to *Climate Research*, Publisher: Inter-Research Science Center, Impact factor: 2.11 (2010), Citation: -

Shrestha, B., Maskey, S., **Babel, M. S.**, van Griensven, A. and Uhlenbrook, S., (2012). Simulating sediment yield and transport in the Nam Ou River basin of the Lower Mekong under future climate and reservoir development scenarios, Submitted to *Hydrology and Earth System Sciences*. Publisher: Copernicus Publications, Impact factor: 2.462 (2010). Citation: -

Shrestha, S., Pandey, V.P., Hiraga, Y., **Shrestha, S.** and Kazama, F., (2012). An evaluation of rainwater quality in Kathmandu Valley, Nepal. *Environmental Monitoring and Assessment*, Publisher: Springer, Impact factor: 1.4 (2011) [Under Review, submitted on, 2012; *proof is attached*]

Shrestha S., Pradhananga D., Pandey V.P. (Eds.), (2012). Kathmandu Valley Groundwater Outlook. Asian Institute of Technology (AIT), The Small Earth Nepal (SEN), Center of Research for Environment Energy and Water (CREEW), International Research Center for River Basin Environment-University of Yamanashi (ICRE-UY), Kathmandu, Nepal. ISBN:978-9937-2-4442-8

Shrestha S., Pradhananga D., Shrestha S. and Shrestha, V., (2012). Groundwater development and management institutions and policies in Nepal. In: Shrestha S., Pradhananga D., Pandey V.P. (Eds.) Kathmandu Valley Groundwater Outlook. Asian Institute of Technology (AIT), The Small Earth Nepal (SEN), Center of Research for Environment Energy and Water (CREEW), International Research Center for River Basin Environment-University

of Yamanashi (ICRE-UY). pp 115-124. ISBN: 978-9937-2-4442-8

Singhrattna, N., **Babel, M. S.**, and Perret, S. R., (2012). Hydroclimate Variability and Long-Lead Forecasting of Rainfall over Thailand by Large-scale Atmospheric Variables, *Hydrological Sciences Journal*, Vol. 57(1), 26-41. Publisher: IAHS Press, Impact factor: 1.447 (2010). Citation:-

Singhrattna, N., Babel, M.S. and **Perret, S.R.**, (2012). Hydroclimate variability and long-lead forecasting of rainfall over Thailand by large-scale atmospheric variables. *Hydrology Sciences Journal*, 57(1): 26-47.

Ullah, K., **Shrestha, S.** and Guha, S., (2012). A decision support tool for selection of suitable General Circulation Model and future climate assessment. *Journal of Earth Science and Climate Change*, Publisher: OMIS, [[http://omicsonline.org/2157-7617/pdfdownload.php?download=2157-7617-3-117.pdf](http://omicsonline.org/2157-7617/pdfdownload.php?download=2157-7617-3-117.pdf&&aid=9044) &&aid=9044] Impact factor: 0.6 (2012). SCOPUS citation:-

Conference publications

Agarwal, A., **Babel, M.S.**, and Maskey S., (2012). Assessment of Uncertainty in Precipitation Predictions for Koshi river basin, Nepal Using Multi-model Ensembles. A paper presented at the *2nd International Conference on Water Resources, 2012*, Langkawi, Malaysia. In UNESCO-IHP VII, Technical Documents in Hydrology No. 7, 20th UNESCO-IHE Regional Steering Committee for Southeast Asia and the Pacific UNESCO Office, Jakarta.

Affholder, F., **Jourdain, D.**, Alary, V., Quang, D. D. and Corbeels, M., (2012). Models for assessing farm-level constraints and opportunities for conservation agriculture: relevance and limits of the method, identified from two case studies. 3rd International Conference on Conservation Agriculture in Southeast Asia. , Hanoi, Vietnam. CIRAD Montpellier France, NOMAFSI

Phu Tho Viet Nam, University of Queensland, Brisbane, Australia.164.

Agarwal, A., **Babel, M.S.**, and Maskey, S., (2012). How uncertain are future climate predictions? An assessment in a Himalayan river basin. In *Proceedings of the 10th International symposium on Southeast Asian Water Environment*, 8-10 November 2012, Hanoi, Vietnam.

Fakhrudin, S. H. M., **Babel, M. S.**, and Kawasaki, A., (2012). A Decision Support Framework for Integrated Land, Water and Food Security. Regional Workshop on Water, Land and Southeast Asia Food Sovereignty, 17-21 September 2012, Bogor Agriculture University, Indonesia.

Fakhrudin, S.H.M., and **Babel, M. S.**, (2012). A Decision Support Framework for Flood Risk Assessment: An Application to the Brahmaputra River in Bangladesh, APEC Climate Symposium 2012, October 8-11, 2012, St. Petersburg, Russia.

Fakhrudin, S.H.M., Babel, M.S. and **Kawasaki, A.**, A decision support framework for integrated land, water and food security. Regional workshop on Water, Land and Southeast Asia Food Sovereignty, Bogor Agriculture University, Indonesia, 18-19 September, 2012.

Harada, H., Fujii, S., Tanaka, S., Shivakoti, B.R. and **Shrestha, S.**, (2012). Residential water consumption pattern in Kathmandu valley, Nepal. *Proceedings of 49th Annual Conference of Environmental Engineering Research Forum*, 28-30 November, 2012, Kyoto University, Japan.

Henry, M., **Kawasaki, A.** and Meguro, K. Disaster information collection by Thai and foreigners during the 2011 Thai flood, *Proceedings of the Eleventh International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, 43-54, Ulaanbaatar, Mongolia, Oct. 2012.

Jourdain, D., Boere, E., Van, D. B. M., Dang, D. Q., Thanh, C. P. and Affholder,

F., (2012). Can more irrigation help in restoring environmental services provided by upper-catchments? A case study in the Northern mountains of Vietnam. *Conservation Agriculture and Sustainable Upland Livelihoods*, 15-17 Dec. 2012, Hanoi.

Kawasaki, A., Takamatsu, M. and Rogers, P. Development and Application of a Land-Use Prediction Model for Future Water Resources Management in the Greater Mekong Subregion. *Proceedings of the International Conference on GMS 2020: Balancing Economic Growth and Environmental Sustainability*, 255-262, Bangkok, Thailand, Feb. 2012.

Kawasaki, A., Takamatsu, M. and Rogers, P. Development of Land Use Prediction Model for Future Water Resource Management. *Proceedings of the 2012 Esri International User Conference*, San Diego, USA, Jul.2012.

Kawasaki, A., Henry, M. and Meguro, K. Comparing the disaster information gathering behavior and post-disaster actions of Japanese and foreigners in the Kanto area after the 2011 Tohoku Earthquake. *15th World Conference of Earthquake Engineering*, Lisbon, Portugal, Sep. 2012.

Kawasaki, A., Henry, M. and Meguro, K. Multi-dimensional analysis of Disaster information gathering behavior after the 2011 Tohoku earthquake, *Proceedings of the Eleventh International Symposium on New Technologies for Urban Safety of Mega Cities in Asia*, 263-272, Ulaanbaatar, Mongolia, Oct. 2012.

Meguro, K., **Kawasaki, A.** and Henry, M. An analysis of the information dissemination channels among foreigners after the 2011 Tohoku Earthquake considering language ability. *The Great East Japan Earthquake Succession Workshop 2012*, Iwaki, Fukushima, Aug. 2012.

Pasakhala, B., Harada, H., Fujii, S., Tanaka, S., Shivakoti, B.R. and **Shrestha, S.**, (2012). Water consumption pattern for water demand management in

Kathmandu Valley, Nepal. Proceedings of 21st Joint KAIST-KU-NTU-NUS Symposium, 13-14 July 2012, Kuala Lumpur, Malaysia.

Poster

Sujan, S., **Shrestha, S.**, Nakamura, T. and Kazama, F., (2012). Stable isotopic composition of $\delta^{15}\text{N-NO}_3^-$ and $\delta^{18}\text{O-NO}_3^-$ in bulk precipitation of Kathmandu valley, Nepal. In: International Global Atmospheric Chemistry (IGAC) 2012 Open Science Conference “Atmospheric Chemistry in the Anthropocene”, 17-21 September 2012, Beijing, China. (Awarded Young scientist Travel Grant).

Sujan, S., **Shrestha S.**, Nakamura T. and Kazama, F., (2012). Stable isotopic composition of $\delta^{15}\text{N-NO}_3^-$ and $\delta^{18}\text{O-NO}_3^-$ in precipitation of Kathmandu valley during monsoon season. In: European Geosciences Union General Assembly, 22-27 April 2012, Vienna, Austria.

Techamahasaranont J., **Shrestha S.** and Tangtham N., (2012). Effects of Climate Change and Land Use Change on Water Resources in the Upland of Chao Phraya River Basin, Thailand, In: ‘Planet Under Pressure 2012’, 26-29, London. (Poster Number: P1.296, Awarded Travel Grants)

Edited book

Dugué, P., Faure, G., Scopel, E., Castella, J.C., Penot, E. A., Jourdain, D. and Olina, J.P., (2012). Projet RIME PAMPA AFD Les Systèmes de culture sous couvert végétal (SCV) dans les exploitations agricoles familiales (Madagascar, Cameroun, Laos, Brésil, Vietnam). Evaluation socio-économique et conditions de diffusion. CIRAD, Montpellier.

3.12.6 Doctoral Students’ Dissertation

Flood Hazard and Risk Analysis in the Surrounding Area of Second Bangkok International Airport (SBIA)
By Yuddhana Keokhumcheng

Supervisor: Dr. Roberto Clemente

Hydrologic Forecasting Based on Statistical and Physical Approaches for the Upper Chao Phraya River Basin, Thailand

By Nkrintra Singhrattana
Supervisor: Dr. Mukand S Babel

Development of Ecohydrological Health Index and Its Application in Lower Songkhram Wetland, Thailand
By Somphinith Muangthong
Supervisor: Dr. Roberto Clemente

3.12.7 Masters Students’ Theses and Research Studies

WEM

Alternative Models to Finance Irrigation Services and Their Impacts Along the Rice Chain Value: A Case Study in Central Thailand
By Peerasut Saringkarn
Supervisor: Dr. Damien Jourdain

Assessment of Erosion and Sedimentation in the Mae Soi Watershed in North Thailand, Using Swat Model
By Thatkiat Meema
Supervisor: Dr. Roberto S. Clemente

Water Poverty in the Context of Climate Change: A Case Study of the Northeastern Region of Bangladesh
By Debapi Kumar Ghosh
Supervisor: Dr. Mukand S. Babel

Assessment of Household Water Consumption in Kandahar City, Afghanistan
By Mohammad Aslam Haziq
Supervisor: Dr. Sangam Shrestha

Distributed Hydrological Modelling for Flood Hazard Mapping under Climate Change Scenario: The Case of Yang River Basin, Thailand
By Worapong Lohpaisankrit
Supervisor: Dr. Sangam Shrestha
Estimating Nonpoint Source Pollutant Load Impact on Water Quality of Inle Lake, Myanmar by Using N-SPECT Model
By Kyawt Kyawt Khaing

Supervisor: Dr. Roberto S. Clemente

Climate Change Impacts on Irrigation Water Requirement of Rice-Wheat Cultivation in Bagmati River Basin, Nepal
By Birat Gyawali
Supervisor: Dr. Sangam Shrestha

Development of Design Rainfall for Urban Drainage in the Monsoon Areas in Vietnam
By Nguyen Van Thuan
Supervisor: Dr. Roberto S. Clemente

A Decision Support Framework for Flood Risk Management
By S.H.M. Fakhruddin
Supervisor: Dr. Akiyuki Kawasaki

Analysis of Performance and Efficiency of Water Supply Systems in Vietnam: Analysis of Technical Options for Network Extension in Hai Phong City
By Vu Manh Hoang
Supervisor: Dr. Sylvain Roger Perret

Impact Assessment of Climate Change and Land Management Practices on Sediment Yield: A Case Study in the Nam Ou River Basin, Lao PDR
By Manisha Maharjan
Supervisor: Prof. Mukand S. Babel

Climate Change Impact and Adaptation Measures for Maize Yield in East Sikkim, India
By Proloy Deb
Supervisor: Prof. Mukand S. Babel

Variability of Nearshore and Shallow Water Wave Fields due to Future Climate in the Lower Gulf of Thailand
By Chatlada Sriumpoldech
Supervisor: Prof. Mukand S. Babel

Productivity of Potato under Different Altitudes in Sikkim, India
By Anjelo Francis Denis
Supervisor: Dr. Roberto S. Clemente

Hydrological and Economic Effects of Rice Flood Retarding Area in Lower Chao Phraya River Basin in Thailand
By Chanika Kaewsantip
Supervisor: Dr. Damien Jourdain

Impact of Climate Change on Water Resources, Rice Production and Income in Ca Mau Province, Vietnam
By Tran Anh Duong
Supervisor: Dr. Sylvain Roger Perret

Impact of Climate Change on Salinity Intrusion and Rice Yield in the Mekong Belta, Vietnam
By Hong Le Thi Phuong
Supervisor: Prof. Mukand S. Babel

Institutional Framework and Decentralization of Irrigation Management in Vietnam
By Tran Van Phu
Supervisor: Dr. Roberto S. Clemente

Analysis of Water and Energy Conservation Alternatives in Bangkok Water Supply System, Thailand
By Kanchanapun Anusart
Supervisor: Prof. Mukand S. Babel

Assessment of Irrigation Performance: A Case Study of Telegasari Irrigation Scheme, Karawan of District, Indonesia
By Foyya Yusufu Aquino
Supervisor: Dr. Sangam Shrestha

Assessment and Management of Soil Salinization in Agricultural Croplands in Northeast Thailand
By Worrapan Jabjai
Supervisor: Dr. Roberto S. Clemente

Preliminary Assessment of Groundwater Quality in Sana'a Basin, Yemen
By Fahmi Abdulkhak Ahmed Sultan
Supervisor: Prof. Mukand S. Babel

Climate Change Impact on Tala Hydropower Plant in Wangchu Basin, Bhutan
By Kuenzang
Supervisor: Prof. Mukand S. Babel

UWEM

Modeling Unsteady Flow Regimes Under Varying Operating Conditions in Water Distribution Networks
By Mercy Asaph Kabaasha
Supervisor: Prof. Maria Dolores Kennedy

Analysis of Water Quality of an Urban River: A Case Study of Pavana River in India
By Sandesh Shamsundar Khadtare
Supervisor: Prof. Damir Brdjanovic

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.

Faculty Members

From ICT Area of Study

MIKKO KOVALAINEN, Ph.D., M.Econ,
University of Jyväskylä, Finland
Visiting Senior Researcher

From Telecommunications Field of Study

KAZI MOHIUDDIN AHMED, **Professor**

TAPIO ERKE, **Visiting Associate Professor**

R. M. A. P. RAJATHEVA, **Associate Professor, ICT-Joint Coordinator**

POOMPAT SAENGUDOMLERT, **Assistant Professor**

TEERAPAT SANGUANKOTCHAKORN,
Associate Professor

From Computer Science and Information Management Fields of Study

MATTHEW N. DAILEY, **Assistant Professor**

PHAN MINH DUNG, **Professor**

VATCHARAPORN ESICHAIKUL, **Associate Professor**

PETER HADDAWY, **Professor**

PAUL JANECEK, Assistant Professor, **ICT Joint Coordinator**

KANCHANA KANCHANASUT, **Professor**

VILAS WUWONGSE, **Professor**

SUMANTA GUHA, **Associate Professor**

From Remote Sensing and Geographic Information Systems Field of Study

XIAOYONG CHEN, **Associate Professor**
and **ICT Joint Coordinator**

KIYOSHI HONDA, **Associate Professor**

NITIN KUMAR TRIPATHI, **Associate Professor**

3.13.4 Doctoral Students' Dissertation

A Trust Aware Reliable Routing Scheme for Emergency Response Communication Networks
By Muhammad Ibrahim Channa
Supervisor: Prof. Kazi Mohiuddin Ahmed

Reliability Index of a Relay Selection in Cooperation Wireless Networks
By Samad Baseer
Supervisor: Prof. Kazi Mohiuddin Ahmed

Inter-Governmental Collaboration through e-Document Computation: A Case Study of Provincial Budgeting in Thailand
By Phannachet Na Lamphun
Supervisor: Prof. Vilas Wuwongse

3.13.5 Masters Students' Theses and Research Studies

Energy Efficient Routing and Wavelength Assignment in WDM Networks with Optical Reach Consideration
By Mes Napaamporn
Supervisor: Dr. Poompat Saengudomlert

Development of Simulation Tools for Path Recovery Mechanism in MPLS Networks
By Prabin K.S Maharjan
Supervisor: Dr. Teerapat Sanguankotchakorn

Performance Analysis of a Novel Routing Algorithm Using Residual Energy for Green Manet
By Chalida Sriprechanun
Supervisor: Dr. Poompat Saengudomlert

Towards Self-Sustainable Networks in Remote Areas: Using Frequent Visitors as the Information Carriers for Delay Tolerant Contents
By Ravi Maharjan
Supervisor: Dr. Poompat Saengudomlert

Energy Efficient Routing Scheme Based on Cross Layer Design for Wireless Sensor Networks
By Thanapol Vhangthamsathit
Supervisor: Dr. Teerapat Sanguankotchakorn

Intelligent Multilevel Clustering in Heterogeneous Wireless Sensor Networks
By Ekendra Lamsal
Supervisor: Prof. Kazi Mohiuddin Ahmed

Effective Social Ad Hoc Network Using Similar Interest Approach
By Shradha Shrestha
Supervisor: Dr. Teerapat Sanguankotchakorn

Adaptive Channel Access Mechanism for IEEE 802.11e in Wifi-Network
By Aravinthan Gopalasingham
Supervisor: Dr. Teerapat Sanguankotchakorn

IEEE 802.11e Enhanced Distributed Channel Access Using Deficit Round Robin
By Wirongrong Potianthong
Supervisor: Dr. Teerapat Sanguankotchakorn

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

PORNPONG ASAVADORNDEJA, 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

LAURIE F. BOSWELL, Doctor of Philosophy, University of Leeds; Doctor of Science, Technical University of Isai; Doctor of Science, Technical University of Cluj Napoca

WINAI OUYORNPRASERT, Master of Engineering, Chulalongkorn University, Bangkok, Thailand; Ph.D., University of Innsbruck, Austria

POOVADOL SIRIRANGSI, Master of Business Administration, University of Central Oklahoma the United State; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

3.14.3 Publications

International Journal Article with Impact factor

3.14.4 Masters Students' Theses and Internships

Flexibility of Carbon Dioxide Injection Evaluation Using the Real Options Approach

By Pornchanok Lakawat

Supervisor: Assoc. Prof. Gregory L. F. Chiu

A Study of Behavior of Umbilical Subjecting to Axially Tensile Loads

By Nattapoom Khumwongsakul

Supervisor: Assoc. Prof. Gregory L. F. Chiu

Co-Chairperson: Dr.Pornpong Asavadorndeja

Stress Concentration Factors and Spectral Fatigue Assessment of a Clamped Joint Tripod

By Pantawat Chuencharoensuk

Supervisor: Assoc. Prof. Gregory L. F. Chiu

Co-Chairperson: Dr.Pornpong Asavadorndeja

Perforation Strategy for Multi-Layered Gas and Gas-Condensate Reservoirs

By Faheem Uddin Qureshi

Supervisor: Assoc. Prof. Gregory L. F. Chiu

Co-Chairperson: Dr. Suwat Athichanagorn

Methodologies to Reduce Torque and Drag in Highly Deviated Wells in the Gulf of Thailand

By Samapan Thongmee

Supervisor: Assoc. Prof. Gregory L. F.

Chiu
Co-Chairperson: Mr. Sarunphong
Articharte

Enhanced Condensate Production
through CO₂ Injection in Water-Drive
Gas Condensate Reservoir
By Muhammad Kashif Ali
Supervisor: Assoc. Prof. Gregory L. F.
Chiu
Co-Chairperson: Dr. Suwat
Athichanagorn

Simulation of Slender Drop Object into
Seabed and Its Kinetic Energy
Distribution
By Preecharcharn Butpracon
Supervisor: Assoc. Prof. Gregory L. F.
Chiu
Co-Chairperson: Dr. Pornpong
Asavadorndeja

Comparison of In-situ and Conventional
Gas Lift for Commingled Reservoirs in
Pattani Basin
By Chalatchawan Surapongshandej
Supervisor: Assoc. Prof. Gregory L. F.
Chiu
Co-Chairperson: Dr. Jirawat
Chewaroungroaj and Dr. Suwat
Athichanagorn

Applicability of the Gas Material Balance
Equation for Multi-Layered Gas
Reservoirs
By Ratchapong Apisitsarekul
Supervisor: Assoc. Prof. Gregory L. F.
Chiu
Co-Chairperson: Dr. Suwat
Athichanagorn

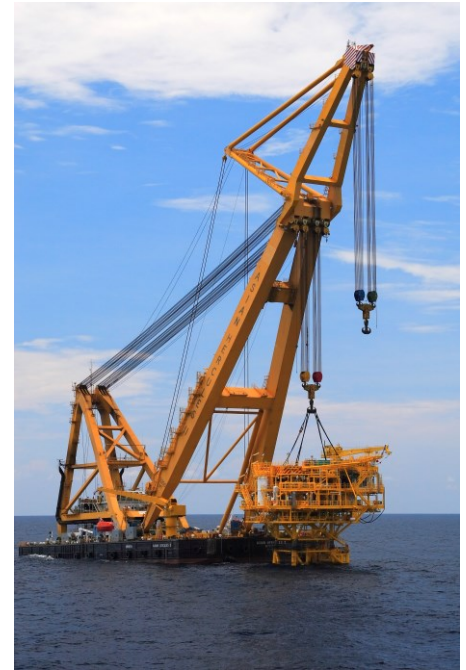
Inspection Plan and Procedures Using
Risk Based Inspection Method
By Zayar Zaw

Supervisor: Assoc. Prof. Gregory L. F.
Chiu

Subsea Pipeline Installation
By Thein Htike
Supervisor: Assoc. Prof. Gregory L. F.
Chiu

Decommissioning of Fixed Platforms in
the Gulf of Thailand from the
Contractor's View
By Thamrong Phansura
Supervisor: Assoc. Prof. Gregory L. F.
Chiu

Explosive Protection for Electrical
Equipment
By Choochat Ngerkhao
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
- MBA in Energy Business
- Energy and Environment

Professional Master Programs

- Aquaculture Business Management
- Environmental Engineering and Management
- Energy Business Management
- Public Policy
- Urban Management
- Water Technology Management

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 Bioprocess 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

WEERAKORN ONGSAKUL

BEng, Chulalongkorn Univ, Thailand; MS, PhD, Texas A&M Univ, USA.

Associate Professor (*Artificial Intelligence Applications to Power Systems; Parallel Processing Applications; Power System Operation & Control; Power System Deregulation & Restructuring*)

Associate Deans

MOKBUL MORSHED AHMAD

BSc, MSc, Dhaka Univ, Bangladesh; MSc, AIT, Thailand; PhD, Univ of Durham, UK.

Associate Professor (*Economic geography; regional and rural development planning; community development; Non-Governmental Organizations (NGOs); civil society; globalization etc*)

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-/Nano encapsulation, Bio nanotechnology*))

AMARARATNE YAKUPITIYAGE

B.Sc. (Zoology), University of Kelaniya, Sri Lanka, M.Sc. Asian Institute of Technology; Ph.D. University of Sterling, Scotland;

Associate Professor (Aquaculture and Aquatic Resources Management Program)

4.1.5 On-going Grants and Sponsored Research

Conduct, Development Reporting and Training Activities: Smart Grid Simulation Modeling in Thailand

Duration: 22 September 2012 – 30 December 2013
Project Investigator(s): Weerakorn Ongsakul
Sponsor: World Alliance for THAI Decentralized Energy Association (WADE THAI)
Total Contracted Amount (THB): 280,000.00

Design and develop prototypes of wind turbine controllers

Duration: 15 Oct 2011 – 15 April 2012
Project Investigator(s): Weerakorn Ongsakul
Sponsor: Uniseach, Chulalongkorn University
Total Contracted Amount (THB): 440,000.00

4.2 SERD – AGRICULTURAL SYSTEMS AND ENGINEERING FIELD OF STUDY



Development of a Submerged Aquatic-Weed Harvester for Irrigation Canals in Thailand

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

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*)

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*)

Visiting, Adjunct Faculty/Affiliated Faculty

ANUCHIT CHAMSING; PhD

Adjunct Faculty (*Agricultural Machinery Design & Testing; Agricultural Power*)

& Machinery Management; Agricultural Systems Engineering)

CHAIYAPHOL KAEWPRAKAISAENGKUL; PhD

Adjunct Faculty (*Agricultural Machinery Design & Testing; Instrumentation & Measurement; Quality Control & Assurance*)

ALEXANDER KEEN; PhD

Adjunct Faculty (*Agricultural Soil Mechanics; Tillage and Traction; Machine Design*)

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 2012

Development of an Instrumentation and Data Acquisition System for Agricultural Tractor

Duration: Feb 12 – Dec 12

Project Investigator(s): Peeyush Soni
Sponsor: John Deer India Private Ltd, India

Total Contracted Amount (THB): 1,941,360

4.2.5 On-going Grants and Sponsored Research

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

4.2.6 Publications

International Journal Articles with Impact factor

Cavlieri, S., Silva, F.M.L., Velini, E.D., Sao Jose, A.R., Ulloa, S.M., **Datta, A.**, Cavaliere, J.D. and Knezevic, S.Z., (2012). Selectivity of nicosulfuron at three popcorn growth stages. *Planta Daninha* 30:377–386. *Publisher: Brazilian Society of Weed Science*

Elezovic, I., **Datta, A.**, Vrbnicanin, S., Glamoclija, D., Simic, M., Malidza, G. and Knezevic, S.Z., (2012). Yield and yield components of imidazolinone-resistant sunflower (*Helianthus annuus* L.) are influenced by pre-emergence herbicide and time of post-emergence weed removal. *Field Crops Research* 128:137–146. *Publisher: Elsevier* [IF = 2.474]

Jayathilaka, P.M.S., **Soni, P.**, Perret, S. R., Jayasuriya, H. P. W. and Salokhe, V.M., (2012). "Spatial Assessment of Climate Change Effects on Crop Suitability for Major Plantation Crops in Sri Lanka." *Regional Environmental Change*, 12(1):55-68. *Publisher: Springer. ISSN: 1436-3798. [IF=3.0]*

Leskovsek, R., **Datta, A.**, Knezevic, S.Z. and Simoncic, A., (2012). Common ragweed (*Ambrosia artemisiifolia*) dry matter allocation and partitioning under different nitrogen and density levels. *Weed Biology and Management* 12:98–108. *Publisher: John Wiley & Sons* [IF = 0.717]

Leskovsek, R., **Datta, A.**, Simoncic, A. and Knezevic, S.Z., (2012). Influence of nitrogen and plant density on the growth and seed production of common ragweed (*Ambrosia artemisiifolia* L.). *Journal of Pest Science* 85:527–539. *Publisher: Springer* [IF = 2.174]

Phongaksorn, N., Tripathi, N.K., Kumar, S. and **Soni, P.**, (2012). "Inter-Sensor Comparison between THEOS and LANDSAT 5 TM Data in a Study of Two Crops Related to Biofuel in Thailand." *Remote Sensing – Special Issue on Remote Sensing for Sustainable Energy*

Systems, 4(2):354-376. *Publisher: MDPI. ISSN: 2072-4292. [IF: 2.101]*

Rapp, R. E, **Datta, A.**, Irmak, S., Arkebauer, T. J. and Knezevic, S. Z., (2012). Integrated management of common reed (*Phragmites australis*) along the Platte River in Nebraska. *Weed Technology* 26:326–333. *Publisher: Weed Science Society of America* [IF = 1.113]

Samseemoung, G., **Soni, P.**, Jayasuriya, H. P. W., and Salokhe, V.M., (2012). "Application of Low Altitude Remote Sensing (LARS) Platform for Monitoring Crop Growth and Weed Infestation in a Soybean Plantation". *Precision Agriculture*, 13(6): 611-627. *Publisher: Springer. ISSN: 1385-2256. [IF: 1.728]*

Ulloa, S. M., **Datta, A.**, Bruening, C., Gogos, G., Arkebauer, T. J, Knezevic, S. Z., (2012). Weed control and crop tolerance to propane flaming as influenced by the time of day. *Crop Protection* 31:1–7. *Publisher: Elsevier* [IF = 1.303]

Wibowo, R. K., **Soni, P.** and Salokhe, V. M., (2012). "Anthropometry of Javanese and Madurese Farmers in East Java, Indonesia." *International Agricultural Engineering Journal*, 21(3-4): 15-32. *Publisher: AAE. ISSN: 0858-2114*

Conference Publications

Datta, A., Neilson, B., Stepanovic, S., Bruening, C., Gogos, G., Tursun, N. and Knezevic, S. Z., (2012). Soybean and corn tolerance to multiple flaming. *Proceedings of the 6th International Weed Science Congress, Hangzhou, China.*p.90.

Datta, A., Stepanovic, S., Neilson, B., Bruening, C., Gogos, G. and Knezevic, S. Z., (2012). Effect of flaming and cultivation on weed control and yield in corn and soybean. *First RHEA International Conference on Robotics and associated High-technologies and Equipment for Agriculture, University of Pisa, Pisa, Italy.*

Leskovsek, R., **Datta, A.**, Knezevic, S. Z., Lesnik, M. and Simoncic, A., (2012). Adaptive plasticity of plant traits to various resource supply and competition is related with common ragweed (*Ambrosia artemisiifolia* L.) successful invasion. Proceedings of the 6th International Weed Science Congress, Hangzhou, China.p.125.

Makky, M., **Soni, P.** and Salokhe, V.M., (2012). Machine Vision Application in Indonesian Oil Palm Industry. In: Proceedings of the “International Agricultural Engineering Conference of AAAE 2012”. Huangzhou, CHINA, Oct 27-30, 2012

Knezevic, S. Z., **Datta, A.**, Bruening, C., Gogos, G., Scott, J. and Rana, N., (2012). Manual for propane-fueled flame weeding in corn, soybean, and sunflower. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:43.

Knezevic, S. Z., Nedeljkovic, D., Scott, J., **Datta, A.** and Rana, N., (2012). Glyphosate-resistant giant ragweed control with saflufenacil and dicamba. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:77.

Knezevic, S. Z., Nedeljkovic, D., Scott, J., **Datta, A.** and Rana, N., (2012). Giant ragweed resistance to glyphosate in Nebraska. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:78.

Knezevic, S.Z., **Datta, A.**, Stepanovic, S., Nedeljkovic, D., Tursun, T. And Rana N., (2012). Soybean tolerance to single and multiple flaming. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:108.

Knezevic, S. Z., **Datta, A.**, Stepanovic, S., Nedeljkovic, D. and Rana, N., (2012). Corn tolerance to single and multiple flaming. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:136.

Knezevic, S. Z., **Datta, A.** and Ulloa, S., (2012). Response of pigweed and foxtail species to broadcast flaming. Proceedings of the 6th International

Weed Science Congress, Hangzhou, China.p.93.

Soni, P., Salokhe, V.M. and Noosom K., (2012). Development of a Precision Sprayer using a Radio-controlled Quad-copter. In: Proceedings of the “International Conference of Agricultural Engineering CIGR-Ageng 2012”. Valencia Conference Centre, Valencia, SPAIN, July 8-12, 2012

Stepanovic, S., **Datta, A.**, Rana, N., Neilson, B., Bruening, C., Gogos, G. and Knezevic, S. Z., (2012). Effects of flaming and cultivation on weed control and yield in organic soybeans as influenced by manure application. Proceedings of the North Central Weed Science Society (NCWSS) Conference, St. Louis, MO, USA, 67:26.

Stepanovic, S., **Datta, A.**, Rana, N. and Knezevic, S. Z., (2012). Tolerance of selected weed species to broadcast flaming. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:134.

Stepanovic, S., **Datta, A.**, Rana, N., Neilson, B., Bruening, C., Gogos, G. and Knezevic, S. Z., (2012). Effects of flaming and cultivation on weed control and yield in organic corn as influenced by manure application. Proceedings of the NCWSS Conference, St. Louis, MO, USA, 67:145.

Manual and Extension Publications

Knezevic, S. Z, **Datta, A.**, Bruening, C. and Gogos, G., (2012). Propane fuelled flame weeding in field corn, soybean, and sunflower crops. Propane Education and Research Council, Washington, DC, USA.[online][http://www.agpropane.com/uploadedFiles/Agriculture/Program_Safety_On_The_Farm/Flame%20Weeding%20Training%20Manual_08-27-12_final%20\(2\).pdf](http://www.agpropane.com/uploadedFiles/Agriculture/Program_Safety_On_The_Farm/Flame%20Weeding%20Training%20Manual_08-27-12_final%20(2).pdf).

Sandell, L., **Datta, A.**, Knezevic, S. Z. and Kruger, G., (2012). Glyphosate-resistant giant ragweed in Nebraska. Proceedings 2012-Crop Production Clinics, University of Nebraska-Lincoln Extension, Nebraska, USA, p. 153.

4.2.7 Doctoral Students' Dissertation

Multicriteria Decision Making in Integrated Agriculture Production Systems under Thai Rainfed Condition
By Chakkrapong Taewichit
Supervisor: Dr. Peeyush Soni
Development of a Submerged Aquatic-Weed Harvester for Irrigation Canals in Thailand
By Prinya Kamolsin

Supervisor: Dr. Peeyush Soni

Evaluation of Sweet Sorghum-Legume Intercropping for Food and Bioethanol Production under Selected Agronomic Practices
By Muhammad Arshad

Supervisor: Dr. S. L. Ranamukhaarachchi

4.2.8 Masters Students' Theses

Projected Changes in Climate Extremes over North Thailand
By Mohammad Badrul Masud

Supervisor: Dr. Peeyush Soni.

Contribution of Potato-Based Cropping System in Household Income of Southern Shan State, Myanmar”
By Soe Soe Lwin

Supervisor: Prof. Ganesh P. Shivakoti

Effect of foot and Mouth Disease and Porcine Reproductive and Respiratory Syndrome on Swine Production: A Case Study in Thanhhoa Province in Vietnam
By Phuong Minh Thong

Supervisor:Dr. S.L.Ranamukhaarachchi

Farmers’ Perception, Practices and Knowledge of The Pesticide usage Profile Among Smallholder Mango Growers in Southern State of Myanmar
By Seng Raw

Supervisor: Prof. Ganesh P. Shivakoti

Propagation of Malay Apple (*Syzygium malaccense*) By Cuttings In Ternate Island, Indonesia
By Aisjah Rachmawaty Ryadin

Supervisor: Dr. S.L. Ranamukharachchi

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 Kjeltex 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

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*)

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*)

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*)

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 2012

AIT support to National University of Laos NUOL 2007-2010 Extension-Fisheries Training

Duration: 1-May-11 to 30-Jun-12
Project Investigator(s): Wenresti G Gallardo and Amaratne Yakupitiyage
Sponsor:SIDA
Total Contracted Amount (THB): 1,433,315

AIT-Coca Cola for Sustainable Coastal Livelihoods Project in Ranong Province, Thailand

Duration: 1-Oct-05 to 31-Mar-12
Project Investigator(s): Amrit N. Bart
Sponsor:Coca Cola (Thailand) Ltd.
Total Contracted Amount (THB) 8,000,000

4.3.5 On-going Grants and Sponsored Research

Internship in Aquaculture and Aquatic Resources Conservation

Duration: 1-Sep-10 to 31-Dec-13
Project Investigator(s): Ram C. Bhujel
Sponsor:Multi donors
Total Contracted Amount (THB): 6,000,000

Development of Rural Aquaculture through Entrepreneurship in Women, in Myanmar

Duration: 1 Jan 2013 to 31 Dec 2013

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: 117,533 EUROS

4.3.6 Publications

Journal

Doma, D. and Yakupitiyage, A., (2012). A policy alternative for lagoon management: case study of SreAmbel coastal marine fisheries, Cambodia. *Journal of Coastal Conservation*, 15(1): 23-35.

Nithikulworawong, N., Yakupitiyage, A., Rakshit, S. K. and Srisapoom, P., (2012). Molecular characterization and increased expression of the Nile tilapia, *Oreochromis niloticus* (Linnaeus) T cell receptor beta chain in response to *Streptococcus agalactiae* infection, *Journal of Fish Diseases*, 33(5): 343 – 358. Impact Factor = 2

Plaipetch, P. and Yakupitiyage, A., (2012). Effect of replacing soybean meal with yeast-fermented canola meal on growth and nutrient retention of Nile tilapia, *Oreochromis niloticus* (Linnaeus 1758). *Aquaculture Research*, 2012, 1–10 doi:10.1111/are.12119

Plaipetch, P. and Yakupitiyage, A., (2012). Use of Yeast-Fermented Canola Meal to Replace Fishmeal in the Diet of Asian Sea Bass *Lateolabrax niloticus* (Bloch, 1790). *Journal of Aquaculture Research and Development* 3:125 doi:10.4172/2155-9546.1000125

Saengsupavanich, C., Gallardo, W.G., Sajor E. and Murray W.W., (2012). Constraints influencing stakeholder participation in collective environmental management. *Environmental Earth Sciences* 66:1817-1829.

Somphinit, M., Clemente, R.S., Babel, M.S., Gallardo, W.G. and Sutat, W., (2012). Assessment of wetland

ecosystem health in Lower Songkhram, Thailand. *International Journal of Sustainable Development & World Ecology* 19: 238-246.

Son, V.N., Phuong, N.T., Hai, T.N. and Yakupitiyage, A., (2012). Production and economic efficiencies of intensive black tiger prawn (*Penaeus monodon*) culture during different cropping seasons in the Mekong delta, Vietnam. *Aquaculture International*. 19(3):555-566. • Impact Factor = 0.91

Books / Manual:

Bhujel, R.C. 2012. A Manual for Tilapia Hatchery & Grow-out Farmers. Asian Inst. of Tech., Bangkok, 67 p.

Suresh, V. and Bhujel, R.C. 2012. Tilapias, 338-364. In J. Lucas and P.C. Southgate (eds) *Aquaculture: Farming of Aquatic Animals and Plants*, 2nd Edition. Wiley-Blackwell. 648 pp.

Magazine articles:

Badiola, T. A, and Bhujel, R. C., (2012). Effects of Red KhaoKreua (*Buteasuperba*) on the sex-reversal of Nile tilapia (*Oreochromis niloticus*) fry. *The Practical Asian Aquaculture Magazine*. Vol 3(9): Jan-Mar 2012. P. 18-19.

Cantrill, J. and Bhujel, R.C., (2012). Bio-Security in Asian Shrimp Farming Industry. *The Practical Asian Aquaculture Magazine*. Vol 3(9): Jan-March 2012. P. 24-25.

Conference/workshop proceedings:

Bhujel, R.C., (2012). Recent advances in mass-scale tilapia seed production. Can Tho, Vietnam, December 6-8, 2012. *International Fisheries Symposium- IFS 2012: Sharing Knowledge for Sustainable Development of Aquaculture and Fisheries in Southeast Asia*.

Bhujel, R.C., (2012). Recent advances in tilapia culture in Asia. '1st International Exhibition of Dairy, Aqua and Pet Animal-2012 (IEDAP): Animal Health Companies of Bangladesh (AHCAB), 8 - 10 November 2012 Bangabandhu

International Conference Centre (BICC), Dhaka, Bangladesh.

Bhujel, R.C., (2012). Small-scale aquaculture: global and national perspectives, 10-18 pages, In M.K. Shrestha and J. Pant (eds). Small-scale Aquaculture for Rural Livelihoods. Proceedings of the Symposium on "Small-scale Aquaculture for Increasing Resilience of Rural Livelihoods in Nepal. Institute of Agriculture and Animal Science, Rampur, Nepal and TheWorldFish Center, Penang Malaysia, 191 p.

Jha, D. and Bhujel, R.C., (2012). Incidence of diseases and management practices. 160-165 pages, In M.K. Shrestha and J. Pant (eds). Small-scale Aquaculture for Rural Livelihoods. Proceedings of the Symposium on "Small-scale Aquaculture for Increasing Resilience of Rural Livelihoods in Nepal. Institute of Agriculture and Animal Science, Rampur, Nepal and the WorldFish Center, Penang Malaysia, 191 p.

Nandeesha, M. C., Halwart, M., Garcia, G. R., Alvarez, C. A., Atanda, T., Bhujel, R., Bosma, R., Giri, N. A., Hahn, C. M., Little, D., Luna, P., Marquez, G., Ramakrishna, R., Reantaso, M., Umesh, N. R., Villareal, H., Wilson, M. and Yuan, D., (2012). Supporting farmer innovations, recognizing indigenous knowledge and disseminating success stories. In RP Subasinghe, JR Arthur, DM Bartley, SS De Sena, M Halwart, N Hishamunda, CV Mohan & P. Sorgeloos, eds. Farming the Waters for People and Food. Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand, 22-25 September 2010 pp. 823-875. FAO and NACA, Bangkok.

Pant, J., Shrestha, M. K. and Bhujel, R. C., (2012). Aquaculture and Resilience: Small-Scale Aquaculture in Nepal 19-24 pages, In M.K. Shrestha and J. Pant (eds). Small-scale Aquaculture for Rural Livelihoods. Proceedings of the Symposium on "Small-scale Aquaculture for Increasing Resilience of Rural Livelihoods in Nepal. Institute of Agriculture and Animal Science, Rampur,

Nepal and TheWorldFish Center, Penang Malaysia, 191 p.

Shrestha, M. K. Pant, J. and Bhujel, R. C., (2012). Small-Scale Aquaculture Development Model for the Poor, 71-75 pages, In M.K. Shrestha and J. Pant (eds). Small-scale Aquaculture for Rural Livelihoods. Proceedings of the Symposium on "Small-scale Aquaculture for Increasing Resilience of Rural Livelihoods in Nepal. Institute of Agriculture and Animal Science, Rampur, Nepal and TheWorld-Fish Center, Penang Malaysia, 191 p.

Williams, M. J., Agbayani, R., Bhujel, R. Bhandad-Reantaso, .M. G., Brugere, C., Choo, P. S., Dhont, J., Galmiche-Tejeda, A., Ghulam, K., Kusakabe, K., Little, D., Nandeesha, M. C., Sorgeloos, P., Weeratunge, N., Williams, S. and Xu, P., (2012). Sustaining aquaculture by developing human capacity and enhancing opportunities for women. In RP Subasinghe, JR Arthur, DM Bartley, SS De Sena, M Halwart, N Hishamunda, CV Mohan & P. Sorgeloos, eds. Farming the Waters for People and Food. Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand, 22-25 September 2010 pp.785-874. FAO and NACA, Bangkok.

4.3.7 Doctoral Students' Dissertation

Molecular cloning, characterization and expression analysis of a cDNA encoding T cell receptor beta gene in Nile tilapia (*Oreochromis niloticus*, Linn. By Nudtha Nithikulworawong Supervisor: Dr. A. Yakupitiyage

Use of conventionally modified canola meal to improve utilization in Nile tilapia and Asian seabass diets. By Pichet Plaipetch Supervisor: Dr. A. Yakupitiyage

Supervisor: Dr. A. Yakupitiyage

An evaluation of the effectiveness of management practices of marine protected areas (MPAs) against drivers of ecosystem change: A case study of Mnazi bay Ruvuma Estuary Marine Park – Tanzania.

By Milali Ernest Machumu Supervisor: Dr. A. Yakupitiyage

4.3.8 Masters Students' Theses and Research Studies

Assessment of the application of integrated coastal management principles for biodiversity conservation in Hazar Reserve on the coastal zone of Turkmenistan.

By Hajieva Gulia Supervisor: Dr. Wenresti G. Gallardo

An Assessment of nitrogen and phosphorous losses through seepage in fertilized aquaculture ponds.

By Anusha D. Perera Supervisor: Dr. A. Yakupitiyage

An Assessment of farmers' strategies to reuse and renovate abandoned shrimp ponds in Suratthani Province, Thailand.

By Yupareat Banchun Supervisor: Dr. A. Yakupitiyage

Optimal dietary protein levels for spotted featherback (*Chitala ornate*) fry and fingerlings.

By Jedsada Ketheng Supervisor: Dr. A. Yakupitiyage

Assessment of tourism pressure on the meiofaunal community on sandy beaches in Mueang District, Krabi, Thailand.

By Laddawan Thongtip Supervisor: Dr. Lionel Dabbadie

A participatory based approach for sustainable community based ecotourism development on Kho Rongnieu, Cambodia.

By Kelly Franklin Supervisor: Dr. Wenresti G. Gallardo

Mangrove ecosystem service values and shrimp aquaculture in Can Gio Province, Vietnam.

By Sakchai McDonough Supervisor: Dr. Wenresti G. Gallardo

Community participation in flooded forest conservation: A case study of rohalsueng community fisheries, Battambang Province, Cambodia.

By Tak Vida

Supervisor: Dr. Wenresti G. Gallardo

Effectiveness of public aquarium as a center of conservation education.

By Supanuth Chuerattanakul

Supervisor: Dr. A. Yakupitiyage

Immunomodulatory effect of herbal extract on tilapia (*Oreochromis niloticus*) infected by *Streptococcus agalactiae* Biotype 2.

By Manoj Kamble

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)
- MBA in Energy Business (MBA EB)

- PM in Energy Business Management Program (PM EBM)

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

SHOBHAKAR DHAKAL, B.e., nit, Surat; M.E., AIT, P.HD. Tokyo.

Associate Professor (*Modeling of Energy and carbon Emission, Scenarios Policy Analyses*)

SIVANAPPAN KUMAR, BE, Univ of Madras, India; MEng, AIT, Thailand; PhD, InstNatIPolytechnique, 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)

Visiting Faculty

CHARLES O. P. MARPAUNG, Ms.c, Statistics, Bogor Agricultural University, Indonesia; D. Eng, AIT

Visiting Faculty [*Generation expansion planning; Energy economics and environmental modeling*]

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*]

Emeritus Professor and Adjunct Faculty

RAM M. SHRESTHA, BE, Univ of Baroda; LL Tribhuvan Univ, Nepal; MEng, DEng, AIT, Thailand.

Emeritus Professor and Adjunct Faculty [*Energy and Environmental Policy; Energy and Electricity Economics, Energy-economic Modeling*]

Research Staff

Ms. Nikita Upadhyay Acharya, Assistant (PM-EBM)

Ms. Brenda Cabahug, Research Assistant (TNA Project)

Dr. Vo Ngoc Dieu, Research Associate (Part time) (GMSARN Project)

Ms. Maria Kathrina Grauto, Research Associate (ERIC)

Ms. Parichart Kammeerak, Secretary (ERIC)

Ms. Kanwalai Nachaisit, Secretary (GMSARN Project)

Ms. Srujana Naga Goteti, Research Associate (ADBI Project)

Ms. Barsha Pandey, Research Associate (TNA Project)

Mr. Albert Pedrajas, Program Officer (NUOL Project)

Mr. Pravakar Pradhan Research Associate (ADEME Project)

Mr. Prathamesh Savagaonkor, Research Associate (ADBI Project)

Ms. Pujan Shrestha, Research Associate (UPEA Project)

Ms. Bantu Sireesha, Research Associate (EBARA Project& PMEEM)

4.4.4 Grants and Sponsored Research Completed in 2012

AIT Support to National University of Laos (NUOL), 2007-2010 Extension Research Financial Management.

AIT provided support to NUOL in i) improvement of strategies and structures for development of research ii) development of curriculum and training for Master degree courses iii) financial management (including financial hands-on training) iv) Information Communication Technology (ICT) development v) assist the department of higher education (DHE) ministry of education, Laos PDR in development of “national policy and strategy to support research and research management.

Duration: Apr 2007 to 30 Jun 2012

Investigator: Prof. S. Kumar

Sponsor: Sida

Total contracted amount:

(THB) 31,807,061

Biofuel Sustainability Policy Study

The objectives of the project are as follows: To analyze biofuel production in Thailand from an ecological/ environmental, economic and social perspective. Employing an integrated approach that effectively identifies and suggest opportunities presented in synergies among ecological/environmental, economic and social dimensions specific to biofuels in Thailand. Minimizing trade-offs between biofuel and food

production i.e. land use change related to the diversion of land from food to the biofuel production. Recommended biofuel production should result in significant net greenhouse gas emissions reductions when considered on a life cycle perspective. The role biofuel plays in existing or planned bioenergy policy for Thailand and to estimate as best as possible the potential benefits/cost from an ecological/environmental, economic and social perspective.

Duration: 1 May 2011 to 30 Nov 2012

Investigator: Prof. S. Kumar and Dr. P. Abdul Salam

Sponsor: Global Network on Energy for Sustainable Development (GNESD), Denmark

Total contracted amount: (THB) 300,000

UNEP RRC.AP Project

The objective of the studies to analyze the possibility of expanding the use of renewable energy sources and introducing of cleaner energy technologies and their market development in Central Asia, by promoting improved policies and regulations, development of national clean technology plan, and establishment of energy performance standards.

Duration: August 2011 - August 2012

Investigator: Prof. S. Kumar and Dr

.Charles O.P. Marpaung

Sponsor: UNEP RRC-AP

Total contracted amount: (THB) 600,000

Urban and Peri-urban Energy Access III (GNESD – UPEA III)

The objectives of the project are as follows: To build upon the research conducted in UPEA II and provide snapshot of the region studied and discuss on the access to legal and cleaner energy access by the urban poor ii) To identify the supply – and demand-side barriers to energy access iii) To collect and compile barrier specific best practices that have supported or enabled energy access for the urban poor iv) To provide specific recommendations to address the barriers identified above, and v) To establish a policy dialogue panel

Duration: Aug 2011 to 28 Jun 2012

Investigator: Prof. S. Kumar and Dr.

Abdul Salam

Sponsor: Global Network on Energy for Sustainable Development (GNESD), Denmark

Total contracted amount: (THB) 1,200,000

More details available at:

www.gnesd.ait.ac.th and

www.gnesd.wordpress.com

Capacity Development on Clean Coal Technology and Carbon

Sequestration: 2012

The objective of this sponsored activity is to provide support to the design, development and offering of a course on clean coal technology and carbon sequestration at AIT.

Duration: 1 Feb 2012 to 21 Oct 2012

Investigator: Prof. S. Kumar

Sponsor: ADW, Inc/NexGen Systems Corporation, USA

Total contracted amount: (THB) 480,000

Training on Design and Management of Domestic Biogas Systems

The dissemination of domestic biogas plants around the world is sharply rising, both in terms of number of units as well as geographical coverage. More than 40 million plants have been installed by the end of 2009, most of them in China and India, providing about 200 million people access to multiple benefits. More and more countries have embarked on market-based national programmes on domestic biogas and have started to develop a sustainable biogas sector. As a result of the extension of biogas programmes in the region, there is a huge need for the capacity building on biogas systems. The objective of the project is to organize a one week international training program on design and Management of Domestic Biogas Systems.

Duration: 1 July 2012 to 31 Oct 2012

Investigator: Dr. P. Abdul Salam

Sponsor: EEP Mekong/ADB

Total contracted amount:

(THB) 1,333,000

Gender Inclusive Capacity Development for Electricity Distribution Loss Reduction in Rural Area of Madhya Pradesh, India

This is a training program for power distribution planning and operations engineers from one of the three electricity distribution utilities in the state of Madhya Pradesh, India. All delegates are permanent employees of this utility. This training program will cover first two days lectures by different expertise from AIT and industry and followed by site/field visit for two days. Participants including engineers and the senior officers from the utility would get knowledge and info about power loss reduction as well as enhancing the performances of the utility like increasing the revenue and maintaining the required service standards by using appropriate methods and technologies.

Duration: 1 July 2012 to 31 Oct 2012

Investigator: Dr. Jai G. Singh

Sponsor: Energy Division, South Asia Department, ADB

Total contracted amount: (THB) 244,900

Professional Master in Energy Business Management.

Customised Degree Program:

Professional Master in Energy Business Management

Duration: 1 Aug 2012 to 31 Dec 2013

Investigator: Dr. P. Abdul Salam and Prof. Nazrul Islam

Sponsor: World Bank/Power Distribution Companies - Pakistan

Total contracted amount:

(THB) 10,336,000

Capacity Development of the Assam Power sector Utilities, Overseas Study Tour in Bangkok

This is a technical assistance capacity development program which aims to assist the Assam state Electricity Board (ASEB), the Assam Power Generation Corporation Limited (APGCL), the Assam Electricity Grid Corporation Limited (AEGCL), and the Assam Power Distribution company Limited (APDCL) in (i) introducing new business processes, (ii) strengthening their human resources and financial management capabilities, and (iii) mainstreaming rural electrification. This program will be conducted in terms of classroom discussion in morning session followed by site visits in afternoon session for selected senior staffs from above

mentioned power utilities. The objective of this program is to provide an exposure to technology, operations and maintenance, and overall management aspects of transmission and distribution loss reduction in a middle income Asian country. The dates for the program are: Power Distribution Management: 26-30 November 2012 and Transmission System Management: 3-7 December 2012.

Duration: 1 Oct 2012 – 30 Jun 2013

Investigator: Dr. Jai G. Singh

Sponsor: Energy Division, South Asia Department, ADB

Total contracted amount: (THB) 294,900

4.4.5 On-going Grants and Sponsored Research

Actions towards Resource-efficient and Low carbon Cities in Asia

In order to assist urban decision makers, The French Environment and Energy Management Agency or ADEME (Agence de l'Environnement et de la Maitris de l'Energy) has developed methodologies and tools such as the "Territorial Climate Energy Plan" (PCET) which aims to address climate change mitigation and adaptation using the "Bilan Carbone TM" tool. Such approaches are already widely used in France. The project will aim to: (a) Study "Territorial Climate and Energy Plan (PCET) and "Bilan Carbone TM" developed by ADEME and their applicability to Asian small- and medium-size cities; (b) Identify and select of small but growing cities in Asia that are keen to adopt the path of low carbon growth (LCG); (c) discuss with stakeholders and other organizations on implementing LCG; (d) Implementation of pilot scale activities identified by "BilancarbonateTM" tool; (e) Dissemination and information sharing.

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

More details available at:

<http://lcc.ait.asia>

Bangkok Greenhouse Gas Emissions Study. (Tongji)

Climate change has become issue of global concern, and the action we take today will have dramatic implications for future generations. At present, as more than half of the world's population is living in the towns and cities, study on response mechanisms and strategies for climate change at city level is of practical significance, especially in regions with high population density. This study aims to identify key factors which influence carbon emissions and reduction in Bangkok and analyzing the balance between carbon sources and sinks.

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

Energy Field of Studies Publications

The Renewable Energy Resources Information Center (RERIC) houses the publication arm of the Energy Field of Study. It publishes the International Energy Journal (IEJ), formerly known as the RERIC International Energy Journal. The IEJ, published since 1979, is dedicated to advancing knowledge in energy by vigorous examination and analysis of theories and good practices, and encouraging innovations needed to solve energy-related issues. IEJ is a quarterly journal with papers on technical, socio-economic and environmental aspects of energy planning, energy conservation, renewable sources of energy, electric power transmission, generation and management.

Duration: 1 Jan 2011 to 31 Dec 2012

Investigator: Prof. S. Kumar and Dr. P.

Abdul Salam

Sponsor: Membership fees, AIT

Total contracted amount:

(THB) 1,521,149

More details available at:

www.ericjournal.ait.ac.th

King HRD Scholarship Project

To provide fellowships for eligible Thai candidate and all expenses are related

to support tuition & fee and education activities only.

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

Provincial Electricity Authority (PEA)-AIT Cooperation Project

To provide fellowships for eligible PEA staff and all expenses are related to support tuition & fee, and education activities only

Duration: Jan 2009 to Dec 2012

Investigator: Dr. Weerakorn Ongsakul

Sponsor: Provincial Electricity Authority (PEA), Thailand

Total contracted amount:

(THB) 27,374,000

Energy-Environmental Data Analysis for Low Carbon Society (EEDA)

The project is about collection data related to low carbon society for selected South East and South Asian countries from the available publications. The research project also analyzes future energy consumptions and emissions of greenhouse gases under the reference and low carbon scenarios.

Duration: 1 Dec 2009 to 31 Dec 2012

Investigator: Prof. Ram M. Shrestha and Prof. Kumar

Sponsor: MHIR (Mizhou)

Total contracted amount: (THB) 740,000

Micro hydro – PV hybrid system. (Ebara Project)

The project aims to design, develop and install a micro hydro – photovoltaic system at the Energy Park of AIT and conduct tests to evaluate the performance of the system working in hybrid mode.

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 Katayama Memorial Fund, Japan

Total contracted amount:

(THB) 1,440,000

Technology Needs Assessments in Asia for Climate Change Mitigation(TNA)

The objective of the project is to assist participant developing country parties identify and analyze priority technology needs, which can form the basis for a portfolio of environmentally sound technology (EST) projects and programmes to facilitate the transfer of, and access to, the ESTs and know-how in the implementation of Article 4.5 of the UNFCCC convention. The project involves research, capacity building and training for participants (government ministries) from 10-12 Asian countries in 2 phases.

Duration: 1 July 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

More details available at:

www.sdcc.ait.ac.th/tna-mitigation

Low Carbon Cities: Learning from the experiences in France

The project will manage a regional workshop at AIT by the end of 2012 and would involve all stakeholders, Asian and French (in particular ADEME, AFD, etc.) of the project Low Carbon Cities: Learning from the experiences in France.

Duration: Sep 2010 to 31 Sep 2012

Investigator: Prof. S. Kumar, Prof. C. Visvanathan, Dr. P. Abdul Salam, Dr. Charles Marpaung, Dr. L.A.S. RanjithPerera and Dr. Kyoko Kusakabe

Sponsor: SDCC/AIT – France Network

Total contracted amount: (THB) 480,000

Indicator for Low Carbon Green Growth/Green (GDP)

The study on Climate Change and Green Asia examines how emerging economies of Asia are operating amid changing demands for low carbon development and what kind of pro-active policies would strengthen such green growth practices in development Asia. The main objectives of the study are (i) examine the key issues and challenges in reducing GHG emissions without adversely affecting economic growth (ii) assesses the scope and merits of current pledges, programs, strategies and institutions and

provide recommendations for a new, low carbon growth paradigm (iii) develop an effective policy framework based on the principles of equity, market orientation and regional cooperation to speed up the transition towards a low carbon Asia. The study will develop an index for low carbon green growth based on Policy, Economy, Technology and Social indicators. The indicators and the measurement framework will be kept flexible enough to adapt to different national contexts.

Duration: Sep 2011 to March 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

This research aims to explore strategies for alleviating poverty and low carbon emissions in the urban tourism sector of Hue and Chiang Mai cities. The project will aim to: a) improve understanding and assist in the reduction of carbon emissions in urban tourism sector, and b) recommend GHG mitigation policies and plans that could generate green and decent jobs for women and men, especially targeting lower.

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

More details available at:

<http://sut.ait.asia>

Promoting Renewable Energy, Clean Fuels, and Energy Efficiency in the Greater Mekong Subregion

This project aims to provide technical support to the Sub-regional Energy Forum (SEF) to promote SEF as the vehicle for knowledge dissemination in the GMS. This project is initiated to ensure the realization of the GMS Road Map for Expanded Cooperation in the energy sector, build capacities in the GMS countries in renewable energy, clean fuels, and energy efficiency policies, plans, and program

formulation, and develop a strategic development framework through preparation of business models for the selected clean energy technologies by considering disparate energy market conditions, institutional arrangements & frameworks, and technology transfer schemes.

Duration: Aug 2011 to Jun 2013

Investigator: Prof. S. Kumar

Sponsor: Lahmeyer/ADB

Total contracted amount: (THB) 2,640,000

4.4.6 Publications

Books/Book Chapters

Kumar, S., Kusakabe, K., Pradhan, P., Shrestha, P., Goteti, S., Tuan, T. A., Meteejaroenwong, E., Suwanprik, T. and Linh, K. "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 Kittasudthacheewa and Rajesh Daniel, and published by *Strategic Information and Research Development Centre (SIRD)*, Selangor, Malaysia. (in press)

Mohanty, B., Scherfler, M. and Devatha, V. "Lifestyle Choices & Societal Behavior Changes as Local Climate Strategy", ADBI Working Paper 398, Asian Development Bank Institute, Tokyo, 2012.

Mohanty, B. "Sustainable Consumption and Production: A Handbook for Policy Makers with Cases from Asia and the Pacific", Author for Chapters 8.1 and 13 and co-author of Chapter 10, Switch-Asia Policy Support Program, UNEP Publication, Bangkok, 2012

Mohanty, B. "Buildings: Policy Recommendations for the Development of Eco-Efficient Infrastructure", Background Policy Paper for Low Carbon Green Growth Roadmap for Asia and Pacific, UN-ESCAP and KOICA, United Nations Publication, Bangkok, 2012.

Mohanty, B. "Sustainable Urban Energy: A Sourcebook for Asia", UN-Habitat and IUTC, Nairobi, 2012.

Journals

Chirarattananon, S., Hien, V.D. and Tummu, P. "Thermal performance and cost effectiveness of wall insulation under Thai climate" *Energy and Buildings*, vol. 45, No. 1, pp. 82 – 90, 2012.

Farooq, M. K. and Kumar, S., An assessment of Renewable Energy potential for electricity generation in Pakistan, *Renewable & Sustainable Energy Reviews*, 2012 (accepted for publication).

Kennedy, C., Baker, L., Dhakal, S. and Ramaswami, A. "Sustainable Urban Systems" *Journal of Industrial Ecology*, Vol. 16 No. 6, 2012.

Naruemon, P., Tripathi, N.K., Kumar, S. and Soni, P. Inter-sensor Comparison between THEOS and Landsat-5 TM Data in Study of Two Agricultural Crops in Thailand, *Journal of Remote sensing*, 4(2), 354-376, 2012.

Nhuchhen, D. R. and Salam, P. A. "Experimental study on two-stage air supply downdraft gasifier and dual fuel engine system" *Biomass Conversion and Biorefinery*: Vol. 2 No. 2, pp. 159-168, 2012.

Nhuchen, D. R. and Salam, P. A. "Estimation of higher heating value of biomass from proximate analysis: A new approach" *Fuel*, Vol. 99 pp. 55-63, 2012.

Makido, Y., Dhakal, S. and Yamagata, Y. "Relationship between urban form and CO2 emission Evidence from fifty Japanese cities", *Urban Climate*, Vol. 2, pp. 55-67, 2012.

Martchamadol, J. and Kumar, S. An aggregated energy security performance indicator, *Applied Energy*, 103, 653 – 670, 2012.

Martchamadol, J. and Kumar, S. Thailand's energy security indicators,

Renewable and Sustainable Energy Reviews, Vol. 16, 6103 – 6122, 2012.

Mohanty, B. La stratégie de lutte contre l'épuisement des ressources et le changement climatique dans les pays en développement d'Asie, *Les Cahiers de Global Chance*, L'efficacité énergétique a travers le monde: Sur le chemin de la transition, No. 32, October, pp.51-54, 2012

Mohanty, B. Inde: Un petit pas vers la modestie énergétique et la "prosommation", *Les Cahiers de Global Chance*, L'efficacité énergétique a travers le monde: Sur le chemin de la transition, No. 32, October, pp.152-154, 2012.

Prasartkaew, B. and Kumar S., Experimental Study on the Performance of a Solar-Biomass Hybrid Air-Conditioning System, *Renewable Energy*, accepted for publication, 2012.

Seitzinger, S. P., Svedin, U., Crumley, C. L., Steffen, W., Abdullah, S. A., Alfsen, C., Broadgate, W. J., Biermann, F., Bondre, N. R., Dearing, J. A., Deutsch, L., Dhakal, S., Elmquist, T., Farahbakhshazad, N., Gaffney, O., Haberl, H., Lavorel, S., Mbow, C., McMichael, A. J., Morais, J. M. F., Olsson, P., Pinho, P. F., Seto, K. C., Sinclair, P., Smith, M. S. and Sugar, L. "Planetary Stewardship in an Urbanizing World: Beyond City Limits" Vol. 41 pp.787-794, 2012.

Shakya, S. R., Kumar, S. and Shrestha, R. M. Co-benefits of a carbon tax in Nepal, *Mitigation and Adaptation to Climate Change*, Vol. 17, No 1, 77-101, 2012.

Teetsopon, P., Kumar, S. And Dutta, J. Photoelectrode optimization of zinc oxide nanoparticle based dye-sensitized solar cell by thermal treatment, *International Journal of Electrochemical Science*, 7, 4988 – 4999, 2012.

Wartana, I. M., Singh, J. G., Ongsakul, W. and Sreedharan, S. "Optimal Placement of FACTS Controllers for Maximizing System Loadability by PSO", *International Journal of Power and Energy Conversion*, Inderscience Publishers Ltd., 2012.

Waqas, A. and Kumar S. Phase Change Material (PCM)-Based Solar Air Heating System For Residential Space Heating In Winter, *International Journal of Green Energy*, accepted for publication, 2012.

Conference proceedings

Kumar S., Shrestha, P. and Salam, A. Energy Access of the Urban Poor in Bangkok, Thailand, *Sustainable Future Energy 2012 and 10th SEE FORUM, Innovations for Sustainable and Secure Energy*, 21-23 November 2012, Brunei Darussalam.

Seminars/workshops

Kumar, S. Indicators for green growth, ADB-ADB I Book discussion forum on Climate change and green growth in Asia, Jakarta, January 19-20, 2012.

Kumar, S. Promotion of renewable energy through Renewable Energy Innovation Systems, EU-Thailand Policy Dialogue & Stakeholders Workshop, Bangkok, August 15, 2012.

Kumar, S. Renewable Energy Education and Research at the Asian Institute of Technology, 6th UN-CECAR International Conference: Renewable Energy, Bangkok, 22-23 May 2012.

Kumar, S. Renewable Energy for Sustainable Development in Asia, 18TH Kyoto University International Symposium: Partnering Asian Academics towards human security development, Bangkok, 24 – 25 May 2012.

Kumar, S. and Shrestha, P. ASEAN Experiences on Policy and Regulation for Renewable Energy Development, Capacity Building Programme for Officers of Electricity Regulatory Commissions, Bangkok, 21 – 23 October 2012.

Kusakabe, K., Kumar, S., Pravakar, R. and Shrestha, P. Sustainable Urban Tourism through Low Carbon Initiatives: Experiences from Hue and Chiang Mai, Annual Sumernet meeting, Bangkok, January 11-13, 2012.

Mohanty, B. Building energy auditing and management, Energy Positive Habitats: A hands-on workshop, Auroville Green Practices 2012, Auroville, 30 August – 1 September 2012.

Mohanty, B. Challenges for the Asian Developing Countries to Achieve sustainable energy future, World Alternative Energy Forum (WAEF 2012), Organized by the Asian Development Institute for Community Economy and Technology (adiCET), Chiang Mai Rajabhat University, 12-14 December 2012.

Mohanty, B. Le changement climatique et l'énergie durable: les défis pour le secteur du bâtiment à la Réunion, Rencontres scientifiques sur les nouvelles énergies, Organized by the Grenelles de l'Environnement à la Réunion – Réussir l'innovation (GERRI), Hôtel de Région Pierre Lagourgue, 27-28 November 2012.

Mohanty, B. Policy and regulation for energy demand management: Experience from East-Asian countries, 5th Capacity Building Programme for Officers of the Electricity Regulatory Commissions in India, Bangkok, 21-23 October 2012.

Mohanty, B. Relevance and benefits of green energy technologies, Key-note speech at the National Seminar on Advanced Green Energy Technologies 2012, Organized by Mailam Engineering College, Mailam, 21-22 September 2012.

Mohanty, B. Sustainable energy strategies, UNEP/DTIE Training-Workshop on Strengthening National Capacities to Formulate and Implement Sustainable Energy Strategies, PathumThani, Thailand, 31 October-2 November 2012.

Mohanty, B. Sustainable energy financing: IFC's eTool for buildings and industries, National Annual Energy Efficiency Conference, Jakarta, Indonesia, 11-12 June 2012.

Mohanty, B. Energy efficiency and renewable energy in the context of energy security and way Forward, Expert Group Meeting on Energy Future We Want for Asia-Pacific: Strategic Actions, Preparations for the Asian and Pacific

Energy Forum, UN Building, Bangkok, 21-23 November 2012

Research Reports

Kumar, S., Capacity building on Carbon capture and sequestration, Final Report, submitted to ARW Inc, USA, October 2012.

Kumar, S., Goteti, S. and Prathamesh, P. Cobenefit technologies and national innovation systems, Final report, submitted to Asian Development Bank Institute, Japan, November 2012.

Kumar, S., Goteti, S. and Prathamesh, P. Green growth indicators in the Asia Pacific, Final report, submitted to Asian Development Bank Institute, Japan, November 2012.

Kumar, S., Khamphong, N., et al. Sida-NUOL bilateral cooperation project, Final report, submitted to Swedish International Cooperation Development Agency (Sida), Sweden, December 2012.

Kumar, S., Salam, P. A., Marpaung, C. O.P., Singh, J. G. and Sireesha, B., AIT-EHMF collaborative project on Micro Hydro system, submitted to EBARA Hatakeyama Memorial Fund (EHMF), November 2012.

Kumar, S., Salam, P. A. and Shrestha, P. Biofuel in Thailand, submitted to GNESD, March 2012.

Kumar, S., Salam, P. A. and Shrestha, P. Urban peri Urban Energy access – Phase III, submitted to GNESD, December 2012.

Keynote/invited lectures

Kumar, S. "Energy efficiency" Asia Pacific Leadership programme on environment for sustainable development, Shanghai, PR China, 4-8 June 2012.

Kumar, S. "Global climate change and energy management", Fourth Public Management Executive Development Program (July 23 – September 5, 2012), 6 August 2012, Bangkok, Thailand.

Salam P. A. Biofuels in ASEAN. Low Emission Development strategy (LEDS) forum. Organized by USAID. Sofitel Hotel, Bangkok, 18-21 September 2012.

4.4.7 Doctoral Students' Dissertation

Optimal Placement of Facts Controllers and Distributed Generation for Maximization of the system loadability. By I Made Wartana (Indonesia) Supervisor: Dr. Jai Govind Singh

Optimal Multiple Distribution Generation and Protective Devices Placement in Microgrid System. By Witoom Prommee (Thailand) Supervisor: Dr. Weerakorn Ongsakul

Studies on Photoelectrode Optimization for Energy Efficiency Enhancement in Nanostructured Zinc Oxide Dye-Sensitized Solar Cells. By Pichanan Teesetsoyon (Thailand) Supervisor: Prof. Sivanappan Kumar

Development of an aggregated Energy Security Performance Indicator (AESPI) and its application to Thailand. By Jutamanee Martchamadol (Thailand) Supervisor: Prof. S. Kumar

Analysis of Low Carbon Development Strategies: Role of Transport Sector Electrification And Carbon Tax In Nepal. By Shree Raj Shakya (Nepal) Supervisor: Prof. S. Kumar

4.4.8 Masters Students' Theses and Research Studies

Daylight Availability and Light Pipe Application in an Academic Building. By Miss Pimpapatsorn Thanhawatt Supervisor: Prof. S. Kumar

A Study on Energy consumption in Kandahar city, Afghanistan. By Agha Mohammad Supervisor: Prof. S. Kumar

Formulation of Green Growth Indicators and Their Composite index for the Asia-Pacific Countries.

By Naga SrujanaGoteti
Supervisor: Prof. S. Kumar

PV Micro Utilities for Rural Electrification
in Bangladesh.

By S.M. Najmul Hoque
Supervisor: Prof. S. Kumar

Role of Biomass for energy supply in
Hinthada District, Myanmar: A case
study on Rice Husk.

By AungMyat
Supervisor: Dr. P. Abdul Salam

A comparative study on GHG Emission
from Activities of two Thai
Municipalities.

By KayasitPiyamongkolwong
Supervisor: Dr. P. Abdul Salam

Impacts of Plug-in hybrid electric
vehicles on power sector development
in Thailand.

By ThanasetPetchwattananon
Supervisor: Dr. C. Marpaung

An Approach towards Smart Distribution
Network in Dhaka, Bangladesh by
Rooftop solar PV Using GIS.

By Taskin Jamal
Supervisor: Dr. Weerakorn O.

Robust Combined-objective particle
Swarm Optimization for Planning
Transition to Plug-in Hybrid Electric
Vehicles.

By SutsilKhedkaw
Supervisor: Dr. Weerakorn O.

Combined Heating, Cooling and Power
Systems in Thai Hotels.

By EkawitMeteearoenwong
Supervisor: Prof. S. Kumar

Optical Performance of a Two Stage
Linear Fresnel Concentrator.

By Aurosree Biswas
Supervisor: Prof. S. Kumar

A study on Small Scale Applications of
Biogas.

By JakkrapunTessiri
Supervisor: Dr. P. Abdul Salam

Status of and Improvement
Opportunities for Energy Usage in a Kraft
Pulp and Paper Mill,

By AndriSetiyoWibowo
Supervisor: Dr. P. Abdul Salam

An Empirical analysis on CO2 Emissions
from the Electricity sector and income
based on the Environmental Kuznets
curve.

By PassapongSaneaphunt
Supervisor: Dr. C. Marpaung

Impacts of Electric Vehicle charging on
Distribution Transformers,

By ThunypornHarnboonyanon
Supervisor: Dr. C. Marpaung

Impacts of AMI Deployment in Thailand:
Generation Expansion Model.

By Pradsamon Rodchuea
Supervisor: Dr. C. Marpaung

A probabilistic Power flow Analysis using
the cumulant method and gram-charlier
series expansion.

By Nguyen VinhPhuc
Supervisor: Dr. Jai G. Singh

Technical and Financial Impact
Assessment of a Wind Farm: A case
study of AnPhong Project, Vietnam.

By Tran Truong Han
Supervisor: Dr. Weerakorn O.

Technical and Policy Options for Wind
Energy Development in Thailand.

By BhawatTraipattanakul (Thailand)
Supervisor: Dr. P. Abdul Salam

Thermoelectric Generation from Low
Temperature Waste Heat: A
performance Analysis on Biomass
Cookstove.

By Bijay Bahadur Pradhan
Supervisor: Dr. P. Abdul Salam

Estimating Short and Long Run Time-of-
Use Tariff Elasticity for PEA's Customer
Demand.

By Prow Choompradit
Supervisor: Dr. Charles O.P. Marpaung



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)

OANH THI KIM NGUYEN, 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)

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)

PREEDA PARKPIAN, BSc, Kasetsart Univ, Thailand; MSc, Mississippi State Univ; PhD, Texas A&M Univ, USA.

Associate Professor (Ecotoxicology; POPs; Heavy Metals; Micronutrient Chemistry; Remediation of Polluted Soil and Water)

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)

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)

Visiting and Adjunct Faculty

HATHAIRATANA GARIVAIT, BS (Science de la structure et de la matiere), Ms (Chimie Physique), University of Paris 7, France; DTechSc, AIT, Thailand.

Adjunct Faculty (Statistics and Environmental Management Systems)

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)

KARE HELGE KARSTENSEN, BS, MS, University of Oslo; MBA, Heriott Watt University, UK; MLaw, University of Oslo; Dr.Sc, Norwegian University 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)

HUNG NGUYEN-VIET, PhD

Adjunct Faculty (Life and Environmental Sciences)

SHINICHI OKAMOTO, BEng, MEng, DEng, Waseda Univ, Japan.

Visiting Professor (Statistics and Environmental Management Systems)

CHONGRAK POLPRASERT, BEng, Chulalongkorn Univ, Thailand; MEng, AIT, Thailand; PhD, Univ of Washington, USA.

Visiting Professor (Hazardous Waste Engineering; Resources Recovery; Sanitation)

NGUYEN CONG THANH, DSc, Laval University, Canada.

Adjunct Faculty (Water Supply; Wastewater Management; Industrial Pollution Control; Environmental Impact Assessment)

ROBERT VAUTARD, PhD, Ecole Normale Supérieure de Paris, France.

Adjunct Faculty (Climate Time Series and Pattern Analysis; Climate Extremes; Detection and Attribution; Regional Air Quality Processes and Modelling)

Affiliated Faculty

SKORN MONGKOLSUK, PhD, University of Maryland, USA.

Affiliated Professor (Biological Science)

KHUNYING MATHUROS RUCHIRAWAT, PhD, Massachusetts Institute of Technology, USA.

Affiliated Faculty (Nutrition Biochemistry and Metabolism)

JUTAMAAD SATAYAVIVAD, PhD, Mahidol University, Thailand.

Affiliated Faculty (Pharmacology)

Research Staff

PIYANAD AKSORNPIM, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

ALFREDO ANCENO, PhD

Post-Doctoral Research Scientist (Conducts lab experiments and assists students in their lab activities; assist project leader with research project, training activity, writes project proposals)

SOMCHAI AREMSUM-ANG, BSc

Research Assistant (Wastewater and soil analysis, field survey and data collection, testing and other laboratory sessions)

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)

PONGSAKORN CHAICHAI, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

DO THI THANH CANH, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

SAROJ KUMAR CHAPAGAIN, PhD

Post-Doctoral Research Engineer (Manages research projects; assists in project coordination, prepares project reports, assist team leader in training activities)

SUPUSANEE DULYAKASEM, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

NGUYEN THANH HANG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

CHAIYAPORN IMSAPSANGWORN, BSc

Senior Technician (Assess laboratory routine testing and analysis, maintain the operation of the laboratories, instruments and equipment, chemical and lab preparation for EEM laboratories)

sessions, data collection and fieldwork assistance to students and research staff)

PAUL JACOB, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

PRAKRITI KASHYAP, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

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)

TITIPONG KUDEEPUN, 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)

CHUTIYA LAMKITCHA, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

PANNAWEE MEKWICHAI, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

RAQUEL P. PEDRAJAS, MEng

Senior Research Associate (Assists in project coordination, prepares project

reports, budgets and manages project finances, assists in maintenance of project websites, organizes international workshops, conference, training programs and seminars, prepares project brochures, posters, etc., assists in formulation of research proposal, co-edits project newsletters, assists evaluation of reports from National Research Institutions involved in the project

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)

WANAWAN PRAGOT, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

MUNU PRADHAN, MBA

Research Associate (Manages research projects, prepares technical reports and presentations)

TATCHAI PUSAYANAVIN, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

T.D.W. RATHNAYAKE, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

NEERAYA RATTANASTACHAN, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

PICHAPON ROBRU, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

CHALOEMCHAI SAENTIP, BEng

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)

CHUTHATHIP SIRIPONG, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

NAWATCH SURINKUL, Deng

Senior Research Engineer (Manages research projects; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)

PANNITA SUTTISAWAD, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

TANTIMA SUWANNAPAN, BSc

Research Assistant (Conducts lab experiments and assists students in their lab activities; assist project leader with research project, training activity)

WITCHUDA TASSANASUWAN, Bsc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHIRASUDA THIEMJARAT, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

JARUWAT WATANATANACHART, BEng

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*)

QIUSHI XU, MEng

Research Associate (*Manages research projects, prepares technical reports and presentations*)

MANOJ YOMJINDA, MSc

Research Laboratory Supervisor (*Supervises instrumentation and data acquisition, calibration and maintenance of analytical instruments, assistant to senior laboratory supervisor for such as teaching, lab management*)

4.5.4 Grants and Sponsored Research Completed in 2012

Assessment of Fecal sludge rheological properties

Duration: 5-Aug-11 to 31-Dec-12
Project Investigator(s): Thammarat Koottatep
Sponsor: Bill & Melinda Gates Foundation, USA
Total Contracted Amount (THB): 1,456,960

Comparison Study on Air Pollution Characteristics between Seoul and Bangkok

Duration: 1-Mar-10 to 31-Dec-12
Project Investigator(s): Nguyen Thi Kim Oanh
Sponsor: Korea Institute of Science and Technology (KIST), Korea
Total Contracted Amount (THB): 860,832

Database of 3R Good Practices related to Medical Waste Management

Duration: 27-Jan-11 to 21-Mar-12
Project Investigator(s): C. Visvanathan
Sponsor: Mitsubishi Research Institute, Japan

Total Contracted Amount (THB): 600,000

PAMS SEA 3-1

Duration: 1-May-10 to 30-Jun-12
Project Investigator(s): Thammarat Koottatep
Sponsor: NCCR North-South Center for Development and Environment, Switzerland
Total Contracted Amount (THB): 1,328,525.35

Policy study on Technology Transfer for 3R (ARCRP FY 2011)

Duration: 5-Jun-11 to 30-Jun-12
Project Investigator(s): C. Visvanathan
Sponsor: Institute of Global Environmental Strategies (IGES)
Total Contracted Amount (THB): 380,000

Professional Masters in Environmental Management

Duration: 1-May-10 to 29-Feb-12
Project Investigator(s): Nguyen Thi Kim Oanh
Sponsor: Multi donors
Total Contracted Amount (THB): 3,355,779

Sustainable Water Management in Urban Fringe Areas through Industrial Wastewater Reuse

Duration: 1-Mar-10 to 31-Jan-12
Project Investigator(s): C. Visvanathan
Sponsor: French Ministry of Foreign Affairs
Total Contracted Amount (THB): 1,343,441

Sustainability Workshops: Integrative Approaches in Sustainable Water and Food Management through Intensive Program on Sustainability (IPoS) – 2011

Duration: 1-Jul-11 to 30-Jun-12
Project Investigator(s): Thammarat Koottatep
Sponsor: University of Tokyo, Japan
Total Contracted Amount (THB): 1,112,640.00

The Ninth International Symposium on Southeast Asian Water Environment

Duration: 1-Sep-11 to 31-Mar-12
Project Investigator(s): C. Visvanathan
Sponsor: University of Tokyo, Japan

Total Contracted Amount (THB): 173,678

4.5.5 On-going Grants and Sponsored Research

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

Assessment of co-benefits on Air Quality and climate resulted from various control strategies in Southeast Asia

Duration: 1-Aug-10 to 10-Aug-13
Project Investigator(s): Nguyen Thi Kim Oanh
Sponsor: French Ministry of Foreign Affairs
Total Contracted Amount (THB): 1,704,000

Assessment of Impacts of the Emission Reduction Measures of Short-lived Climate Forcers on Air Quality and Climate in Southeast Asia

Duration: 1-Aug-10 to 10-Aug-13
Project Investigator(s): Nguyen Thi Kim Oanh
Sponsor: NAS-USAID
Total Contracted Amount (THB): 5,542,800

Effective Microorganism

Duration: 1-Nov-12 to 30-Apr-13
Project Investigator(s): Oleg Shipin
Sponsor: WHO, SEARO, Delhi, India
Total Contracted Amount (THB): 316,200

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

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

Inter Laboratory Comparison

Duration: 1-Jun-07 to 31-Dec-13
 Project Investigator(s): Nguyen Thi Kim Oanh
 Sponsor: UNEP-EAP/AP
 Total Contracted Amount (THB): 1,032,150

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

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

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

Professional Masters in Environmental Engineering Batch II

Duration: 1-Sep-11 to 31-Dec-12
 Project Investigator(s): Nguyen Thi Kim Oanh
 Sponsor: Multi donors
 Total Contracted Amount (THB): 2,446,150

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

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

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

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

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

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

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

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

4.5.6 Publications

International Journal Articles with Impact factor

Abeynayaka, A., **Visvanathan, C.**, Monthakanti, N., Hashimoto, T. and Katayama, H., (2012). Removal of DOM and THM-Formation-Potential of Tropical Surface Water by Ceramic Microfiltration. *Water Science & Technology: Water Supply, Vol: 12, No: 6*, 869-877.

Acheampong, M.A., Pakshirajan, K., **Annachatre, A.P.** and Lens, P.N.L. (accepted in 2012). Removal of Cu(II) by biosorption onto coconut shell in fixed-bed column systems. *Journal of Industrial and Engineering Chemistry* 19 (3), pp. 841-848 (Impact Factor: 2.145).

Baruah, S., Cesar Ortinero, C., **Shipin, O.V.** and Dutta, J., (2012). Manganese doped zinc sulfide quantum dots for detection of *Escherichia coli*. *Journal of Fluorescence, Springer, 22*, 403-408 (Impact Factor: 1.789).

Hai, C.D. and **Kim Oanh, N.T.**, (2012). Effects of local, regional meteorology and emission sources on mass and compositions of particulate matter in Hanoi. *Atmospheric Environment*. <http://dx.doi.org/10.1016/j.atmosenv.2012.05.006> (Impact Factor: 3.110).

Jayaranjan, M.L.D. and **Annachatre, A.P.** (accepted in 2012). Precipitation of heavy metals from coal ash leachate using biogenic hydrogen sulfide generated from FGD gypsum. *Water Science and Technology, 67 (2)*, pp. 311-318.

Kaiwan-arporn, P., Hai, P.D., Thu, N.T. and **Annachatre, A.P.**, (2012). Cultivation of cyanobacteria for extraction of lipids. *Biomass and*

Bioenergy 44, pp. 142-149 (Impact Factor: 2.975).

Keserue, H.A., Fuchslin, H.P., Wittwer, M., Hung, N.V., Nguyen, T.T., Surinkul, N., **Koottatep, T.**, Schurch, N., and Egli, T., (2012). Comparison of Rapid Methods for Detection of *Giardia* spp. And *Cryptosporidium* spp. (Oo) cysts Using Transportable Instrumentation in a Field Deployment. *Environmental Science & Technology*, dx.doi.org/10.1021/es301974m, ACS Publications (Impact Factor: 5.257).

Khan, S.J., Rehman, Z-Ur., **Visvanathan, C.** and Jegatheesan, V., (2012). Influence of Biofilm Carriers on Membrane Fouling Propensity in Moving Biofilm Membrane Bioreactors. *J. Bioresource Technology, 113*, 161-164 (Impact Factor: 4.750).

Khan, S.J., **Visvanathan, C.** and Jegatheesan, V., (2012). Effect of powdered activated carbon (PAC) and cationic polymer on biofouling mitigation in hybrid MBRs. *J. Bioresource Technology, 113*, 165-168 (Impact Factor: 4.750).

Khumsaeng, T., **Kim Oanh, N.T.**, Karstensen, K.H. and Polprasert, C., (2012). Emission of dioxins/furans and other U-POPs from test burns of non-POP pesticides in a hazardous waste incinerator. *Waste Management, 33 (4)*, pp. 833-841 (Impact Factor: 2.485). <http://dx.doi.org/10.1016/j.wasman.2012.11.012>

Kijjanapanich P., **Annachatre, A. P.**, and Lens, P.N.L. (accepted in 2012). Biological sulfate reduction for treatment of gypsum contaminated soils, sediments and solid wastes. *Critical Reviews in Environmental Science and Technology*.

Kijjanapanich, P., Pakdeerattanamint, K., Lens, P.N.L. and **Annachatre, A.P.**, (2012). Organic substrates as electron donors in permeable reactive barriers for removal of heavy metals from acid mine drainage. *Environmental Technology (United Kingdom) 33 (23)*, pp. 2635-2644 (Impact Factor: 1.606).

Kim Oanh, N.T., Phuong, M.T.T., and Permadi, D.A., (2012). Analysis of motorcycle fleet in Hanoi for estimation of air pollution emission and climate mitigation co-benefit of technology implementation. *Atmospheric Environment, 59*, pp. 438-448 (Impact Factor: 3.110). <http://dx.doi.org/10.1016/j.atmosenv.2012.04.057>.

Noicharoen, D., Parkpian, P., **Shipin, O.V.**, Polprasert, C., DeLaune, R.D. and Kongchum, M., (2012). Effect of salinity on adsorption and desorption of paraquat in Pak Phanang river sediment, Thailand. *Journal of Environmental Science and Health, Part A, 47, (12)*, 1897- 1908 (Impact Factor: 1.19).

Okamoto, S., Wangkiat, A., Pongkiatkul, P., Nakkhwan, C. and **Kim Oanh, N.T.**, (2012). Comparative Study on the CMB-8 and PMF Models for a Coastal Industrial Area. *International Journal of Environmental Protection, 2 (9)*. Pp. 1-6 (Impact Factor: 0.31).

Permadi, D.A. and **Kim Oanh, N.T.**, (2012). Assessment of biomass open burning emissions in Indonesia and potential climate forcing impact. *Atmospheric Environment*, Doi: 10.1016/j.atmosenv.2012.10.016 (Impact Factor: 3.110)

Rattanaoudom, R., **Visvanathan, C.** and Boontano, S.K., (2012). Removal of Concentrated PFOS and PFOA in Synthetic Industrial Wastewater by Powder Activated Carbon and Hydrotalcite. *Journal of Water Sustainability, Volume 2, Issue 4, December 2012*, 245-258.

Rizk, J., Utemurtov, B., Abdullaev, I. and **Shipin, O.V.**, (2012). Balancing the use of water resources in the Amu Darya basin. Policy Brief. November 2012. NATO Amu Darya Basin Network Initiative. East West Institute, New York-Brussels, p.1-21

Sherpa, M. G., Lüthi, C. and **Koottatep, T.**, (2012). Applying the Household-Centered Environmental Sanitation planning approach: a case study from

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- Shindell, D., Kuylensstierna, J.C. I., Vignati, E., van Dingenen, R., Amann, M., Klimont, Z., Anenberg, S.C., Muller, N., Janssens-Maenhout, G., Raes, F., Schwartz, J., Faluvegi, G., Pozzoli, L., Kupiainen, K., Höglund-Isaksson, L., Emberson, L., Streets, D., Ramanathan, V., Hicks, K., **Kim Oanh, N.T.**, Milly, G., Williams, M., Demkine, V., and Fowler, D., (2012). Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security. *Science*, 13 January 2012: 183-189. doi:10.1126/science.1210026. IF: 31.36 (Impact Factor: 31.03).
- Tan, P.D., Thanh, B.X., Dan, N.P., **Visvanathan, C.** and Leng, L.A., (2012). Recycling of Industrial Secondary Effluent Using Pilot Scale Ultrafiltration System. *Journal of Science and Technology, Vietnam Academy of Science and Technology, Volume 50, No: 1C*, 57-65.
- Visvanathan, C.** and Abeynayaka, A., (2012). Development and future potentials of anaerobic membrane bioreactors. *J. Membrane Water Treatment, Vol: 3, No: 1*, pp: 1-23.
- Visvanathan, C.** and Kashyap, P., (2012). Effective Policy Framework for the Promotion of 3R Technology Transfer. *Int. J. Environmental Technology and Management*, Vol: 15, No: 3/4/5/6, 501-515.
- Conference Publication**
- Annachatre, A.P., (2012).** Impacts, Management and Treatment of Acid Mine Drainage. Paper presented at *Conference on Drinking water, Wastewater and Groundwater Management*, Shanghai, China, March 5-6, 2012.
- Co, H.X, Dung, N.T, **Kim Oanh, N.T.**, Hang, N.T., Phuc. N.H. and Le, H.A., (2012). Black carbon and chemical compositions of PM_{2.5} and PM₁₀: seasonal variation data at mountainous site in Northern Vietnam. *Poster presentation at the BAQ 2012*, Hong Kong, December 5-7, 2012.
- Danwittayaku¹, S., Jaisai, M., Muangkasem, P., and **Koottatep, T.**, (2012). Synthesis of Zinc Oxide/Zinc Tin Oxide Nanocomposite Materials by Hydrothermal Process for Visible Photocatalysis. In *Proceedings of the 6th International Workshop on Advanced Materials Science and Nanotechnology (IWAMSN2012)*, Halong, Vietnam, October 30- November 2, 2012.
- Didin, A.P., **Kim Oanh, N.T.** and Vautard, R., (2012). Regional simulation of black carbon in Southeast Asia with updated emission inventory. *Presented at BAQ2012*, Hong Kong, December 5-7, 2012.
- Jaisai, M., Danwittayaku¹, S., Muangkasem, P., **Koottatep, T.** and Dutta, J., (2012). Photocatalytic Degradation of Methyl Orange Using Zinc Oxide Nanorods/Zinc Stannate (ZnO/ZTO) Catalysts. In *Proceedings of the 6th International Workshop on Advanced Materials Science and Nanotechnology (IWAMSN2012)*, Halong, Vietnam, October 30 - November 2, 2012.
- Kijjanapanich P., **Annachatre, A.P.**, and Piet, N.L.L., (2012). Biological Sulfate Reduction for Remediation of Gypsiferous Soils and Wastes. *ETeCO₃ Summer school on "Contaminated Soils: from characterization to remediation"*, Univ. of Paris-EST, France, June 18-22, 2012.
- Koottatep, T.** and Chaosakul, T., (2012). Phosphorus Situation and Recovery in Thailand, In: *Proc. of 2nd International Workshop on Sustainable Phosphorus Governance from Asian Perspective*, Keio University, Yokohama, Japan, November 20, 2012
- Koottatep T.**, Panuvatvanich A., Surinkul S., and Polprasert, C., (2012). Innovation Challenges in Decentralized Wastewater Treatment and Fecal Sludge Management. In *Proceedings of International Workshop on Development of Technological Research Platform for Application of Water Environment Improvement (wastewater treatment) Technology in Southeast Asia*, Bangkok, Thailand, December 26, 2012.
- Koottatep, T.**, Surinkul, N., and Panuvatvanich, A., (2012). Accumulation rates of thickened-bottom sludge and its characteristics from water-based onsite sanitation systems in Thailand, In *Proceedings of the 2nd International Faecal Sludge Management Conference*, Durban, South Africa, October, 29-31, 2012
- Kim Oanh, N.T.**, (2012). Ambient air levels and major emission sources of black carbon in developing Asian countries. *Presented at BAQ2012*, Hong Kong, December 5-7, 2012.
- Kim Oanh, N.T.**, (2012). Black Carbon Emission and Ambient Air Levels in Developing Asian Countries. In *Proceedings of Aerosol and Atmospheric Optics: Visibility and Air pollution AWMA Conference*, Whitefish, Montana, September 24-28, 2012.
- Kim Oanh, N.T.**, (2012). Trend and status of particulate matter and black carbon in urban areas and remote sites of Asian Developing Countries. In *Proceedings of AWMA Annual Meeting*, San Antonio, June 19-22, 2012.
- Rattanaoudom, R., **Visvanathan, C.** and Boontanon, S., (2012). Application of Hybrid Nanofiltration for Separation of Concentrated PFOS in Aqueous Solution. In *Proceedings of the Fifth Annual Conference on the Challenges in Environmental Science and Engineering 2012 (CESE 2012)*, p.87, RACV, Melbourne, Australia, September 9-13, 2012. ISBN: 978-0-646-58149-1.
- Shipin, O.V.**, (2012). Global parallels in environmental and water resources management. In *Proceedings of the international conference on Innovations in Arid Zone Environmental Management*, (p. 34-40). University of Nevada, Las Vegas, Nevada, USA, June 2-3, 2012.

Shipin, O.V. and Habib, H., (2012). The Aral sea and Colorado river: unexpected lessons for Afghanistan. In *Proceedings of the Bilateral Afghan-Thailand Conference on the Afghan Environment and Water Resources*, AIT, Thailand, November 14, 2012.

Thanh, B.X., Nhien, N.T.T., Dan, N.P. and **Visvanathan, C.** (2012). Low flux operation of submerged membrane bioreactor treating high strength leachate from solidwaste transfer station. In *Proceedings of the Fifth Annual Conference on the Challenges in Environmental Science and Engineering 2012 (CESE 2012)*, p.84, RACV, Melbourne, Australia, September 9-13, 2012. ISBN: 978-0-646-58149-1.

Thanh, B.X., Thy, L.L., Dan, N.P. and **Visvanathan, C.**, (2012). Industrial Wastewater Reuse by Airlift External Membrane Bioreactor. In *Proceedings of the International Symposium on Southeast Asian Water Environment*, Hanoi, Vietnam, November 8-10, 2012.

Thanh, B.X., **Visvanathan, C.** and Ben Aim, R., (2012). Fouling characterization and nitrogen removal in batch granulation membrane bioreactor. In *Proceedings of the Fifth Annual Conference on the Challenges in Environmental Science and Engineering 2012 (CESE 2012)*, p.45, RACV, Melbourne, Australia, September 9-13, 2012. ISBN: 978-0-646-58149-1.

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Visvanathan, C. (2012). Developments and Future Potentials of Anaerobic Membrane Bioreactors. **Invited Speaker**, *International Conference on Industrial Biotechnology*, Patiala, India, November 21-23, 2012.

Visvanathan, C. (2012). Hazardous Waste Management in South East Asia: Concerns and Need for Capacity Building. **Invited Keynote Speaker**, *ISWA Seminar and Workshop on "Status*

and Challenges for Hazardous Waste in the Asia Pacific Regions, Singapore, April 24-26, 2012.

Visvanathan, C. (2012). Public Private Partnership in Waste Management through IPLA: What does Private Sector Want?. In *Proceedings of the IPLA Forum meeting on Empowering Municipalities in Building Zero Waste Society*, Seoul, Korea, September 5-6, 2012.

Visvanathan, C. and Kasyap, P. (2012). Policy Interventions: Breaking the barriers for 3R Technology transfer in Asia. In *Proceedings of the 10th Expert Meeting on Solid Waste Management in Asia and Pacific Islands (SWAPI)*, Tottori, Japan, February 20-22, 2012.

Zeshan and **Visvanathan, C.** (2012). Dry Anaerobic Digestion of Municipal Solid Waste: Potentials and Problems. In *Proceedings of the 2nd International Conference on Anaerobic Digestion for Waste and Wastewater Treatment*, Bangkok, Thailand, April 26, 2012.

Book

Kim Oanh, N.T. (ed.), 2012. Integrated air quality management: Asian Case Studies. ISBN 9781439862254. CRC Press, 440 p. (www.crcpress.com/product/isbn/9781439862254)

Monographs

Kim Oanh, N.T. A lead author of Chapter 2- Asia, GEO-5 (2012). *Global Environment Outlook 5: Environment for the Future We Want*. UNEP, ISBN: 978-92-807-3177-4.

Kim Oanh, N.T. A contributing author in Chapter 3: Asia. WMO (2012). *Global Atmospheric Watch (GAW) No. 205: Impacts of Mega Cities on Air Pollution and Climate*. WMO, Geneva, Switzerland, ISBN 978-0-9882867-0-2.

Shrestha, R.M., **Kim Oanh, N.T.**, Shrestha, R., Rupakheti, M., Permadi, D.A., Kanabkaew, T., and Salony, R., (2012). *Atmospheric Brown Cloud (ABC) Emission Inventory Manual (EIM)*. In

Press, United Nation Environmental Programme (UNEP), Nairobi, Kenya.

Book Chapters

Changsuphan, A. and **Kim Oanh, N.T.**, (2012). Chapter 9: Application of Nanometallic Particles Coated on Porous Materials for VOC Destruction; in the book "Integrated Air Quality Management: Asian Case Studies". *Taylor and Francis Group*, CRC Press. 2012. ISBN 9781439862254.

Co, H.X., Dung, H.T. and **Kim Oanh, N.T.**, (2012). Chapter 16: Integrated Air Quality Management for Brick Manufacturing Village in Vietnam; in the book "Integrated Air Quality Management: Asian Case Studies". *Taylor and Francis Group*, CRC Press. 2012. ISBN 9781439862254.

Didin, A.P., Murray, F., and **Kim Oanh, N.T.**, (2012). Chapter 6: Regional Scale Modeling for Projection of Ozone Air Quality and Potential Effects on Agricultural Crops in Southeast Asia; in the book "Integrated Air Quality Management: Asian Case Studies". *Taylor and Francis Group*, CRC Press. 2012. ISBN 9781439862254.

Engel-Cox, J.A., Huff, A.K., Kanabkaew, T. and **Kim Oanh, N.T.**, (2012). Chapter 4: Satellite Tools for Air Quality Management with focus on Particulate Matter. in the book "Integrated Air Quality Management: Asian Case Studies". *Taylor and Francis Group*, CRC Press. 2012. ISBN 9781439862254.

Jegatheesan, V., Shu, L. and **Visvanathan, C.**, (2012). Aquaculture effluent: Impacts and Remedies for Protecting Environment and Human Health. *Encyclopedia of Environmental Health*, Elsevier Publications, 2011, Vol: 1, pp. 123-135, ISBN: 0444522735.

Kim Oanh, N.T., (2012), a lead author (lead authors: Drew Shindell, Eric Zusman, Frank Murray, Geir Braathen, Kevin Hicks, Linn Persson, Lisa Emberson, Martha Barata, Sara Feresu, Sara Terry, T.S. Panwar, Yousef Meslmani and Nguyen Thi Kim Oanh; and other contributing authors). Chapter

2: Atmosphere, in GEO-5 (2012) "Global Environment Outlook 5: Environment for the Future We Want". UNEP, ISBN: 978-92-807-3177-4.

Kim Oanh, N.T., (2012), a contributing author (Lead author: Tong Zhu and contributing authors: Mylene G. Cayetano et al., Kim Oanh N.T., et al.). Chapter 3: Asia, in WMO (2012): Global Atmospheric Watch (GAW) No. 205; WMO/GAW Impacts of Mega Cities on Air Pollution and Climate. WMO, Geneva, Switzerland, 2012. ISBN 978-0-9882867-0-2.

Kim Oanh, N.T., Didin. A.P., Phuc, N.H., and Zhuang, Y.H., (2012). Chapter 1: Current Status of Air Quality and Management Practices in Asian Developing Countries, in the book "Integrated Air Quality Management: Asian Case Studies". Taylor and Francis Group, CRC Press. 2012. ISBN 9781439862254.

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Kim Oanh, N.T. (2012). Chapter 13: Integrated Approach to Rice Straw Management for Reduction of Field Burning Activity; in the book "Integrated Air Quality Management: Asian Case Studies". Taylor and Francis Group, CRC Press. 2012. ISBN 9781439862254.

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[ortals/88/documents/ger/GER_8_Waste.pdf](https://www.unep.org/Portals/88/documents/ger/GER_8_Waste.pdf)

Research Report

Chiamchaisri, C., Chiamchaisri, W., **Koottatep, T.**, Panuvatvanich, A., Surinkul, N., and Sarathai, Y. (2012). Wastewater Reuse in Bangkok City. *Final Report, submitted to Bangkok Metropolitan Administrative (BMA)*, 850 p.

4.5.6 Doctoral Students' Dissertation

Application of Nanoscale Metallic Particles for Removal of Vocs from Contaminated Air

By Amornpon Changsuphan

Supervisor: Prof. Nguyen Thi Kim Oanh

Assessing the Potential Toxicity of Trace Elements in Agricultural Soils with Focusing on Lead (Pb) and Remediation Options for Cleanup of a Contaminated Site

By Wanida Nobuntou

Supervisor: Dr. Preeda Parkpian

Dry anaerobic digestion of municipal solid waste and digestate management strategies

By Zeshan

Supervisor: Prof. C. Visvanathan

Molecular Study of the Effect of Exposure to Arsenic in the Environment

By Ponpat Intarasunanont

Supervisor: Assoc. Prof. Dr. Khunying Mathuros Ruchirawat

Potential Impacts Derived from Herbicide Accumulation in the Pak Phanang Bay, Nakhon Si Thammarat Province, Thailand

By Damrongsak Noicharoen

Supervisor: Dr. Oleg Shipin

Precipitation of heavy metals from coal ash leachate using biogenic hydrogen sulfide Precipitation of heavy metals from coal ash leachate using biogenic hydrogen sulfide

By Madawala Liyanage Duminda Jayaranjan

Supervisor: Prof. Ajit P. Annachhatre

4.5.7 Masters Students' Theses

Application of Regional Strategic Environmental Assessment to Integrated Water Resources Management Plan in Afghanistan: A Case Study of the Amu Darya Basin
By Abdul Hakim
Supervisor: Dr. Oleg Shipin

Assessment and Mitigations of Greenhouse Gas Emission for Rayong Municipality
By Karnwadee Wilaingam
Supervisor: Prof. C. Visvanathan

Assessment of Air Quality, Health and Climate Co-Benefit Potential for Residential Cooking: A Case Study of A Commune in Vietnam
By Nguyen Hong Phuc
Supervisor: Prof. Nguyen Thi Kim Oanh

Assessment of Indoor Air Pollution Levels and Potential Technology Scenarios for Air Quality and Climate Co-benefits: A Case Study of Hatiya VDC, Makawanpur, Nepal
By Dipesh Rupakheti
Supervisor: Prof. Nguyen Thi Kim Oanh

Characterization of Air Pollutant Emissions from Open Burning of Solid Waste
By Chirasuda Theimjarat
Supervisor: Prof. Nguyen Thi Kim Oanh

Chemical Treatment of Acid Mine Drainage
By Sawitree Singjan
Supervisor: Prof. Ajit P. Annachhatre

Clogging in Vertical Flow Constructed Wetland Treating Under Intermittent Feeding Pattern
By Won Kwon Kim
Supervisor: Dr. Thammarat Koottatep

Clogging Patterns in Vertical Flow Constructed Wetland Treating Combined Sewer Overflows under Different Organic Loadings
By Juthamas Siriporn Na Ratchasima
Supervisor: Dr. Thammarat Koottatep

Co-Composting of Cassava Pulp with Activated Sludge
By Le Minh Truong
Supervisor: Prof. Ajit P. Annachhatre

Concentrate and Solid Waste Management in Reverse Osmosis Plants
By Surapong Rattanukul
Supervisor: Prof. C. Visvanathan

Copper and Lead Adsorption in Boraphet Lake Sediment and Potential Removal Using Physico-Chemical Treatments
By Thuangsit Denpetkul
Supervisor: Dr. Preeda Parkpian

Cumulative Effects Assessment of Impacts on a Lake Catchment Area: Case Study of Inle Lake, Myanmar
By Nirakar Pradhan
Supervisor: Dr. Oleg Shipin

Development of A DNA-Based Detection Method for Sewage Specific Bacteriophages of Bacteroides
By Aurin Wongpichit
Supervisor: Dr. Kwanrawee Sirikanchana

Development of Ship Emission Inventory in the Bohai Sea of China: A Case Study of March 2012
By Xu Qiushi
Supervisor: Prof. Nguyen Thi Kim Oanh

Effects of Arsenite Treatment on DNA Strand Breaks, Gene Expression and DNA Methylation of XRCC1, DNMT1 and DNMT3A in Two Human Cell Lines: Lymphoblast (RPMI 1788) and Embryonic Kidney (HEK 293)
By Ajaya Sapkota
Supervisor: Dr. Panida Navasumrit

Flood Proofing of a Solid Waste Management System: Case Study in Kratie City, Cambodia
By Meng Kimsan
Supervisor: Prof. Ajit P. Annachhatre

Generation and Management of Acid Mine Drainage
By Waewmanee Simphan
Supervisor: Prof. Ajit P. Annachhatre

Integrated Waste Management in Sirinat National Park Area, Phuket Province, Thailand
By Nantaporn Jitprasert
Supervisor: Dr. Oleg Shipin

Investigation of Woven Fiber Membrane Based Low Cost Decentralized Wastewater Treatment System
By Vo Thi Dao Chi
Supervisor: Prof. C. Visvanathan

Investigation on Ceramic Membrane Based Filter Backwash Water Recycling and Energy Conservation Potentials for Water Treatment Plants
By Sundara Nadarajah Kalaimathy
Supervisor: Prof. C. Visvanathan

Isolation and Characterization of Bacteroides Host Strains of Bacteriophages Suitable for Tracking Sources of Fecal Pollution in Thailand's Water
By Suchada Bosup
Supervisor: Dr. Kwanrawee Sirikanchana

Mitigation of Greenhouse Gas Emissions from Canned Fruit Industry: Case Study in Thailand
By Natthapong Proysurin
Supervisor: Prof. Ajit P. Annachhatre

Modeling of Greenhouse Gas Emissions and Benefits from Solid Waste Management Options: A Case Study of Tapioca Starch Industries in Thailand
By Anish Ghimire
Supervisor: Prof. Ajit P. Annachhatre

Potential Toxicity of Heavy Metals Focusing on Arsenic, Copper, Lead and Manganese: Case Study of Boraphet Lake in Nakorn Sawan Province, Thailand
By Chadatip Tongkate
Supervisor: Dr. Preeda Parkpian

Remediation of Soil Contaminated with Dioxin by Bio-Nano Technique
By Chaipayorn Imsapsangworn
Supervisor: Dr. Preeda Parkpian

Satellite Monitoring of Carbon Monoxide in the Northern Thailand with Focus on Forest Fire Episodes
By Manlika Sukitpaneenit
Supervisor: Prof. Nguyen Thi Kim Oanh

Strategies for Sanitation Systems to Mitigate GHG Emissions in Lao PDR.

By Paul Jacob

Supervisor: Dr. Thammarat Koottatep

Wastewater Reuse and Quantitative Microbial Risk Assessment in Ban Sok Noy Village, Vientiane Capital, Lao PDR

By Vilaysack Longaphai

Supervisor: Dr. Thammarat Koottatep

Research Study 2012

Air Quality Management Status in Vietnam Petroleum Industry: Case Study of Dung Quat Refinery Plant

By Tran Khanh Tung

Supervisor: Prof. Nguyen Thi Kim Oanh

Analysis of Air Pollution in Coal-Fired Power Plants in Vietnam: Case Study of Vinh Tan 3 Thermal Power Plant

By Truong Thanh Van

Supervisor: Prof. Nguyen Thi Kim Oanh

Assessment of Current and Projected Air Pollution Emission from The Bus Fleet in Ho Chi Minh City

By Nguyen Hong Ky

Supervisor: Prof. Nguyen Thi Kim Oanh

Environmental Impacts by Lead Battery Recycling Industry: A Case Study from Chachoengsao Province, Thailand

By Soontorn Piromsartkoon

Supervisor: Dr. Preeda Parkpian

Evaluating Effectiveness of Environmental Impact Assessment for The HCMC – Long Thanh – Dau Giay Expressway Construction Project

By Phan Vu Loi

Supervisor: Dr. Oleg Shipin

Noise Mapping at Vietnam Oil and Gas Industry Using An Intergrated Monitoring and Modeling Approach: Case Study for Dinh Co Gas Processing Plant

By Pham Minh Duc

Supervisor Prof. Nguyen Thi Kim Oanh

The Forecast, Simulation and Mitigation Methods of Oil Spill on Cai Mep – Thi Vai River, Southern of Vietnam

By Lam Anh Thu

Supervisor: Prof. Ajit P. Annachhatre

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

4.6.3 Grants and Sponsored Research Completed in 2012

URC TNA Project

Duration: 9-Sep-2010 to 31-May-2012
Project Investigator(s): Sudip Kumar Rakshit
Sponsor: UNEP Riso Center Denmark

Total Contracted Amount (THB): 4,516,024

SYKE - Policy Learning

Duration: 1-May-2011 to 05-Jan-2012
Project Investigator(s): Sudip K Rakshit, Sangam Shrestha

Sponsor: Ministry of Foreign Affairs of Finland

Total Contracted Amount (THB): 1,504,404

AUA Benchmarking Project

Duration: 18-Dec-2011 to 31-Jul-2012

Project Investigator(s): Sudip K Rakshit

Sponsor: Hokkaido University

Total Contracted Amount (THB): 468,300

4.6.4 On-going Grants and Sponsored Research

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 Doney

Sponsor: IFAD

Total Contracted Amount

(THB): 45,150,000

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): SudipRakshit&

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

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

Anal, A. K., Singh, H., Han, K. S., Yuan, F. and Breda, K. ENCAPSULATION SYSTEM FOR PROBIOTICS DURING PROCESSING; US Patent 20,120,263,826, (2012)

Anal, A. K., Singh, H., Han, K. S., Yuan, F. and Breda, K. ENCAPSULATION SYSTEM FOR PROBIOTICS DURING PROCESSING WO Patent 2,012,142,153, (2012)

International Journal Articles with Impact factor

Anal, A. K., Jaisanti, S. and Noomhorm, A. Enhanced yield of phenolic extracts from banana peels (*Musa acuminata* Colla AAA) and cinnamon barks (*Cinnamomum varum*) and their

antioxidative potentials in fish oil; *Journal of Food Science and Technology*; DOI 10.1007/s13197-0793-x (2012). (Impact Factor: 1.123)

Anal, A. K., Jaisanti, S. and Noomhorm, A. Enhanced yield of phenolic extracts from banana peels (*Musa acuminata* Colla AAA) and cinnamon barks (*Cinnamomum varum*) and their antioxidative potentials in fish oil; *Journal of Food Science and Technology*; DOI 10.1007/s13197-0793-x (2012). Impact Factor: 1.123

Auawithoothij, W. and Noomhorm, A., (2012). Shewanellaputrefaciens, A Major Microbial Species Related to Tetrodotoxin (TTX)-Accumulation of Puffer Fish *Lagocephalus lunaris*; *Journal of Applied Microbiology*; 113 (2) , pp. 459-465 (IF: 2.196)

Audu, I. G., Brosse, N., Desharnais, L. and Rakshit, S. K. BioResources, Ethanol Organosolv Pretreatment of Typha *Capensis* for Bio-Ethanol Production and CoProducts, *BioResources*, 7(4), 5917-5933, 2012.

Cheema, T. A., Jirajoenrat, K., Sirinarumit, T. and Rakshit, S.K., (2012). Isolation of a gene encoding a cellulolytic enzyme from swamp buffalo rumen metagenomes and its cloning and expression in *Escherichia coli*.

Gebre, B. A., Gebretsadik, Z. T. and Anal, A. K. Effect of Metabolic Modifiers on Meat Quantity and Quality; *African Journal of Food Science*; 6: 294-301 (2012)

Mahmood, M. A., Baruah, S., Anal, A. K. and Dutta, J. Heterogeneous Photocatalysis for Removal of Microbes from Water; *Environ Chem Letters*; 10: 145-151 (2012). Impact Factor: 1.623

Nguyen, H. N., Maruset, L., Uengwetwanit, T., Harnpicharnchai, P., Pongpattanakitshote, S., Tanapongpipat, S., Jirajoenrat, K., Rakshit, S. K. and Eurwilaichitr, L., (2012). Identification of novel genes encoding lignocellulosic-degrading enzymes from buffalo rumen by metagenomic approach. *Animal*

Biotechnology (Taylor and Francis), 23: 261–277. *BMC Biotechnology* , Volume 76, No. 6, p. 1075, 2012

Supmoon, N. and Noomhorm, A., (2012) Influence of combined hot air impingement and infrared drying on potato chips; *Drying Technology*; 31 (1), pp. 24-31 (IF: 1.814)

Pananun, T., Montalbo-Lomboy, M., Noomhorm, A., Grewell, D. and Lamsal, B., (2012). High Power Ultrasonication-Assisted Extraction of Soybean Isoflavones and Effect Of Toasting ; *LWT - Food Science and Technology* 47 (1) , pp. 199-207; (Impact factor: 2.546)

Pianpumepong, P., Anal, A. K., Douangchawe, G. and noomhorm, A., (2012). Study on enhanced absorption of phenolic compounds of *Lactobacillus*-fermented turmeric (*Curcuma longa* Linn.) beverages in rats ; *International Journal of Food Science and Technology*, 47 (11) , pp. 2380-2387 (Impact factor: 1.24)

Siwapornrak, P., Anal, A. K., Douangchawe, G. and Noomhorm, A. Study on Enhanced Absorption of Phenolic Compounds of *Lactobacillus*-fermented Turmeric Beverages in Rats; *International Journal of Food Science and Technology*; 47(11): 2380-2387 (2012) Impact Factor: 1.24

Supansa Youngsukkasem, Sudip K. Rakshit, Mohammad J. Taherzadeh (2012). Biogas production by encapsulated methane producing bacteria, *BioResources*, Vol 7, No 1, 56-65.

Tesfay, Z., Anal, A. K. and Gebreyohanis, G. Assessment of the Sheep Production System of Northern Ethiopia in Relation to Sustainable Productivity and Sheep Meat Quality; *International Journal of Advanced Biological Research*; 2 (2): 303-313 (2012)

Yakupitiyage, A, Rakshit, S. K., Srisapoome, P. and Nithikulworawong, N., (2012) Molecular characterization and increased expression of the Nile tilapia, *Oreochromis niloticus* (L.), T-cell

receptor beta chain in response to Streptococcusagalactiae infection, Journal of Fish Diseases, Volume 35, Issue 5, pages 343–358.

Book chapter

Anal, A. K. and Tuladhar, A. 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.) (Online available) DOI: 10.1007/12_2012-202

Conference/workshop proceedings

Akbar, A. and Anal, A. K. Prevalence, Antibiogram Study and Preservation Techniques Against Staphylococcus aureus and Salmonella in Poultry Meat; IN: 6th Asian Conference on Food and Nutrition Safety; Singapore (2012)

Anal, A. K. Engineered Bio-encapsulation of Bioactive Compounds for Controlled Gastrointestinal Passage to Enhance the Bioavailability; In: Franco-Thai Symposium, (2012), Thailand.

Anal, A. K. Quality Preservation and Cost Effectiveness in the Extraction of Nutraceutically-Relevant Fractions from Herbal, Microbial and Vegetal Matrices; In: 1st Workshop on Herbal Therapy in Fish Farming: from Ethnobotany to Sustainable Aquaculture and Food Safety"; Vietnam (2012)

Attaviroj, N., Kasemsumran, S. and Noomhorm, A., (2012). Evaluation of Apparent Amylose Content in Paddy by Fourier Transform Near Infrared Reflectance Spectroscopy; Paper present at poster session at The Asian Near Infrared Symposium (ANS) 13-14th May 2012.

Attaviroj, N., Kasemsumran, S. and Noomhorm, A., (2012). NIRS and FT-NIRS Performance in Brown and Milled Rice Protein Content Prediction Using Paddy Spectra; paper present in poster session at The Asian Near Infrared Symposium (ANS), 13-14th May 2012

Khanal, J. S. J., Muthukumarap-pan K., Fallahi, P. and Noomhorm. A., (2012); Single screw extrusion processing of soy white flake based feed for Nile Tilapia; poster presented at ASABE conference, Dallas, July 2012.

Putmuang, N. R., Anal, A. K. and Noomhorm, A., (2012). Autolysis and ultrasonic assisted extraction of protein hydrolysis form white shrimp waste head and its properties; Poster presentation at The 14th Food Innovation Asia Conference 2012; 14-15th June BITEC, Bangna, Thailand.

Putmuang, N. R., Noomhorm, A. and Anal, A. K. Autolysis and Ultrasonic-assisted Extraction of Protein Hydrolysates from Shrimp Head (Penaeusvannamei); In: Proceeding; The 14th Food Innovation Asia Conference, 14-15 June, 2012

Sharma, B., Bhandari, M.R., Rai, K. P., Khanal, D. R. and Anal, A. K. Prevalence of antibiotic residues in milk of Kathmandu valley by HPLC method; In Proceedings: Food Science and Technology for Betterment of Society; NEFOSTA 2012; Kathmandu, Nepal

Sopannttayanon, O., Sripinyowanich, J., Assawarachan, R. and Noomhorm, A., (2012). Effect of storage on quality of coconut flake paper present at poster session at International Congress on Food Engineering and Technology 2012 IMPACT Convention Center, Bangkok, Thailand March 28-30, 2012

Timilsena, Y. P., Anal, A. K., Brosse, N. and Rakshit, S. K. Waste Utilization for Mitigating Food Security and Environmental Problem: A Case Study of Empty Palm Fruit Bunch (EPFB); In: Proceedings of National Conference on Food Science and Technology (Food Conference 2012), August 2012, Nepal; pp 294-301.

Timilsena, Y. P., Chrusciel, L., Desharnais, L., Anal, A. K., Brosse, N., and Rakshit, S. K. Effect of Different Hydrolysis Processes on the Organosolv Delignification Ability and Enzymatic Hydrolysability of Three Lignocellulosic

Feedstocks; In: Proceedings of The 6th National Conference on Science and Technology, Nepal; September 2012.

4.6.6 Doctoral Students' Dissertation

Quality grading of mangosteens using ultrasonic specific gravity sensor – based control system.

By Preedawan Chairichonlathan
Supervisor: Prof. AthapolNoomhorm

Development of models for Thai rough rice quality inspection by near infrared spectroscopy.

By Namaporn Attaviroj
Supervisor: Prof. AthapolNoomhorm

Development of models for Thai rough rice quality inspection by infrared spectroscopy.

By Namaporn Attaviroj
Supervisor: Prof. AthapolNoomhorm

Tetrodotoxin-Accumulation of puffer fish (Lagocephaluslunaris) and minimization of the toxin in the puffer fish filets.

By Wikrommanas Auawithoothij
Supervisor: Prof. AthapolNoomhorm

Effect of processing parameters on the quality of germinated brown rice and parboiled germinated brown rice.

By Ekkapong Cheevitsopon
Supervisor: Prof. AthapolNoomhorm

Molecular cloning, expression and characterization of novel cellulases from metagenomic DNA of buffalo rumen.

By Tanzeem Akbar
Supervisor: Prof. S.K. Rakshit

Pretreatment and enzymatic hydrolysis of TyphaCapensis for bioethanol production.

By Idi GugaAudu
Supervisor: Prof. S.K. Rakshit

Rapid biogas production by methane-producing bacteria encased in polymeric membranes.

By Supansa Youngsukkasem
Supervisor: Prof. S.K. Rakshit

4.6.7 Masters Students' Theses and Research Studies

Using ohmic heating for separating protein from wastewater of mungbean vermicelli industry.

By Nataros Wiboonrungson

Supervisor: Prof. Athapol Noomhorm

Effect of intermittent fluidized bed drying and ultrasonic extraction on polysaccharide gum of Yanang (*Tiliacora Triandra* Diels) Leaves.

By Warintorn Nawarat Na Ayudthaya

Supervisor: Prof. Athapol Noomhorm

Effects of composition and processing on qualities of spray dried rice creamer.

By Narisara Chanasit

Supervisor: Prof. Athapol Noomhorm

Extraction of anthocyanins and lipid from pericarp and seed of *Garcinia mangostana* L. by ultrasound-assisted extraction (UAE).

By Lawan Hiranrangsee

Supervisor: Dr. Anil K. Anal

Effect of different pretreatment methods in combination with the organosolv delignification process and enzymatic hydrolysability of three feedstocks in correlation with lignin structure.

By Yakindra Prasad Timilsena

Supervisor: Prof. Sudip K. Rakshit

Screening of bioactive extracts from plant sources for modulation of digestive enzymes and lipoprotein metabolism.

By Shruti

Supervisor: Dr. Anil K. Anal

Ultrasound-assisted extraction of protein from broiler chicken bone: Optimization process and product development.

By Silvia Ayu Widayati

Supervisor: Dr. Anil K. Anal

In vitro antimicrobial activity and interactions of plant extracts and

antibiotics against multi-drug resistant isolates.

By Kalpana Soundappan Arunagiri

Supervisor: Prof. Sudip K. Rakshit

Rapid optimization of biomass pretreatments using parallel microwave reactors for ethanol production.

By Chandana Janaka Abeywickrama

Supervisor: Prof. Sudip K. Rakshit

Evaluation of performance and energy consumption of a flash dryer for coconut residue.

By Phensiri Khongsit

Supervisor: Prof. Athapol Noomhorm

Application of ash from palm oil industry as adsorbent of food dyes.

By Thiraphon Sumongkhon

Supervisor: Dr. Anil K. Anal

Augmentation of natural folate via fermentation with *Lactococcus lactis* in dairy and non-dairy products.

By Alisha Tuladhar

Supervisor: Dr. Anil K. Anal

Encapsulation of phytase enzyme in alginate-soy protein isolate based beads for monogastric animal feed formulation.

By Jiraporn Kaowmek

Supervisor: Dr. Anil K. Anal

Thawing of frozen mackerel using the ohmic method.

By Eakkarat Suebrospluem

Supervisor: Prof. Athapol Noomhorm

Instant parboiled rice using superheated-steam fluidized bed drying.

By Waranya Umpo

Supervisor: Prof. Athapol Noomhorm

Autolysis and ultrasonic-assisted extraction of protein hydrolysates from white shrimp head (*Penaeus vannamei*) and application in food emulsion.

By Navarose Putmuang

Supervisor: Dr. Anil K. Anal

Pla-cassava flour/pulp based biocomposite sheet as a food container.

By Panitthida Ruchutrakool

Supervisor: Prof. Athapol Noomhorm

Effects of hydrocolloids on physical properties and protein concentration of chickpea flour beverage.

By Kumar Purnendu Singh

Supervisor: Dr. Anil K. Anal

Single screw extrusion processing of white flakes and soybean meal based feed for Nile Tilapia (*Oreochromis niloticus*).

By Jyotsna Shrestha Khanal

Supervisor: Prof. Athapol Noomhorm

Effects of lactic fermentation on total polyphenol content and antioxidant activity of ginger (*Zingiber officinale* Roscoe), Galangal (*Alpinia galangal* Linn) and Java Turmeric (*Curcuma xanthoriza* Roxb).

By Tezar Ramdhan

Supervisor: Dr. Anil K. Anal

Enhanced viability of *Lactobacillus Plantarum* in probiotic enriched coffee.

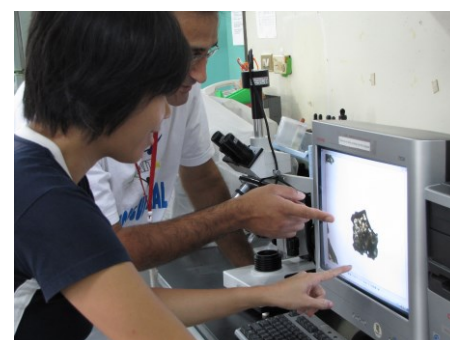
By Truong Phuong Mai

Supervisor: Prof. Athapol Noomhorm

Incorporation of isolated probiotic from fish gut in feed as functional additive for healthy and value added fish production.

By Kishore Krishna Kumaree

Supervisor: Dr. Anil Kumar 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

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*)

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.*)

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*)

Visiting Faculty

DONNA L. DOANE, B.A., Stanford University; M.A. Anthropology, Yale University; 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

Research Specialist and Visiting Faculty (Research Specialist and Visiting Faculty) (*Gender and Development with emphasis on the policies and Programmes for gender equality and women's empowerment; Gender, Livelihoods and Natural Resource Management; Gender, Culture, and Human Development; Gender, Employment and Organization; Gender and ICT for Development; Gender, Laws and Human Rights; Gender and Health; Gender Mainstreaming & Sustainable Development*)

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*)

KANA TAKAMATSU, Ph.D Economics, University of Tokyo, Japan

Visiting Associate Professor (*International relations, gender, and development studies. human trafficking in the Greater Mekong Sub-region. development aid, social policy, and peacebuilding in developing country, especially from the perspectives of human security and gender. Students can also learn methodology, international comparison and critical thinking practically.*)

Research Staff

DR DONNA L. DOANE, Senior Researcher, NTNU-funded study on women's economic empowerment projects, and Australian Aid-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*

JAGRITI SHANKAR, Project Officer (*Asian Project Management support Programme-Gender Sensitive Management*)

CHALISARA SUPARAT, Research Associate WOTRO funded project on Escaping the Middle Income Trap

Administrative Staff

Ms Agnes Pardilla, Program Officer

4.7.3 Grants and Sponsored Research Completed in 2012

ASEAN FOUNDATION

Duration: 1-Jan-2008 to 31-Dec 2012
Project Investigator(s): Kyoko Kusakabe
Sponsor: Japan Foundation
Total Contracted Amount (THB): 572,600.00

Gender Analysis of Cross-border Road Infrastructure: A Case of Kunming – Bangkok Highway (Asian Development Bank)

Duration: 1-Dec to 30-Jun-2012
Sponsor: ADB
Total Contracted Amount (THB):

4.7.4 On-going Grants and Sponsored Research

Capacity Building for Gender, Poverty and Mobility Analysis of Road Transportation Development in the GMS Region

Duration: 1-Jan-2008 to 30-Dec-2012
Project Investigator(s): Kyoko Kusakabe
Sponsor: ASEAN Foundation
Total Contracted Amount (THB): 10,889,238

Training workshop for the students from Ochanomizu University, Japan

Duration: 1-Jun-2005 to 31-Dec-2012
Project Investigator(s): Kyoko Kusakabe
Sponsor: Participants
Total Contracted Amount (THB): 97,778

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

Asian Project Management support Programme-Gender Sensitive Management

Duration: 28-Apr-2010 to 30-Jun-2012
Project Investigator(s): Kyoko Kusakabe, Philippe Doneys
Sponsor: IFAD

Total Contracted Amount (THB): 6,400,000

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 Doneys
Sponsor: Research Council of Norway
Total Contracted Amount (THB): 7,004,000

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

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

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

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

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

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

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

Books

Buchy, M., Elmhirst, R., and Resurreccion, B. *Gender Participation and the Environment: The Challenges of Sustainable Development* (in progress).

Books in Progress

Banpanasirichote, C., Doney, P., Hayes, M. and Sengupta, C. (eds.). *Mainstreaming Human Security in Asia*, Bangkok: Chula Global Network, 2012.

Kusakabe, K. (ed.), (2012). *Gender, road and mobility in Asia*, London: Practical Action Publishing.

Ruth, P., and Kusakabe, K., (2012). *Thailand's Hidden Workforce: Burmese Women Factory Workers*, Asian Argument Series, London: Zed Books.

Chapter in Books

Kusakabe, K., (2012). "Case based gender process monitoring", in *Reflecting on gender equality and human rights in evaluation*, UNWomen, Bangkok, pp.35-46.

Kusakabe, K., (2012). "Introduction: Gender, roads and mobility in Asia"; "Gender, mobility and road construction in Greater Mekong Subregion"; "Conclusion" *Studying gender relations in a mobile world* in Kyoko Kusakabe (ed) *Gender, roads, and mobility in Asia*, Practical Action Publishing, UK.

Kusakabe, K., (2012). "Trend and issues in Southeast Asian" in K.Kanno, M. Nishimura and C. Nagaoka (ed) *Gender and international education development: issues and challenges*, Fukumura Shuppan, Tokyo. (in Japanese)

Resurreccion, B. P. and Jinghua, G., (2012). ' Migración de retorno, género y manejo comunitario del agua: Un caso del suroeste de China,' in S. Hecht, S. Kandel, A. Morales (eds) *Migracion, Medios de Vida Rurales y Recursos Naturales*, Ottawa and Washington: International Development Research Centre and Ford Foundation.

Papers in Refereed Journal

Hossain, J. B., "Different Gender -- Different Rules? Assessment of Women in Asian Organization", *Journal of Career Development International*; UK (submitted in 2012; forth coming).

Huong, N. T. T. and Doney, P. *Gender, Mobility and HIV vulnerability in a Coal mining Community in Vietnam* (in progress). Ongsakul, Rutmanee, Resurreccion, Bernadette P., Sajor, Edsel. 'Normalizing Masculinities in Water Resource Management in Thailand' (accepted) *Journal of Public Administration* (Taylor and Francis)

Karim, R. K. M., Maria, E., Resurreccion, B. P., Sarah, W., (2012). 'Water Development Projects and Marital Violence: Experiences from Rural Bangladesh. *Health Care for Women International*, 33(3), pp 200-216. (Taylor and Francis).

Phyu, M. S. and Kusakabe, K., (2012). "Gender dimension of damrelated displacement in Kachin State, Myanmar", *Global South: Sephis e-magazine*, 8:1, 16-23.

Resurreccion, B. P. 'Embedded Essentialism: Persistent Linkages between Women, Nature and Environment Linkages in Climate Change and Sustainable Development Agendas,' *Women's International Studies Forum* (under review).

Ruth, P. and Kusakabe, K., (2012). "Who cares? Gender, reproduction and care chains of Burmese migrant factory workers in Thailand", *Feminist Economics*.

Conference/ Workshop

Papers/Research reports

Doane, D. L. "Key Issues of Urban Homebased Workers in South Asia and Southeast Asia," 2012, HomeNet South Asia and WIEGO. Regional Overview, Introduction, South Asia Synthesis, and all of the Country Study Summaries for South Asian countries (Bangladesh, Nepal, Pakistan). Available in published form and online as [http://www.homenetsouthasia.net/pdf/Key%20Issue%20All%20Pages\(1\).pdf](http://www.homenetsouthasia.net/pdf/Key%20Issue%20All%20Pages(1).pdf).; used in conferences and workshops with city officials in South and Southeast Asia countries.

Doneys, P., Doane, D. L., Atwood, S. and Jatupornpimol, D. Responding to the Feminization of AIDS in Thailand: Gender Power Dynamics in Marriage and Serodiscordant Relationships, Paper presented by P. Doneys at the International Conference on Advancing Excellence in Gender, Sex and Health Research, Montreal, Quebec, Canada, October 29-31, 2012.

Doneys, P. and Doane, D. L. Gender, Empowerment And Implications From Research, Paper presented by P. Doneys at the International Development Conference, Auckland, New Zealand, 3-5 December 2012.

Resurreccion, B. P. 'Hazards, Migration and Gender in Low Elevation Coastal Zones of the Philippines,' The Crisis Behind The Crisis? Forced Migration and its Consequence as a Result of Environmental Change and Natural Disaster in ASEAN. Bangkok: Chulalongkorn University, 15 December 2012.

Outreach Activities

Trainings/Short Courses/Conferences /Workshops

Doneys, P., Co-organizer. Workshop on Gender Equitable Development Projects, APMAS. Phnom Penh, May 22-23, 2012.

Workshop on "Re-visiting Gender in Development: Complex inequalities in a changing Asia", organized by Nordic Institute of Asian Studies (NIAS) in Copenhagen from 11-15 June 2012, supported by Norwegian Research Council (All GDS faculty members attended).

Lectures/Invited Speakers

Convenor, P. on Gender and Climate Change Adaptation, Asia Pacific Adaptation Network, Bangkok, 27 12-13 March 2012 (Dr. Bernadette P. Resurreccion).

Doneys, P., "Of epistemology and methodology: Questions, snippets and qualms...", 2nd Workshop on Re-visiting Gender in Development, Nordic Institute of Asian Studies- NIAS, Copenhagen, Denmark, 11 – 15 June 2012.

Guest Lecturer, "Gender Analysis for Development" under "Gender and Human Rights Problems in Asia and the Pacific" course in MAIDS 2011-2012, Chulalongkorn University, Thailand, December 2012 (Dr. Julaikha B. Hossain).

Other Academic Contributions

Associate Editor, *Gender, Technology & Development* (Sage) (Dr. Bernadette P. Resurreccion).

Member, Steering Committee and Research Leader, Mekong Program on Water, Environment and Resilience (Dr. Bernadette P. Resurreccion).

Member, Steering Committee, Kartini Network of Gender and Women's Studies Institutes (Dr. Bernadette P. Resurreccion).

Member, Gender and Water Alliance (Dr. Bernadette P. Resurreccion).

Member, UNESCO Gender and Women's Studies Asia Pacific Network (Dr. Bernadette P. Resurreccion).

Member, Global Gender and Climate Change Coalition (Dr. Bernadette P. Resurreccion).

Associate editor of *Gender, Technology, and Development Journal* 2001 to present (Dr. Kyoko Kusakabe).

Editorial board member of *Review of Development and Cooperation* journal 2006- (Dr. Kyoko Kusakabe).

Associate Editor, *Gender, Technology & Development* (Sage) (Dr. Bernadette P. Resurreccion).

Member of the Program Oversight Panel for the CGIAR Research Program on Aquatic Agricultural Systems, December 2011-2013 (Dr. Kyoko Kusakabe).

Editorial Board member, *Review of Applied Economics*, Serials Publications. March 2011- present (Dr. Kyoko Kusakabe).

Advisory Council member for the Asia & Pacific region of International Forum for Rural Transport and Development (IFRTD) July 2009- present (Dr. Kyoko Kusakabe).

Associate editor of *Gender, Technology, and Development Journal* 2001 to present (Dr. Kyoko Kusakabe).

Editorial board member of *Review of Development and Cooperation* journal 2006- (Dr. Kyoko Kusakabe).

External member. Thesis Program Committee. Raden Rara Intan Windrasduhita, The Protection Enforcement for Overseas Migrant Workers: A Case Study of Indonesian Domestic Women Workers in Malaysia, MA in International Development Studies (MAIDS), Chulalongkorn

University, March to September 2012 (Dr. Philippe Doney)

External member. Thesis Program Committee. John Cherry. Foreign Direct Investment (FDI) in land concession : a case study in Botum Sakor and Kiri Sakor districts in Cambodia, MA in International Development Studies (MAIDS), Chulalongkorn University, March to September 2012 (Dr. Philippe Doney).

Chair of the PhD Examination Committee, Candidate: Shekh Mohammad Altafur Rahman, Human security integration into Bangladeshi national policy: an assessment of the links between human security, military disengagement and democratization, Faculty of Graduate Studies, Mahidol University, 14 December 2012 (Dr. Philippe Doney).

International Feminist Journal of Politics, September 2012 (Reviewer - Dr. Philippe Doney).

Norsk Geografisk Tidsskrift-Norwegian Journal of Geography, 2012. (Reviewer - Dr. Philippe Doney).

Gender, Technology and Development, SAGE journal, 2012. (Reviewer - Dr. Philippe Doney).

Journal Coordinator, Gender, Technology & Development (Sage) (Dr. Julaikha B. Hossain).

4.7.6 Doctoral Student's Dissertation

Expounding gender: Male and Transgender (Male to Female) Sex Worker Identities in the Global-Thai Sex Sector
By Witchayanee Ocha
Supervisor: Dr. Philippe Doney

Gendered Pathways to Climate Change Adaptation: The case of Humla, The Mid-western Hills of Nepal

By Nisha Onta
Supervisor: Dr. Bernadette Resurreccion

Gender, the Women's Movement and Nation Building: The Historical Experience of Timor-Leste
By Gabrielle Eva Carol Groves
Supervisor: Dr. Bernadette P. Resurreccion

4.7.7 Masters Students' Theses and Research Studies

Women in the Nepal Army: Challenges Faced and Opportunities for Career Development
By Sweta Thapa
Supervisor: Dr. Kyoko Kusakabe

Gender-based Violence in the Context of Increased Militarization in Ye Township, Mon State, Southern Burma
By Chaw Su Ma
Supervisor: Dr. Kyoko Kusakabe

Does Social Enterprise Empower Women: A Case of Wild Honey Enterprise, Koh Kong Province, Cambodia
By Sar Dimdaline
Supervisor: Dr. Kyoko Kusakabe

Thai Traditional Masseuses and their Coping Strategies with Sexual Harassment
By Anshisa Chansila
Supervisor: Dr. Philippe Doney

The Impact of Migration on Teenagers Left Behind in Mon State, Myanmar
By Poe Ei Phyu
Supervisor: Dr. Bernadette Resurreccion
Burmese Women Migrating into Violence: Inter Partner Violence in Mae Sot, Thailand
By Olga Cordon Girones
Supervisor: Dr. Bernadette Resurreccion

Gender Analysis of Restricted Mobility under the Context of Ethnic Conflict in Kayah State, Myanmar
By Agatha
Supervisor: Dr. Kyoko Kusakabe

Social Services in Response to Intimate Partner Violence: A Case Study of Yangon, Myanmar
By Khet Khet Shein
Supervisor: Dr. Philippe Doney

Participation of Liangshan Yi Women in HIV Prevention Project in China
By Ma Kebu
Supervisor: Dr. Philippe Doney

Women, Ethnicity and Migration: Case of Khmer Ethnic Women Workers Migrating from Tra Vinh Province to Ho Chi Minh City
By Le Hong Van
Supervisor: Dr. Philippe Doney

Empowerment of Rural Women through Income Generating Activities in Magway Township, Myanmar
By Khin Yu Yu
Supervisor: Dr. Philippe Doney

Gender and Value Chain Analysis of Cottage Industry: A Case of Home-Based Balochi Embroidery Women Workers in Balochistan, Pakistan
By Mehwish Qudoos Alizai
Supervisor: Dr. Kyoko Kusakabe

A Study on Implementation Challenges and Opportunities of 30 Percent Female Teacher Quota System in Non-government Educational Institutes in Bangladesh
By Muhammad Abdus Sabur
Supervisor: Dr. Kyoko Kusakabe

Gender Analysis of the Clean City Action Plan and Creation of Jobs: A Case Study with Urban Tourism Phnom Penh, Cambodia
By Thann Samedy
Supervisor: Dr. Kyoko Kusakabe
The Impacts of a Livelihoods Project on Rural Poor Women of Maungdaw Township, Rakhine State, Myanmar
By Ni Ni Thaug
Supervisor: Dr. Bernadette Resurreccion

4.8: SERD – NATURAL RESOURCES MANAGEMENT FIELD OF STUDY

4.8.1 Introduction

This field of study emphasizes the analysis of natural resources, such as land, forest, animal, energy and human resources, with the aim of achieving sustainable development. We address 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. Ultimately, we investigate how society can manage the use resources efficiently and sparingly while maintaining ecosystem integrity.

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)

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)

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)

Visiting Faculty

DAMIEN JOURDAIN, BEng, MSc, Ecole Nationale Supérieure 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)

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

Visiting Associate Professor (Water management/institutions, governance, economics/sustainability in rural development/dynamic modeling)

Adjunct Faculty

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)

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)

Research Staff

RAM C BASTAKOTI, BBA, Tribhuvan Univ., Nepal; BSc.Ag., MSc, Institute of Agriculture & Animal Sciences (IAAS), Nepal; PhD, AIT. Research Specialist, NSF-ASU Irrigation Project.

RUPESH UDASH, BSc, St.Xavier's College, Nepal; MSc, Pokhara University, Nepal; M.Phil, Liverpool University, UK. Research Associate, NUOL Forest Project.

4.8.3 Grants and Sponsored Research Completed in 2012

AIT support to NUOL 2007 – 2010 Extension: Forestry Curriculum

Duration: 1-Jan-2011 to 30-Jun-2012
Project Investigator(s): Dr. Rajendra P. Shrestha
Sponsor: SIDA
Total Contracted Amount (THB): 1,498,630

Climate change and adaptation to water scarcity: strategies for integrated water and land use management to enhance the resilience of rural communities in the Gangatic basin

Duration: Feb 2011 to Jan 2012.
Project Investigator(s): Dr S. Shrestha, Dr M. Babel.
Sponsor: IGES
Total Contracted Amount (THB): 500,000

Technology needs assessment in Asia and Europe for climate change mitigation

Duration: July 2010 to Apr 2012.
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

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

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

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

4.8.5 Publications

International Journal Articles with Impact factor

Ahmad, S., Perret, S. R., Nawaz, R., Shivakoti, G.P. (2012) *Relationships between farm size and operational performances in irrigated cropping systems under contrasted governance systems in Punjab (Pakistan)*. Journal of Food, Agriculture and Environment, 10(2): 463-467 (IF=0.517)

Chaponniere, A., Marlet, S., Perret, S.R., Bouleau, G., Zairi, A. (2012) *Methodological pathways to improvements of evaluation approaches: the case of irrigated agriculture performance evaluation*. Journal of Multidisciplinary Evaluation, 8(18): 47-57 (no impact factor)

Dar, M.E.U.I., Cochard, R., Shrestha, R.P. and Ahmad, S., (2012). *Plant resource utilization by local inhabitants around Machiara National Park; district Muzaffarabad Azad Kashmir, Pakistan*. Journal of Food, Agriculture and Environment, Vol. 10 (3-4), 1139-1148.

Jayathilaka, P.M.S., Soni, P., Perret, S.R., Jayasuriya, H.P.W, Salokhe, V.M. (2012) *Spatial assessment of climate change effects on crop suitability for major plantation crops in Sri Lanka*. Regional Environmental Change, 12(1): 55-68 (IF=1.945)

Longpichai, O., Perret, S. R. and Shivakoti, G. P., (2012). "Role of

livelihood capital in shaping the farming strategies and outcomes of smallholder rubber producers in southern Thailand." *Outlook on Agriculture*. 41(2):117-124.

Longpichai, O., Perret, S.R., Shivakoti, G. P., (2012). *Role of livelihood capital in shaping the farming strategies and outcomes of smallholder rubber producers in southern Thailand*. *Outlook on Agriculture*, 41(2): 117-124 (IF=0.538)

Sajjad, A., Perret, S. R., Nawaz, R. and Shivakoti, G. P., (2012). "Relationships between farm size and operational performances in irrigated cropping systems under contrasted governance systems in Punjab (Pakistan)." *Journal of Food, Agriculture and Environment*. 10(2):132-145.

Singhrattna, N., Babel, M.S., Perret, S.R., (2012). *Hydroclimate variability and long-lead forecasting of rainfall over Thailand by large-scale atmospheric variables*. *Hydrology Sciences Journal*, 57(1): 26-47. (IF=1.114)

Ting, Z., Shivakoti, G. P., Haiyun, C. and Maddox, D., (2012). "A survey-based evaluation of community-based co-management of forest resource: a case study of Baishuijiang National Nature Reserve in China." *Environment, Development and Sustainability*. 14(2):197-220.

Udayakumara, E.P.N., Shrestha, R.P., Samarakoon, L., and Schmidt-Vogt, D., (2012), *Mitigating Soil Erosion through Farm-level Adoption of Soil and Water Conservation Measures in Samanlawewa Watershed, Sri Lanka*, *Acta Agriculturae Scandinavica, Section B – Soil & Plant Science*, 62:273-285. [Impact factor: 0.62]

Conference with Proceedings

Affholder, F., Jourdain, D., Alary, V., Quang, D. D. and Corbeels, M., (2012). *Models for assessing farm-level constraints and opportunities for conservation agriculture: relevance and limits of the method, identified from two case studies*. 3rd International Conference on Conservation Agriculture

in Southeast Asia. , Hanoi, Vietnam. CIRAD Montpellier France, NOMAFSI PhuTho Viet Nam, University of Queensland, Brisbane, Australia.

Jourdain, D., Boere, E., van den Berg, M., Dang Dinh Quang, Cu Phuc Thanh and Affholder, F., (2012). Can more irrigation help in restoring environmental services provided by upper-catchments? A case study in the Northern Mountains of Vietnam. *Conservation Agriculture and Sustainable Upland Livelihoods*, 15-17 Dec. 2012, Hanoi.

Peter R. B., **Grünbühel, C. M.**, Williams, L., Roth, C., Pitkin, C., Reddy V. R., Chiranjeevi T., Khan, I., Afroz, S., Sacklokham, S., Chialue, L. and Sotheary, E. Understanding the capacity of small-scale farmers in Asia to adapt to climate change. *Annual conference of the National Climate Change Adaptation Research Facility (NCCARF)*, 26-28 June 2012, Melbourne, Australia.

Phuong, T.T., **Shrestha, R.P.** and Yoshiki Y., (2012). The Impacts of land use change on soil erosion in Bo river watershed, Central Vietnam. *International Symposium on Geoinformatics for Spatial Infrastructure Development in Earth and Allied Sciences (GIS-IDEAS)*, 16-20 October 2012, Ho Chi Minh City.

Books and Chapters

Dugué, P., Faure, G., Scopel, E., Castella, J.C., Penot, E. A., **Jourdain, D.** and Olina, J.P., (2012). *Projet RIME PAMPA AFD Les Systèmes de culture sous couvert végétal (SCV) dans les exploitations agricoles-familiales (Mada-gascar, Cameroun, Laos, Brésil, Vietnam). Evaluation socio-économique et conditions de diffusion.* CIRAD, Montpellier.

Grunbuhel, C. United Nations Development Programme (ed.) *One Planet to Share. Sustaining Human Progress in a Changing Climate.* UNDP Asia-Pacific Regional Centre: Bangkok

Organization of Seminar/Workshop

Co-organizer with S. Kumar, A. Salam, C., Marpaung of the *Technology Needs Assessment for Climate change: Experience Sharing Workshop*, 10-12 September 2012, Pullman Bangkok Kingpower Hotel, Bangkok.

Seminar coordinator for *Tropical Forests and the REDD+ Scheme: Accounting for Carbon Emission Reductions and Removals* delivered by Dr Nophea Sasaki, University of Hyogo, Kobe 650-0047, Japan on 12 November 2012.

Technical Program Coordinator of 6th GMSARN International conference on Social-Energy-Environmental Development: SEED towards Sustainability, 19-21 December 2012, Prince D'Angkor Hotel and Spa, Siem Reap.

Technical Program Coordinator of 6th GMSARN International conference on Social-Energy-Environmental Development: SEED towards Sustainability, 28-30 March 2012, Nongkhai.

4.8.6 Doctoral Students' Dissertation

Forest Resources use by Park Residents and Conservation Management in Jigme Singye Wangchuck National Park, Bhutan
By Om Nath Katel
Supervisor Dr. Dietrich Schmidt-Vogt

Dynamism of Spate Irrigation Institutions in Changing Context of Economic Opportunities and State Interventions in Pakistan
By Muhammad Asif Kamran
Supervisor Prof. Ganesh P. Shivakoti

Improving Local Systems of Biodiversity Monitoring through Participatory Methods: The Case of Boen Chhmar Lake, Cambodia
By Seak Sophat
Supervisor Dr. Dietrich Schmidt-Vogt
Investigating Irrigation Systems Performance under Two Different Governance Situations: Case Studies in Punjab, Pakistan
By Sajjad Ahmad

Supervisor Dr. Sylvain Roger Perret

Human livelihoods and impacts on the vegetation of Machira National Park, Muzaffarabad district, Jammu and Kashmir Pakistan
By Muhammad Ejaz Ul Islam Dar
Supervisor Dr. Roland Cochard

4.8.7 Masters Students' Theses and Research Studies

Analyzing the Impacts of Climate Change on Farmers' Livelihood in the Center of Vietnam: Case Study in Nui Thanh District, Quang Nam Province
By Pham Thi Ly
Supervisor: Prof. Ganesh P Shivakoti

Community-Based Fishery Resource Management in the Context of Climate Change: Case Study in Tam Giang - Cau Hai Lagoon, Thua Thien Hue Province, Vietnam
By Hoang Dung Ha
Supervisor: Dr. Rajendra P Shrestha

Forestland Allocation and Livelihood Assets of the Poor Households in Upland Area of Vietnam: A Case Study at Thuong Nhat Commune, Nam Dong District, Thua Thien Hue Province
By Le Van Lan
Supervisor: Prof. Ganesh P Shivakoti

Organic Carbon Sequestration in Soil Aggregates Under Different Cropping Patterns in Khulna, Bangladesh
By Sonia Nasrin
Supervisor: Dr. Rajendra P. Shrestha

Forest Fire Management and the Social Ecological System in the Community Forest of Siwalik Region in Nepal
By Lok Mani Sapkota
Supervisor: Prof. Ganesh P. Shivakoti / Dr. Rajendra P. Shrestha

A Socio-Economic Impact Assessment of Rice Farming, Fishing, and Rice Farming CUM Fishing Households in Tonle Sap Great Lake Area in Cambodia
By Theng Lipine
Supervisor: Dr. Rajendra P. Shrestha

Detecting Land Use and Land Cover Change Using Remote Sensing and GIS: Case Study of Tam Nong District, Phu Tho Province, Vietnam

By Mr. Phan Thanh Noi

Supervisor: Dr. Rajendra P. Shrestha

Impacts of Resettlement Program Associated with DAM Construction on Natural Resource Access and Household's Livelihoods in Thua Thien Hue Province, Vietnam

By Pham Thi Nhung

Supervisor: Prof. Ganesh P Shivakoti

Using Multi - Temporal MODIS Data for Mapping the Paddy Rice Cultivation Area in Ninh Binh Province, Vietnam

By Le Van Dung

Supervisor: Dr. Rajendra P. Shrestha

Evaluation and Prediction of Soil Erosion Using SWAT Model at the Black River Basin, Northwestern Region of Vietnam: A Case Study of Hoa Binh Province

Supervisor: Dr. Rajendra P. Shrestha

By Nguyen Anh Tuan

Supervisor: Dr. Rajendra P. Shrestha

The Sustainable Livelihood Options to Reduce Pressures on Natural Resources in Xuan Nha Nature Reserve - Northwestern Vietnam

By Nguyen Thi Luyen

Supervisor: Prof. Ganesh P. Shivakoti

An Assessment of Soil Salinity Problems, their Impact on Rice Cultivation and Coping Strategies of Local Farmers: A Case Study in Pyapon Township, Ayeyarwaddy Delta Region, Myanmar after Cyclone Nargis

By Khin Mar Myo

Supervisor: Dr. Rajendra P. Shrestha

Farmers' Perception and Adaptation to Climate Change Through Agriculture in the Dry Zone Area of Myanmar

By Lwin Maung Maung Swe

Supervisor: Dr. Rajendra P. Shrestha

Predicting the Location of Vulture Colonies in the Northern and Eastern Plains of Cambodia

By Pech Bunnat

Supervisor: Dr. Rajendra P. Shrestha

Land Use Change and Its Effect on Biodiversity in Chiang Rai Province of Thailand

By Md. Ali Akber

Supervisor: Dr. Rajendra P. Shrestha

Livelihood strategies and mangrove resource use in XuanThuy National Park, Nam Divh province, Vietnam

By Tran Thi Hoa

Supervisor: Dr. Damien Jourdain

Visitors' perception of environmental impact induced by tourism and their willingness to pay to preserve environmental condition at Mu KoChumphon National Park, Thailand

By Pisit Tuntipishitkul

Supervisor: Dr. Damien Jourdain



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

<p>Optimization of Oxygen Delignification (ODL) of Acacia Pulp Including Hydrogen Peroxide Addition By Gusman Supervisor: Prof. Jiri Basta</p>	<p>The State of Agglomeration of Fines and Fillers in Papermaking Furnish as a Function of Chemical Additives, Hydrodynamic Shear and Time By Duangkamon Baosupree Supervisor: Dr. Mousa M. Nazhad</p>	<p>Low Consistency Refining of Mixtures of Softwood & Hardwood Bleached Kraft Pulp: Effects of Refining Power By Dimas Dwi Prasetyo Nugroho Supervisor: Dr. Mousa M. Nazhad</p>
<p>Mass Balances of Non Process Elements in Acacia Pulp Mill: Improve Efficiency of Purging Chloride and Potassium By Ruhimat Adi Supervisor: Prof. Jiri Basta</p>	<p>Effects of Bentonite on Recycle Process of Old Newspapers and Old Corrugated Containerboard By Porntip Lertrattanaporn Supervisor: Dr. Mousa M. Nazhad</p>	<p>Low Consistency Refining of Chemical Pulp: Investigating the Effect of Intensity on Fiber Cutting By Pattira Pattarasopachai Supervisor: Dr. Mousa M. Nazhad</p>
<p>Influence of Mixed Hardwood Kraft Pulping Condition on Pulp Yield, Bleachability, and Quality By Agung Anggoro Supervisor: Prof. Jiri Basta</p>	<p>Enzymatic Deinking of Mixed OFFCE Wastepaper By La Hien Luong Supervisor: Dr. Mousa M. Nazhad</p>	<p>Foam Forming Product Characterizatics Using Wood Fibers By Sri Wahdini Rahmi Supervisor: Dr. Mousa M. Nazhad</p>
<p>Effect of Chitosan on Mechanical and Brrier Properties of Greaseproof Paper By Ittiporn Ardpru Supervisor: Dr. Mousa M. Nazhad</p>	<p>Kaolin Flocculation by Cationic Tapioca Starch with Different Charge Densities By Zulfauzein Nadra Supervisor: Dr. Mousa M. Nazhad</p>	<p>Refining Through Enzyme By Vu Hoai Son Supervisor: Dr. Mousa M. Nazhad</p>

4.10: SERD – REGIONAL AND RURAL DEVELOPMENT PLANNING FIELD OF STUDY



Products produced by local rural community in Northeastern Thailand

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 ROURAY, 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 2012

Training on Managing Rural Development

Duration: 1-Sep-11 to 31-Dec-12
Project Investigator(s): Jayant K Rouray

Sponsor: Administrative Training Institute, Mysore, Government of Karnataka, India

4.10.4 Publications

International Journal Articles with Impact factor

Ainuddin, S. and Routray, J. K., Community resilience framework for an earthquake prone area in Baluchistan, *International Journal of Disaster Risk Reduction*, Volume. 2, 2012, pp. 25-36.

Ainuddin, S. and Routray, J. K., Earthquake hazards and community resilience in Baluchistan, *Natural Hazards*, Volume 63, No. 2, 2012, pp. 909-937, IF: 1.639.

Ainuddin, S. and Routray, J. K., Emergency preparedness and natural disaster management practices in Pakistan, *International Journal of Emergency Management*, 8 (2), 2012, pp. 123-134.

Ainuddin, S. and Routray, J. K., Institutional framework, key stakeholders and community preparedness for earthquake induced disaster management in Balochistan, *Disaster Prevention and Management*, 21 (1), 2012, pp. 22-36, IF: 0.224.

Hussain, A. and Routray, J. K., Status and factors of food security in Pakistan, *International Journal of Development Issues*, 11 (2) 2012, pp. 164-185.

Hussain, A. and Thapa, G.B. (2012), Smallholders' access to agricultural credit in Pakistan, *Food Security: The Science, Sociology and Economics of Food Production and Access to Food*, Vol. 4, pp. 73-85, Springer, IF 2.072 in 2012.

Jitpakdee, R. and Thapa, G.B. (2012), Sustainability analysis of ecotourism on the Yao Noi Island, Thailand, *Asia-Pacific Journal of Tourism Research*, Vol. 17, pp. 301-325, Taylor & Francis, IF 0.300 in 2012.

Kasem, S. and Thapa, G.B. (2012), "Sustainable development policies and achievements in the context of the agriculture sector in Thailand", *Sustainable Development*, Vol. 20, pp. 98-114, Wiley, IF 1.884 in 2012.

Malkanathi, S. H. P. and Routray, J. K., Visitor satisfaction in agritourism and its implications for agritourism farmers in Sri Lanka, *International Journal of Agricultural Management*, Volume 2, Issue 1, 2012. pp.17-30.

Paul, S. K., Paul, B. K. and Routray, J. K. Post-Cyclone Sidr nutritional status of women and children in coastal Bangladesh: an empirical study, *Natural Hazards*, Vol. 64, No. 1, 2012, pp. 19-36, IF: 1.639.

Rattanasuteerakul, K. and Thapa, G. B. (2012), Status and financial performance of organic vegetable farming in northeast Thailand, *Land Use Policy*, Vol. 29, pp. 456-463, Elsevier, IF: 2.36 (5-year).

Siddique, M. H. and Ahmad, M. M., Variables Affecting Fieldworkers of NGOs in Pakistan, *Development in Practice*, Vol. 22, No. 2, 2012, pp. 216-228.

Seak, S., Schmidt-Vogt, D. and Thapa, G. B., Biodiversity monitoring at the Tonle Sap Lake of Cambodia: a comparative assessment of local methods, *Environmental Management*, Vol. 50, 2012, pp. 707-720, Springer Verlag.

Srimanee, Y. and Routray, J. K., The fruit and vegetable marketing chains in Thailand: policy impacts and implications, *International Journal of Retail and Distribution Management*, 40 (9), 2012, pp. 656-675.

Thapa, G. B. and Yila, O. M. (2012), Farmers' land management practices and status of agricultural land in the Jos Plateau, Nigeria, *Land Degradation and Development*, Vol. 23, pp. 263-277, Wiley, IF: 1.991 in 2012

Torut, B. and Pongquan, S., Impact of the elderly club on the social well-being

of the rural elderly in the Northeastern Region of Thailand, *Poverty and Public Policy*, Vol. 4, Issue 3 (September 2012), pp. 58-78. IF: 0.31.

Viswanathan, P. K., Thapa, G. B., Routray, J. K. and Ahmad, M. M., Agricultural transition and emerging challenges in Indian agriculture: A critical assessment, *Economic and Political Weekly (EPW)*, Vol. XLVII, No. 4, January 28, 2012, pp. 41-50.

Waheed, A. and Ahmad, M. M., Socioeconomic Impacts of Terrorism on Affected Families in Lahore, Pakistan; *Journal of Aggression, Maltreatment and Trauma*, Vol. 21, No. 2, 2012, pp. 201-222.

Book and research Monographs

Rahman, Md. M. and Routray, J. K., Peri-Urban Economic Transformation of Bangladesh, Lambert Academic Publishing, ISBN: 978-3-8465-5095-3, 2012, p78.

Routray, J. K., Naznin, T. and Saroar. Md. M. (Edited), Livelihood Assets and Economic Empowerment of Home-based Women Workers in Asia, ARCMDG, AIT, Bangkok, ISBN: 978-974-8257-83-9, 2012, p144.

Book Chapter

Saroar, Md. M. and Routray, J. K., Climate Awareness and Adaptation Efficacy for Livelihood Security against Sea Level Rise in Coastal Bangladesh, in *J. Scheffran, Michael Brzoska, Hans G. Brauch, Peter Michael Lin and Janpeter Schilling (Eds), Climate Change, Human Security and Violent Conflict – Challenges for Societal Stability (Chapter 28), Hexagonal Series: Human and Environmental Security and Peace, Vol. 8, Springer, 2012, pp. 575-594.*

Sponsored Research/Training/Professional Development Projects

Professional Development Special Training Course on Disaster Management during 26 Nov to 14 Dec

2012 for five officials of Bangladesh Government, sponsored by the ECRP PCMU, Planning Commission, and World Bank Project Aid.

4.10.5 Doctoral Students' Dissertation

Assessing Community Resilience in an Earthquake Prone Area of Balochistan
By Syed Ainuddin
Supervisor: Prof. Jayant K. Routray

Factors Influencing Farmers' Participation in Supermarket Marketing Chains for Fresh Fruit and Vegetables in Thailand
By Yanee Srimanee
Supervisor: Prof. Jayant K. Routray

Smallholders' Access to Agricultural Credit and its Effect on Farm Production, Income and Household Food Security in Pakistan
By Abid Hussain
Supervisor: Prof. Gopal B. Thapa

4.10.6 Masters Students' Theses and Research Studies

Theses

People's Participation in Community Forestry in Vietnam: A Case Study of Chiengbom Commune in Thuanchau District, Sonla Province
By Chu Thi Sang
Supervisor: Dr. Soparth Pongquan

Use and Status of Non-Timber Forest Products (NTFPS) in Northeastern Thailand
By Tipusa Kilavit
Supervisor: Prof. Gopal B. Thapa

Assessing the Benefits of a Biogas Digester among Rural Households in Northeast Thailand
By Chavakorn Srisopha
Supervisor: Dr. Soparth Pongquan

Challenges and Opportunities for Women Entrepreneurs in Balkh Province, Afghanistan
By Huria Tokhy Meranzai
Supervisor: Dr. Mokbul M. Ahmad

Status and Use of Remittances in the Mountains of Nepal
By Karishma Wasti
Supervisor: Prof. Gopal B. Thapa

Assessing the Post Nargis Rehabilitation Program in Labutta Township, Myanmar
By Nyo Nyo San
Supervisor: Dr. Mokbul M Ahmad

Farmers' Perception on Climate Change and Its Impacts on Rice Production in Upper Ayeyarwady Delta
By Myat Thiri Wai
Supervisor: Prof. Jayant K. Routray

Rural Out-Migration and Its Impacts on Agricultural Crop Production of Central Myanmar
By Mr Zaw Aye Moe
Supervisor: Prof. Jayant K. Routray

Impacts of Rural Roads on Agricultural Development in Myanmar
By Hliang Win Maung
Supervisor: Prof. Jayant K. Routray

Socio-economic Effects of the Leprosy Mission on the People with Disabilities in Myanmar
By Naw Htee Ku Paw
Supervisor: Dr. Mokbul M. Ahmad

Research Study

Status of Pastureland and Its Effect on Local Household Economy in Inner Mongolia, China
By Chen Liang
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*)

JAGDISH SINGH, PhD, Maulana Azad National Institute of Technology Bhopal, MP, India.
(*Urban Planning and Environmental Design*)

YEDLA SUDHAKAR, PhD, Indian Engineering of Technology, Khragpur, India.
(*Urban Environmental Issues, Transportation Policy, Climate Change, Mitigation and Solid Waste Management*)

Adjunct Faculty

BHARAT DAHIYA, PhD, University of Cambridge, UK.
(*Cities and Climate Change*)

LE THI THU HUONG, PhD, Asian Institute of Technology, Thailand.
(*Urban Housing and Living Environment*)

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*)

Research Staff

Ms. JHOZINE DAMASO, Program Officer

Mr. CLAUDIUS CAEZAR GABINETE, Research Associate

Dr. RUTMANEE ONGSAKUL, Project Manager

Administrative Staff

Ms. JITRA LUCKANAPITAK, Senior Administrative Officer

4.11.4 On-going Grants and Sponsored Research

Enabling Bio-Innovation for Poverty Alleviation in Asia

Duration: Jun-2008 to Dec-2011
(Request for extension)

Project Investigator(s): Dr. Edsel Sajor
Sponsor: International Development Research Centre (IDRC)

Total Contracted Amount (CAD): 528,200

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

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

4.11.5 Publications

International Journal Articles

Ali, G. and **Nitivattananon, V.**, (2012). "Exercising Multidisciplinary Approach to Assess Interrelationship between

Energy Use, Carbon Emission and Land Use Change in a Metropolitan City of Pakistan", *Renewable & Sustainable Energy Reviews*, 16, pp. 775-786.

Ali, G. and **Nitivattananon, V.**, (2012). "Green waste to biogas: Renewable energy possibilities for Thailand's green markets", *Renewable & Sustainable Energy Review*, 16, pp. 423-429.

Ali, G., **Nitivattananon, V.**, Mehmood, H., Sabir, M., Sheikh, S., Abbas, S., (2012). "A synthesis approach to investigate and validate carbon sources and sinks of a mega city of developing country", *Environmental Development 4*, pp. 54-72.

Khailani, D.K., **Perera, R.**, (2012). "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, pp.615-627.

Nitivattananon, V. and Gabinete C.C., (2012). "Meta-analysis of Formal and Informal Partnerships in Solid Waste Management at the City/Municipality Level: Modalities and Potential Integral Frameworks based on Cases in Southeast Asia", *International Journal of Chemical and Environmental Engineering Systems*, 3(2), pp. 53-64.

Ongsakul, R., Reccurreccion, B., **Sajor, E.**, (2012). "Normalizing Masculinities in Water Bureaucracy in Thailand", *Public Administration*, 35:9, 577-586.

Prasertsubpakij, D. and **Nitivattananon, V.**, (2012). "Evaluating accessibility to Bangkok Metro Systems using multi-dimensional criteria across user groups", *International Association of Traffic and Safety Sciences (IATSS) Research*, 36, pp. 56-65.

Suriyachan, C., **Nitivattananon, V.** and Amin, A.T.M.N., (2012). "Potential of decentralized wastewater management for urban development: Case of Bangkok", *Habitat International*, 36, pp. 85-92.

Tiyapairat, Y., **Sajor, E.**, (2012). "State Simplification, Heterogeneous Causes of Vegetation Fires and Implications on Local Haze Management: Case Study in Thailand", *Environment, Development and Sustainability*, 4:6, pp. 1047-1064.

Refereed Books/Chapters/Monographs

Nitivattananon, V., Tu, T.T., Rattanapan, A., Asavanant, J., (2012). "Chapter 31: Vulnerability and Resilience of Urban Communities under Coastal Hazard Conditions in Southeast Asia".

Hoonweg, D., Freira, M., Lee, M., Bhada, P., and Yuen, B. (Eds), *Cities and Climate Change: Responding to an Urgent Agenda*, World Bank.

Books/Chapters

Perera, R. and Permana, A.S., (2012). "Integrating Land Use, Transport, Energy and the Environment: The Case of Bandung, Indonesia", in Eric Zusman et al., eds., *Low Carbon Transport in Asia*, London: Earthscan-Routledge: pp. 159-178.

Conference Proceedings

Ongsakul, W., **Nitivattananon, V.**, Koottatep, T. and Shrestha, R. (Eds.) (2012). GMSARN International Journal, Pathumthnai, Thailand.

4.11.6 Doctoral Students' Dissertation

Multi-Dimensional Accessibility Assessment of Metro Systems for Sustainable Transportation in Bangkok Metropolitan Region
By Duangporn Prasertsubpakij
Supervisor: Dr. Vilas Nitivattananon

Institutional Constraints to Integration of Urban Sector in River Basin Management in the Context of Urbanization: A Case Study of Bang Pakong River Basin, Thailand
By Rutmanee Ongsakul
Supervisor: Dr. Edsel E. Sajor

Devolution and Participatory Approach in Industrial Pollution Control and

Environmental Management in Peri-Urban Bangkok

By Amorn Kritsanaphan

Supervisor: Dr. Edsel E. Sajor

Haze Pollution in Northern Thailand Causes, Impacts, and Implications for Urban-Rural Integrated and Multi-Stakeholder Approach in Meso-Level Management

By Yongyut Tiyaipairat

Supervisor: Dr. Edsel E. Sajor

Mainstreaming the Attributes of Resilience in Local Development Plans for the Adaptation to Climate Change Induced Flooding: A Study in Shah Alam Local Plan

By Dzul Khaimi Bin Khailani

Supervisor: Dr. L.A.S. Ranjith Perera

4.11. 7 Masters Students' Theses

A Comparative Case Study of Household and Community Climate-Change Adaptation and Its Relationship to the State-Planned Response in Ho Chi Minh City, Vietnam

By Nguyen Phuoc Ngoc Ha

Supervisor: Dr. Edsel Sajor

The Performance of Public Private partnership for Promoting Sustainable Urban Wastewater Services: Case of Thailand

By Kanya Wijitjittler

Supervisor: Dr. Vilas Nitivattananon

Neighborhood Environment of Resettlement Areas in Nha Trang Municipality: Vietnam

By Tran Thanh Thu

Supervisor: Dr. Vilas Nitivattananon

Management of Urban Public Green Space Improving People's Quality of Life in Chiang Mai Municipality, Thailand

By: Napawan Panya

Supervisor: Dr. Vilas Nitivattananon

Localizing Green Agenda in Solid Waste Management towards Sustainable City: A Case Study of Phuket Municipality, Thailand

By Wongduan Buanieo

Supervisor: Dr. Vilas Nitivattananon

Sustainable Urban Agriculture in Thanh Hoa, Vietnam

By: Le Thi Ha

Supervisor: Dr. Vilas Nitivattananon

Public Risk Perceptions and Disaster Preparedness: Case of 2011 Great Flood in Pathumthani Province, Thailand

By Jutarat Dangtummachat

Supervisor: 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 revolving 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 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

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*)

ATHAPOL NOOMHORM

Professor, Food Engineering & Bioprocess Technology Field of Study. (*Starch and Cereal Technology; Postharvest Technology; Food Processing; Agroindustrial Development*)

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*)

PEEYUSH SONI

Assistant Professor and ABM Coordinator, Agricultural Systems & Engineering Field of Study. (*Terramechanics; Agricultural Instrumentation; Controlled Environment Agriculture; Agricultural Systems Analysis; Analytical Techniques*)

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 On-going Grants and Sponsored Research

Short-term training visit program for MBA final year students as a part of their international internship on Agribusiness and Agroindustries in Thailand

Agency: Sam Higginbottom Institute of Agriculture, Technology and Sciences (Allahabad), India
Duration: Aug 2011 to Dec 2013

Donor: SHIATS, India
Principal Investigator: Dr. Peeyush Soni
Total Contracted Amount (THB): 912,000

4.12.4 Publications

International Journal Article with Impact factor

Nalavade P.P., Salokhe, V. M., Niyamapa T. and **Soni, P.** Performance of Free Rolling and Powered Tillage Discs. Soil and Tillage Research, 2(109) 0-0, 2010.

4.12.5 Masters Students' Theses and Research Studies

An Economic Analysis of Palm Plantation in Northeastern Thailand: A Case Study of Seka District, Nong Khai Province
By Kulthida Chalooddong
Supervisor Prof. Ganesh P. Shivakoti

Assessment and Opportunities of Production and Marketing Trends in Biodegradable Packaging and Materials in Thailand
By Thanasri Kongsompong
Supervisor Prof. Athapol Noomhorm

Effects of Fluctuation in Price and Demand of White Shrimp on Farmers' Economy in Pak Phanang District, Thailand

By Winai Poobangsaeng
Supervisor Prof. Ganesh P. Shivakoti

Role of ICT in the Agriculture Sector: A Study of Progressive Farmers, Malwa Region, Punjab, India
By Sangha Amandeep Singh
Supervisor Prof. Sudip K. Rakshit

Sustainable Community Forest Management: A Case Study of Yangtone Village, Sai Yok District, Kanchanaburi, Thailand
By Saranya Nueamee
Supervisor Prof. Athapol Noomhorm

Research Study: Business Analysis of Buffalo Dairy Farm: A Case Study of Murrah Farm, Plaengyao District Chachoengsao Province, Thailand
By Chanerin Maneechansook
Supervisor Dr. Peeyush Soni

Research Study: Perception of Young Educated Consumers Towards Ready-to-Drink Milk Brands in Bangkok
By Justin Arnold Finch
Supervisor Dr. Peeyush Soni

Factors Affecting Layer Farmers' Decision to Install Biogas Plant in Lamphun Province
By Pisuttine Hochaen
Supervisor: Prof. Sudip Kumar Rakshit

Attitude and Motivation of Farmers in Mayaohin Cultivation: A case Study of Lamphang Province
By Tarin Chanworachet
Supervisor: Prof. Ganesh P. Shivakoti

Constraints and Opportunities in Tilapia Leather Supply and Distribution Chain: A case Study of Jerada Leather and Products Company Limited, Thailand
By Jintana Jaithiang
Supervisor: Dr. Peeyush Soni

Cost and Return on Investment of Lime Plantation in North Region of Thailand: A case Study of Mueang Kamphaeng Phet
By Kunyana Jinmanee
Supervisor: Prof. Ganesh P. Shivakoti

Motivations and Constraints for Vietnamese Farmers in Contract Farming: A case Study of Lam son sugarcane Joint Stock Corporation, Thanh Hoa Province
By Dinh Minh Hieu
Supervisor: Dr. Peeyush Soni

The Supply chain and Logistics Costs of Thai Hom Mali Rice: A Case Study of The Three Thai Rice Exportiers
By Tuangporn chuaybudda
Supervisor: Prof. Athapol Noomhorm.

Feasibility Study of Oil Palm Plantations for Hiobiesel Production in Ubon Ratchathani Province, Thailand
By Waraporn Onputtha
Supervisor Dr. Anil Kumar Anal

Supply Chain Management of Fresh Vegetables and Fruit: A Case Study of Allahabad, India
By Hena Imtiyaz
Supervisor: Dr. Peeyush Soni

Production and Marketing of Pineapple in Dimapur District, Nagaland, India
By Yezaho Swu
Supervisor: Dr. Peeyush Soni

Implementation of Good Agricultural Practice Standards in Asparagus Production By Farmer of Nakhonpathom Province, Thailand
By Alisa Rakvanich
Supervisor: Prof. Athapol Noomhorm

Thailand: Challenges and Readiness Towards and Asean Economic Community 2015 Platform, Focusing on The Free Flow of Goods Segment: Case Study of The Rice Industry
By Sujata Bhatia
Supervisor: Dr. Anil Kumar Anal

Economic and Health Assessment of Gap Implementation in tangerine Orchards: Mae Ai Sub District, Chiang Mai, Thailand
By Anintita Narawongsanont
Supervisor: Dr. Peeyush soni

Rubber Supply Chain and Logistic Cost analysis in the Northern Part of Thailand: A Case Study of Chiang Khong District, Chiang Rai Province
By Apinya Khongsanan
Supervisor: Dr. Anil Kumar Anal

An Economic and Marketing Analysis of Cut Flower Orchid Farming: A case Study of Ratchaburi Province, Thailand
By Pensuda Lertjatuphornchai
Supervisor: Peeyush Soni

Economic Analysis of Crown Flower Production and Management: A Case Study of Nakornchaisri, Nakornpathom Province, Thailand
By Suraporn Onputtha
Supervisor: Prof. Ganesh P. Shivakoti

Brand Preference and Market Potential of Dominat Pesticide Brands in Junnar Territory, India
By Nishant Bharat Pagar
Supervisor: Dr. Peeyush Soni

Comparison of Cost and ReturnAnalysis of On-Season and Off-Season Longan Production in Lamphun Province, Thailand
By Nattaporn Kassomboon
Supervisor: Dr. Anil Kumar Anal

4.13: DISASTER PREPAREDNESS, MITIGATION AND MANAGEMENT AREA OF STUDY

4.13.1 Introduction

DPMM program uses interdisciplinary capacities (engineering, 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.

4.13.2 Faculty and Research Staff

Dr. Mokbul Morshed Ahmad, NGO Management, Community and Rural Development

Prof. Ajit K Annachatre, Health and Ecological Risk Management

Prof. Mukund Singh Babel, Drought Forecasting and Management

Dr. Senaka Basnayake (ADPC), Climate Change and Climate Risk Management

Dr. Roberto S Clemente, Droughts

Dr. Manzul K Hazarika, Disaster Risk Assessment

Dr. Kiyoshi Honda, Real-time Mapping and Simulation of Geological Processes

Dr. Akiyuki Kawasaki, Environmental Risk Management and Disaster Risk Management

Prof. Sivanappan Kumar, Climate Change Mitigation

Dr. Vilas Nitivattananon, Disaster Management in Urban Infrastructure Planning

Dr. Noppadol Phien-wej, Geological Hazards

Dr. Jayaraman K V Potty (RIMES), Climate Prediction and Early Warning System

Prof. Jayant K Routray, Regional and Rural Development Planning

Dr. Lal Samarakoon, Geospatial Technology for Disaster Management

Dr. Oleg Shipin, EIA & Disaster Management

Mr. A R Subbiah (RIMES), Climate Risk Management

Dr. Georges Tadonki, Disaster Risk Mapping, Preparedness, Mitigation and Response

Prof. Tawatchai Tingsanchali, Floods

Dr. Nitin Kumar Tripathi, Remote Sensing and GIS for Disaster Mitigation

Dr. Peeranan Towashiraporn (AD-PC), Disaster Risk Assessment and Monitoring

Prof. Chettiyappan Visvanathan, Environmental Hazards Mitigation

Dr. Pennung Warnitchai, Disaster Preparedness, Mitigation and Management

Dr. Sutat Weesakul, Tsunami and Coastal Engineering

Professional Staff

VINEETA THAPA, MSc, AIT, Thailand
Senior Program Officer, Disaster Preparedness, Mitigation and Management

4.13.3 Grants and Sponsored Research Completed in 2012

Disaster Management: DPMM conducted a special training for 5 (five) officials from Government of the People's Republic of Bangladesh.

Duration: 26-Nov-2012 to 14-Dec-2012
Project Investigator(s): Jayant K Routray
Sponsor: ECRRP PCMU, Planning Commission, World Bank Project Aid
Total Contracted Amount (THB): 571,942.31

4.13.4 On-going Grants and Sponsored Research

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-Murch-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

4.13.5 Publications

Please refer to the respective parent Field of Study of the Faculty.

4.13.6 Masters Students' Theses and Research Studies

Building a Resilient Community toward Earthquake Hazard: A Case Study in Yogyakarta, Indonesia
By Yudith Mariaran Tresnowati
Supervisor: Dr. Mokbul Morshed Ahmad

Disaster Recovery Strategy at the Local
Level in Thailand
By Thanathep Haitooka
Supervisor: Prof. Jayant K Routray

Tsunami Risk Assessment and
Identification of Evacuation Buildings for
Thoquang Ward in Vietnam
By Dao Nguyen Xuan
Supervisor: Dr. Pennung Warnitchai

Livelihood Vulnerability and Climate
Change Adaptation in North Coasts of
Java Island, Indonesia
By Arie Ratna Augustien
Supervisor: Prof. Jayant K Routray

Chapter 5: SCHOOL OF MANAGEMENT

5.1 Introduction

AIT School of Management (SOM) is one of the Asian region's leaders in management education and research. SOM provides exceptional individuals with a supportive environment in which they can develop their skills and aptitudes, helping them to reach their professional goals and to serve the interests of countries in the Asia Pacific region. The School's core strength lies in tailoring entrepreneurship and leadership education to match local needs, and in expanding Asian entrepreneurship concepts to other regions.

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.

SOM currently has students from over 30 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

BARBARA IGEL, BA, MA, Technical Univ, Berlin; PhD, Freie Univ, Berlin, Germany.

Associate Professor (*High-tech Entrepreneurship; Industrial Economics; Knowledge Management; Management of Innovation*)

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, Chulalongkorn Univ, 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, Thammasat Univ, Thailand; PhD, The Australian National University, Australia

Assistant Professor (International Economics, Multinational Enterprises, Managerial Economics and Business environment)

DO BA KHANG, MSc, Eotvos Lorand Univ, Hungary; MSc, DTechSc, AIT, Thailand.

Associate Professor (Management Science; Operations Management; Project Management; Service Management; Small and medium enterprises (SME) support and management)

DONYAPRUETH KRAIRIT, BS, Thammasat Univ, Thailand; MS, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor (Technology, Policy and Management)

Beise-Zee, Rian Dipl., Wirtschaftsingenieurwesen; Ph.D., Technical Univ. of Berlin, Germany

Associate Professor, School of Management

SUNUNTA SIENGTHAI, BA, Chulalongkorn Univ, Thailand; MA, PhD, Univ of Illinois, USA.

Associate Professor (Labor & Industrial Relations, HRM, Wages & Productivity)

VATCHARAPOL SUKHOTU, BEng, Kasetsart Univ, 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, LL.M, 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 Management, 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., CornellUniversity, IthacaUSA

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 in 2012

Third Public Management Executive Development Program

Duration: 1-Aug-2011 to 31-May-2012
Project Investigator(s): Sununta Siengthai

Sponsor: The Damrong Rajanupab Research and Development Institute DRRDI

Total Contracted Amount (THB): 1,311,000

International Executive MBA for Vietnam for HCMC 7.1

Duration: 1-Aug-2010 to 31-Dec-2012
Project Investigator(s): Do Ba Khang
Sponsor: Multi donors
Total Contracted Amount (THB): 15,675,125.4

International Executive MBA for Vietnam for Hanoi #11.1 & 10.2

Duration: 1-Aug-2010 to 31-Dec-2012
Project Investigator(s): Do Ba Khang
Sponsor: Multi donors
Total Contracted Amount (THB): 16,500,000

DBA Program in HCMC 2009

Duration: 20-Jan-2009 to 31-Dec-2012
Project Investigator(s): Barbara Igel
Sponsor: Professional managers
Total Contracted Amount (THB): 7,425,000

5.9 On-going Grants and Sponsored Research 2012

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

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

ProSPER.Net-Biodiversity & Climate Change-Business Sustainability Education for Asia

Duration: 10-Aug-2012 to 31-Aug-2013
 Project Investigator(s): 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-Jun-2013
 Project Investigator(s): David Ferguson
 Sponsor: Professional Managers/Administrators of Private/Public Sectors
 Total Contracted Amount (THB): 6,300,000

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

Survey Research on ICT manpower in Thailand and the ICT professional Standard

Duration: 4-Sep-2012 to 31-Jun-2013
 Project Investigator(s): Sununta Sienghai
 Sponsor: Ministry of Information and Communications Technologies (ICT)
 Total Contracted Amount (THB): 4,000,000

Fourth Public Management Executive Development Program

Duration: 1-July-2012 to 31-Apr-2013
 Project Investigator(s): Sununta Sienghai
 Sponsor: The Damrong Rajanupab Research and Development Institute
 Total Contracted Amount (THB): 1,311,000

International Executive MBA for Vietnam for VT#3

Duration: 1-Jan-2011 to 30-Jun-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

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

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

5.10 Publications

International Journal Articles

Bunjonjit. R. and Siengthai, S., (2012). "Integrated Performance Measurement System for Firm's Human Capital Building," *Journal of Intellectual Capital*, October, Version, Vol. 13, Issue 4.

Darawong, C. h. and Igel, B., (2012). Acculturation of local new product development team members in MNC subsidiaries in Thailand, *Asia Pacific Journal of Marketing and Logistics*, EMERALD, Vol.24, No. 3, pp. 351-371

Jongwanich, J. (2012) Effectiveness of Capital Account Policies: Evidence from Thailand, *Asian Development Review*, 29 (2): 50-93 (with A. Kohpaiboon)

Jongwanich, J. (2012) How Effective Are Capital Controls in Asia?', *Asian Economic Paper*, vol. 11 (2): 122-143 (with Bautista, M. and J.W. Lee)

Jongwanich, J. (2012) How Effective are Capital Controls?: Evidence from Malaysia', *Asian Development Review*, 29 (2): 1-47 (with P. Athukorala)

Jongwanich, J. (2012) Structural Adjustment and International Migration: Firm Survey Analysis of the Thai Clothing Industry, *Oxford Development Studies*, vol. 40 (2): 231-260 (with Kohpaiboon, A., P. Kuthanavit)

Kungwansupaphan, C. and Siengthai, S., (2012). Exploring entrepreneurs' human capital components and effects on learning orientation in early internationalizing firms, *International Entrepreneurship and Management Journal*, published online 5 October, 2012.

Mamun, S. A. A. and Yuosre F. Badir. 2012. Corporate Governance and Value Addition Efficiency of Corporate Resources in Thailand, *International Journal of Managerial and Financial Accounting (IJMFFA)*, By Inderscience, Vol. 4, No. 3, pp. 238 - 257.

Ritthisoonthorn, P., Ahmed, K. and Krairit, D. "Engineering Analysis and Economic Evaluation of Broadband Fixed Wireless Access in Developing Country: Wireless City in Thailand", *International Journal of Services, Economics and Management (IJSEM) Special Issue on: "Design, Integration, and Maintenance of Services for Developing Nations and Economies"*, Inderscience Publishers, Vol. 4, Issue 1, 2012.

Smutkupt, P. and Krairit D., "The effects of SMS promotions on the brand equity perceptions of Thai consumers: the case of Au bon Pain", *Asia Pacific Journal of Marketing and Logistics*, Issue 24, 4, 2012.

Sukhotu, V. and Peters, B. (2012). Modelling of material handling systems for facility design in manufacturing environments with job-specific routing, *International Journal of Production Research*, 2012, 1–18

Teeratansirikool, L., Siengthai, S., Badir, Y. F., and Charoenngam, C., (2012). Competitive strategies and firm performance: The mediating role of performance measurement, *International Journal of Productivity and Performance Management*, By Emerald, Vol. 62, No. 2, pp.168 – 184, SCOPUS citation: 1

Yamklin, S. and Igel, B., (2012). Communities of Practice Purposefully Designed for Improving Business Performance, *Knowledge and Process Management Journal*, Vol 19, No. 4 , Wiley (in press)

Yuosre F. Badir, Buchel, B, and Tucci, C., (2012). A conceptual framework of the impact of NPD project team and leader empowerment on communication and performance: An Alliance Case Context. *International Journal of Project Management*, By Elsevier, Vol. 30, issue

8, SCOPUS citation: 1, Impact Factor: 1.686

Conference Proceedings

Bhatiasevi, V. and Krairit, D. "Acceptance of Open Source Software: The case of Thailand", *The 3rd International Journal of Arts & Sciences*, Boston, MA 27-31 May 2012.

Iamratanakul, S., Rassameethes, B., Sukhotu, V., and Siengthai, S., (2012). Modeling Barriers for Technology Projects, *Operation Research Network Conference (OR-NET 2012)*, 6 - 7 September 2012, Bangkok, Thailand.

Iamratanakul, S., Rassameethes, B., Sukhotu, V., Siengthai, S., Kachitvichyanukul, V. and Shankar, R., (2012). Modeling the Macro-environmental Influences: An International Logistics View, *2012 IEEE International Conference on Industrial Engineering and Engineering Management*, 10 - 13 December 2012, Hong Kong Special Administrative Region.

Iamratanakul, S., Sukhotu, V., and Shankar, R., (2012). Barriers of Technology Project: An Interpretive Model. In *Proceeding of the International Association of Management of Technology Conference*, Taiwan, 2012.

Mamun, S. A. A. and Badir, Y. F., (2012). Corporate governance and value addition efficiency of corporate resources in Southeast Asia, *Academy of Management Annual Meeting, AOM*, August 2012, Boston, USA.

Sompong, K., Smith H.L. and Igel, B., (2012) An Empirical Study on the Preferences of Adoption in Strategic Alliances *IEEE International Technology Management Conference (ITMC) 2012* in Dallas Texas, USA

Working Papers

Darawong, C. h., Igel, B and Badir, Y. F. (2012): *Cross-cultural Communication and Interpersonal Conflict in New*

Product Development: Moderating
Effects of Culture of Origin

5.11 Doctoral Students' Dissertation

Emotional States of Business Travelers and Service Responses: A Study in the Hotel Industry
By Yi-Chieh Wang
Supervisor: Dr. Rian Beise-Zee

E-CRM, Relationship Quality and Outcomes in the Banking Industry
By Phavaphan Sivarak
Supervisor: Dr. Donyaprueth Krairit

Corporate Governance and Value Addition Efficiency of Corporate Resources in Southeast Asia
By Syed Abdullah Mamun
Supervisor: Dr. Yuosre Badir

Acculturation and Cross-cultural Communication in New Product Development Teams
By Chonlatis Darawong
Supervisor: Dr. Barbara Igel

The Headquarters' Strategy on Personnel Movement Mechanism and Knowledge Transfer Effectiveness: An Empirical Study in Thailand
By Surapong Boonyarith
Supervisor: Dr. Sununta Siengthai

Sources of Sustainable Competitive Advantage: The Case of Rice Milling Firms in Thailand
By Yuttakorn Ritthaisong
Supervisor: Prof. Lalit M. Johri

Corporate Culture and Leadership Competencies: A Comparative Study of Companies in Thailand and Vietnam
By Duong Manh Cuong
Supervisor: Dr. Do Ba Khang

Consumer Perception and Demand for Health Attributes of a Place: A Study of Hot Spring Regions in Taiwan
By Ms. Lizone Chang
Supervisor: Dr. Rian Beise-Zee

A Survey of Mutual Fund Fees and Expenses in Thailand

By Pornlapas Na Lamphun
Supervisor: Dr. Winai Wongsurawat

Exploring Co-authorship Networks and the Association of Network Centrality with Research Performance of Academic Researchers: The Moderator Effect
By Kamal Badar
Supervisor: Dr. Yuosre Badir

Integrated Performance Measurement System for Firm's Human Capital Building
By Bunjongjit Rompho
Supervisor: Dr. Sununta Siengthai

Exploring Entrepreneurships' Human Capital Components and Effects on Learning Orientation in Early Internationalizing Firms
By Chonnatcha Kungwansupaphan
Supervisor: Dr. Sununta Siengthai

Accounting disclosures of corporate social responsibility
By Anil Jayantha Fernando
Supervisor: Prof. Pandey

A process model for the creation and sustenance of new ventures in emerging economics: Case study of financial service industry
By Anurug Ruangrob
Supervisor: Prof. Pandey

Strategy for a new retail concept: Case analysis of go getter, Sri Lanka
By Prasantha Jayamanna
Supervisor: Dr. Juthathip Jongwanich

Corporate strategy, organizational restructuring and corporate performance: A case study of Siam Commercial Bank
By Boriboon Pinprayong
Supervisor: Dr. Sununta Siengthai

Corporate restructuring and value creation: An empirical study of Thai listed firms
By Visit Ongpipattanukul
Supervisor: Prof. I.M. Pandey

The impact of government policies on the development of small-and medium-sized enterprises: The case of Vietnam
By Nguyen Thanh Nguyen
Supervisor: Dr. Winai Wongsurawat

5.12 Masters Students' Theses, Research Studies and Projects

The United States Economic Crisis and Fiscal Worries: How America lost its economic prosperity, the role of fiscal policy, and comeback fiscal responsibilities
By Rahul Kumar Bohara
Supervisor: Dr. Winai Wongsurawat

Technology Selection in a Large-Scale Construction Project
By Varun Prakash
Supervisor: Dr. Yuosre Badir

New Market Development and Training for a Student Information System
By Tejashree D. Bhanawala
Supervisor: Dr. Winai Wongsurawat

Foreign Direct Investment in India
By Saurav Srivastava
Supervisor: Dr. Juthathip Jongwanich

Corporate Social Responsibility Practices: A Comparative Study of Selected Companies in France and Thailand
By Israt Jahan Linda
Supervisor: Prof. Nazrul Islam

Oil price and Investor behavior in the Stock Exchange of Thailand
By Titikorn Thantasiri
Supervisor: Dr. Juthathip Jongwanich

An opportunity to do business on Online social network in Thailand
By Chettapol Kuljaras
Supervisor: Dr. Donyaprueth Krairit

The Current Hedging and Firms' Behavior: Evidence from Thai Manufacturing
By Chatwaroon Ponyiam
Supervisor: Dr. Juthathip Jongwanich

The Impact of Management Factors on Innovative Organization: A Case Study of the Siam Cement Group (SCG)
By Tarinee Tadarati
Supervisor: Dr. Winai Wongsurawat

Impact of Pack Quantity Decision on Retail Replenishment Handling Cost

<p>By Rachana Agrawal Supervisor: Dr. Vatcharapol Sukhotu</p>	<p>Improving Internal Competences to Enhance Competitiveness of Construction Industry: A Case of Dong Nai Concrete Enterprise By Le Thi Giang Supervisor: Dr.Juthathip Jongwanich</p>	<p>Diversification Strategies for Universal Hong Kong Technology Corporation Vietnam By Luyen Van Trung Supervisor: Dr.Winai Wongsurawat</p>
<p>Green Marketing: The Effectiveness of Green Production Process and Green Cause Campaigns By Phattaraphon Phongchartwut Supervisor: Dr. Rian Beise-Zee</p>	<p>Set Up New Strategic and a Specific Business Plan for SCC Dong Nai Interior Decorate Shareholding Company By Ha Huy Tuan Supervisor: Dr.Juthathip Jongwanich</p>	<p>Enhancing the Key Personnel Retention for Effective Human Resource Management Practice: A Case of Sung Chang Company Vietnam By Pham Thai Tien Supervisor: Dr.Sununta Siengthai</p>
<p>Option for Offshore Gas Exploitation in Thai Binh Province, Vietnam By Dang Duy Chung Supervisor: Dr.Do Ba Khang</p>	<p>Advantages and Challenges of Employing People with Disabilities at Protec Vietnam - From the Point of View of the Employer By Hoang Thi Na Huong Supervisor: Dr.Logan Muler</p>	<p>Develop Mid-Range Strategy for Increasing the Jack-Up Rig Fleet in Vietnam Market: The Case of Petro Vietnam Drilling and Services Corporation By Kieu Thi Hoai Minh Supervisor: Dr.Winai Wongsurawat</p>
<p>Collection of Personal Income Tax and Social Security Contribution in Vietnam- Current Issues and Recommendations By Mr. Dinh Nam Thang Supervisor: Dr.Sununta Siengthai</p>	<p>Human Resource Strategy for Toan Thinh Pat Ecudation Limited Company By Huynh Phu Kiet Supervisor: Dr.Do Ba Khang</p>	<p>How to Resolve Conflict of Interests in the Decision Making Process in a Joint Operating Company: The Case of Cuu Long Vietnam By Bui Thieu Son Supervisor: Dr.Winai Wongsurawat</p>
<p>Solutions to Mobilizing Investment Capital for EVN's Power Projects By Vo Hong Linh Supervisor: Dr.Do Ba Khang</p>	<p>Start-Up Convenience Store in a Binh Residential Area, Bien Hoa City, Dong Nai Province, Vietnam By Nguyen Thi Mai Chi Supervisor: Dr.Juthathip Jongwanich</p>	<p>Development of An Outbound Logistics Strategy for Bulk Cement Product at Holcim Vietnam, Ltd. By Nguyen Thanh Lam Supervisor: Dr.Huynh Trung Luong</p>
<p>Privatization at EVN Telecom By Mr. Tran The Lam Supervisor: Dr.Fredric W. Swierczek</p>	<p>Expanding Market Share: The Case of Tin Nghia Petrol Joint Stock Company, Dongnai Province, Vietnam By Phan Ngoc Thuy Linh Supervisor: Dr.Winai Wongsurawat</p>	<p>The Business Development Strategy of Power Engineering Consulting Joint Stock Company 2 By Nguyen Hai Phu Supervisor: Dr.Winai Wongsurawat</p>
<p>Change Management: A Case Study of Applying ERP at Petrovietnam Exploration Production Corporation (PVEP) By Nguyen Thanh Son Supervisor: Dr.Sununta Siengthai</p>	<p>Service Marketing Strategy of a Distributor of Global Brands in Southeast Vietnam: The Case of Le Hung Sao Mai Company's Lubricant Brand By Nguyen Thi Truc Xuan Supervisor: Dr.Winai Wongsurawat</p>	<p>Improving Material and Service Requisition for Offshore Operations at Cuulong Joint Operating Company By Tran Dung Thang Supervisor: Dr.Winai Wongsurawat</p>
<p>Reforming Budgetary Management at Ha Tien 1 Cement Joint Stock Company By Tran Nguyen Huy Hung Supervisor: Dr.Winai Wongsurawat</p>	<p>Investigating Sevice Quality and Customer Satisfaction at Techcombank, Vietnam By Vuong Duong Duc Supervisor: Dr.Winai Wongsurawat</p>	<p>Customer Retentions: A Case Study of Pacific Dental in Vietnam By Hoang Huu Hien Supervisor: Dr.Rian Beise-Zee</p>
<p>Retaining Human Resources in the Oil and Gas Industry: A Case of Vietsovpetro Joint Venture (VSP) By Nguyen Thi Thanh Huyen Supervisor: Dr.Willi Zimmermann</p>	<p>How to Expand the Market Share of Petroleum Products in LAO PDR: A Case Study of Petrovietnam Oil LAO Company Limited (PV OIL LAO) By Huynh Nguyen Bach Tuyen Supervisor: Dr.Winai Wongsurawat</p>	<p>Strategy Building in FTTH Business of the Northern Power Corporation By Nguyen Viet Phu Supervisor: Dr.Winai Wongsurawat</p>
<p>Enhancing Vietnam's Oil Exports in an Age of Volatile Energy Prices By Bui Minh Duc Supervisor: Dr.Winai Wongsurawat</p>		<p>Strategy to Develop Credit Financing Export-Inport Activities at Eximbank</p>
<p>Study of EPC Contract Strategy for Nghi Son Refinery and Petrochemical Project in Vietnam By Vo Thi Thanh Ngoc Supervisor: Dr.Do Ba Khang</p>		

Vietnam By Nguyen Tuan Phong Supervisor: Dr.Juthathip Jongwanich	By Vu Quang Hung Supervisor: Dr.Sununta Siengthai(Co-chair), Dr.Clemnes Bechter(Co-chair)	Improving the Environmental Management System of Oil & Gas Production: at Joint-Venture Vietsovpetro, Vung Tau Vietnam By Nguyen Chien Thang Supervisor: Dr.Winai Wongsurawat
Harmonizing Procedural Gaps and Simplifying Requirements of Asian Development Bank (ADB) and the Government of Vietnam Towards Better Performance By Au Minh Tuan Supervisor: Dr.Do Ba Khang	Moving overhead High Voltage Lines in Chem-Ntat Tan-Yen Phu Underground By Phan Huong Mai Supervisor: Dr.Winai Wongsurawat	Developing External Technical Service of the Gas Operation Division, Vietsovpetro Joint Venture, Vietnam By Tran Quoc Thang Supervisor: Dr.Winai Wongsurawat
Developing a Distribution System for the Bio-Fuel Products of PV Oil in Vietnam Energy Market to 2025 By Nguyen Trung Huu Supervisor: Dr.Winai Wongsurawat	Risk Management for Vietnam's Competitive Generation Market: A Case Study of a Vuong Hydropower Joint-Stock Company By Duong Van Dang Supervisor: Dr.Sununta Siengthai(Co-chair), Mr.Ragnar Soegaard (Co-chair)	Improving the Internal Financial Control of Service Operations: at Vietsovpetro, Vung Tau,Vietnam By Bui Thi Cam Nhung Supervisor: Dr.Winai Wongsurawat
Petrovietnam Exploration Production Corporation Project Portfolio Management Review By Nguyen Thi Hai Thanh Supervisor: Dr.Winai Wongsurawat	Exploring Possible Abusive Supervision and Its Impacts on Employees: A Case Study of Organizational Culture of JVPC, Vungtau Vietnam By Nguyen Ai Thanh Dan Supervisor: Dr.Willi Zimmermann	Business Strategies for the Sports and Entertainment Services Joint Stock Company: A Case of Veitnam By Le Tu Supervisor: Dr.Winai Wongsurawat
Strategic Analysis of Vietnam Mobile Service Market and Conclusion for Beeline Vietnam By Le Tung Bach Supervisor: Dr.Do Ba Khang (Co-Chair), Prof.Rudolf Gruenig (Co-Chair)	Improving Contract and Procurement Activities to Achieve Higher Efficiency: A Case Study of a Japanese Oil and Gas Company Vietnam By Nguyen Manh Hung Supervisor: Dr.Vatcharapol Sukhotu	Improving the Satisfaction of Vietnamese Staff. A Case of Japan Vietnam Petroleum Co.,Ltd, Vung Tau Vietnam By Nguyen Tri Kim Phung Supervisor: Dr.Sununta Siengthai
Real Estate Marketing Plan for EVN Telecommunication and Operation Center Project By Tran Duc Quyen Supervisor: Dr.Winai Wongsurawat	Project Management and Dispute Analysis at Oil and Gas Facility Project: The Case of Japan Vietnam Petroleum Company, Ltd. By Dinh Chi Dang Supervisor: Dr.Do Ba Khang	Corporate Culture in Improving the Effectiveness of the Safety, Quality, and Environment (SQE) Management System at CNG, Vietnam By Le Thi Thu Giang Supervisor: Dr.Huynh Trung Luong
Training and Human Resources Development Strategy of Petro Vietnam Power corporation By Bui Van Chinh Supervisor: Dr.Sununta Siengthai(Co-chair),Mr.Ragnar Soegaard (Co-chair)	The Level of Ennlsh-the Barrier for Providing External Inspection Services of VIETSOVPETRO, Vung Tau City, Vietnam By Vo Van Tai Supervisor: Dr.Winai Wongsurawat	Change of Business Culture that Impact on the Process Operation of Namconson Pipeline Company, Vietnam By Nguyen Chi Phuong Supervisor: Dr.Willi Zimmermann
Improving Effectiveness of Inventory Management of Input Material for Vinacomins Coal Producing Companies By Phung Thi Thai Linh Supervisor: Dr.Vatcharapol Sukhotu	How to Improve the Retention Rate of "Competent Employees" in the Research and Engineeing Institute : A Case Study of Vung Tau City,Vietnam By Nguyen Tan Hai Supervisor: Dr.Sununta Siengthai	Enhancing Upstream Service Business in Oil and Gas: A Case Study of the Joint Venture: VIETSOVPETRO", Vietnam By Nguyen Nhu Y Supervisor: Dr.Winai Wongsurawat
Solutions for Motivation in Vinacommin Minerals Holding Company By Trinh Thi Nguyet Supervisor: Dr.Sununta Siengthai(Co-chair), Mr.Ragnar Soegaard(Co-chair)	Improving Inspection Management Systme for Extending the Service Life of Offshore Platforms in Vietsovpetro Joint Ventrue By Vu Xuan Lai Supervisor: Dr.Winai Wongsurawat	Applying irs in petrovietnam finance corporation (pvfc) By Tao Thi Thu Thuy Supervisor: Dr.Fredric W. Swierczek (co-chair), Dr.Sununta Siengthai (co-chair)
Marketing Strategy for a Coal Mineral Finance		

<p>Network marketing in Vietnam By Truong Huy Cuong Supervisor: Dr.Clemens Bechter (co-chair), Dr.Sununta Siengthai</p>	<p>By Huynh Van Hoang Supervisor: Dr.Winai Wongsurawat</p>	<p>Improving effectiveness of the production lines to enhance the competitiveness of vicemn butson By Vu The Ha Supervisor: Dr.Yuosre Badir</p>
<p>Improving the power purchase agreement process between Vietnam electricity and independent power plants By Nguyen Huu Khai Supervisor: Dr.Clemens Bechter (co-chair), Dr.Sununta Siengthai</p>	<p>Improving equipment procurement at the bidding board of Hanoi power corporation (evn hanoi), Vietnam By Phuong Phi Pich Phao Supervisor: Dr.Do Ba Khang</p>	<p>Strengthening domestic sales of vicem hoangmai cement joint stock company By Dau Phi Tuan Supervisor: Dr.Winai Wongsurawat</p>
<p>Medicine procurement in national hospitals in Vietnam By Nguyen Thanh Lam Supervisor: Dr.Winai Wongsurawat</p>	<p>Marketing strategy for mpt online retailing By Nguyen Nam Phuong Supervisor: Dr.Clemens Bechter</p>	<p>Developing a strategy for vicem hoangthach cement co., ltd for the period 2012-2015 and the company's vision to 2020 By Vu Dinh Tuan Supervisor: Dr.Winai Wongsurawat</p>
<p>Improving employee's satisfaction in binh phuoc cement plant, Vietnam By Vo Van Binh Supervisor: Dr.Sununta Siengthai</p>	<p>Strategies to maintain a sustainable and effective distribution system of petrovietnam oil corporation, Vietnam By Do Manh Binh Supervisor: Dr.Huynh Trung Luong</p>	<p>Improving the internal control system at kien luong cement plant By Nguyen Ngoc Minh Supervisor: Dr.Winai Wongsurawat</p>
<p>A strategic business plan for petro Vietnam technical service corporation marine (ptsc marine) during the period 2012-2024 By Nguyen Minh Tuan Supervisor: Dr.Winai Wongsurawat</p>	<p>Strategies for developing a domestic biofuel business for petrovietnam oil corporation By Cao Trong Tuan Supervisor: Dr.Winai Wongsurawat</p>	<p>Developing a strategy for vicem but son joint stock company for the period 2012 – 2020 By Vu Xuan Hoa Supervisor: Dr.Winai Wongsurawat</p>
<p>Reducing employee turnover rate at long thanh industrial zone a case study of sonadezi long thanh shareholding company Vietnam By Phan Thuy Doan Supervisor: Dr.Sununta Siengthai</p>	<p>Restructuring petro Vietnam oil corporation: a study of the implementation process By Tran Hai Dang Supervisor: Dr.Sundar Venkatesh</p>	<p>Innovation of work culture at the sales and services enterprise of vicem ha tien joint stock company By Nguyen Hoang Ngoc Hy Supervisor: Dr.Winai Wongsurawat</p>
<p>Improving the annual evaluation of officer in Dong Nai provincial people's committee office, Vietnam By Lai The Thong Supervisor: Dr.Willi Zimmermann (co-chair), Dr.Yuosre Badir (co-chair)</p>	<p>Employee satisfaction at a japanese general trading company in Vietnam: a case study of mitsubishi corporation By Pham Le Tuan Supervisor: Dr.Sununta Siengthai</p>	<p>Improving the administrative procedure for vessel arrival and departure at ho chi minh seaport, Vietnam By Ngo Quang Hung Supervisor; Dr.Winai Wongsurawat</p>
<p>Cambridge esol in vietnam,opportunities and challenges By Lu Hoai Nam Supervisor: Dr.Winai Wongsurawat</p>	<p>Business plan to start up a design company By Dang Thi Huynh Mai Supervisor: Dr.Do Ba Khang</p>	<p>Improving the service level of fleet management at adidas sourcing limited-Vietnam liaison office By Phan Hoang Hiep Supervisor: Dr.Willi Zimmermann (co-chair), Dr.Yuosre Badir (co-chair)</p>
<p>Strengthening the competitive capacity of anphu auditing company ltd By Nguyen Duc Duong Supervisor: Dr.Fredric W. Swierczek(co-chair), Dr.Sununta Siengthai (co-chair)</p>	<p>De-motivation among Vietnamese oil and gas offshore staff - causes and solutions By Quach Trong Thang Supervisor: Dr.Winai Wongsurawat</p>	<p>Trust as buying criteria in food supplement products, case study of Asean countries By Thanyachat Auttanukune Supervisor: Dr.Clemens Bechter (co-chair), Dr.Vatcharaporn Esichaikul (co-chair)</p>
<p>Improving facility operation and maintenance at the oil & gas production enterprise of vietsopetro</p>	<p>The pros and cons of consolidating long-standing brands – a case study of vicem By Nguyen Thi Kim Thanh Supervisor: Dr.Winai Wongsurawat</p>	<p>Sales and marketing strategy for cement bags : case study of holcim Vietnam</p>

<p>By Truong Bao Kiem Supervisor: Dr.Clemens Bechter (co-chair), Dr.Vatcharaporn Esichaikul (co-chair)</p>	<p>Supervisor: Prof.Marie-Therese Cleas(co-chair), Dr.Do Ba Khang(co-chair)</p>	<p>Developing a marketing strategy for Ha Tien cement Vietnam By Tran Thi Bich Thuy Supervisor; Dr.Winai Wongsurawat</p>
<p>Marketing strategy for small concrete pre-cast producers: a case of holcim Vietnam By Le Doan Trinh Supervisor: Dr.Clemens Bechter (co-chair), Dr.Vatcharaporn Esichaikul (co-chair)</p>	<p>Improve the performance appraisal system at sumitomo corporation Vietnam llc By Tran Thi Thuy Duong Supervisor: Dr.Sununta Siengthai</p>	<p>Investment in training and development of human resources: a case study of power engineering consulting joint stock company 2 (pecc2) - Vietnam 2 By Huynh Van Quang Supervisor: Dr.Sununta Siengthai</p>
<p>How to enhance customer relationship management and sales management, at scancom international a/s Vietnam By Lam Thanh Truc Supervisor: Dr.Willi Zimmermann (co-chair), Dr.Yuosre Badir (co-chair)</p>	<p>Delay analysis of transmission line projects in Vietnam: a case study of 500kv hiep hoa-pho noi transmission line By Nguyen Kim Cuong Supervisor: Dr.Do Ba Khang</p>	<p>Cross-cultural communication management between vietnamese and expatriates in kpmg limited-clash and resolution By Nguyen Thi Thanh Binh Bupervisor: Prof.Marie-Therese Cleas(co-chair), Dr.Do Ba Khang(co-chair)</p>
<p>Problems in recruitment, training and incentive policies in quy nhon port company By Truong Hoai Bac Supervisor: Dr.Sununta Siengthai</p>	<p>Developing a business strategy for Baoviet bank with a vision toward 2020 By Quach Hoang Minh Supervisor: Dr.Winai Wongsurawat</p>	<p>Improving after-sales services at vinacomin – coal import export joint stock company By Phung Thi Thai Binh Supervisor: Dr.Winai Wongsurawat</p>
<p>Improving the interdepartmental working coordination of saigon co. Op investment and development joint stock company,vietnam By Le Truong Son</p>	<p>A development strategy for Vietnam airlines corporation problems and solutions By Nguyen Thi Hai Duong Supervisor: Dr.Winai Wongsurawat</p>	
	<p>Marketing strategy for electricity equipment in Vietnam By Vu Thi Thuy Supervisor: Dr.Clemens Bechter (co-chair), Dr.Sununta Siengthai (co-chair)</p>	

Chapter 6: AIT EXTENSION

6.1 Introduction

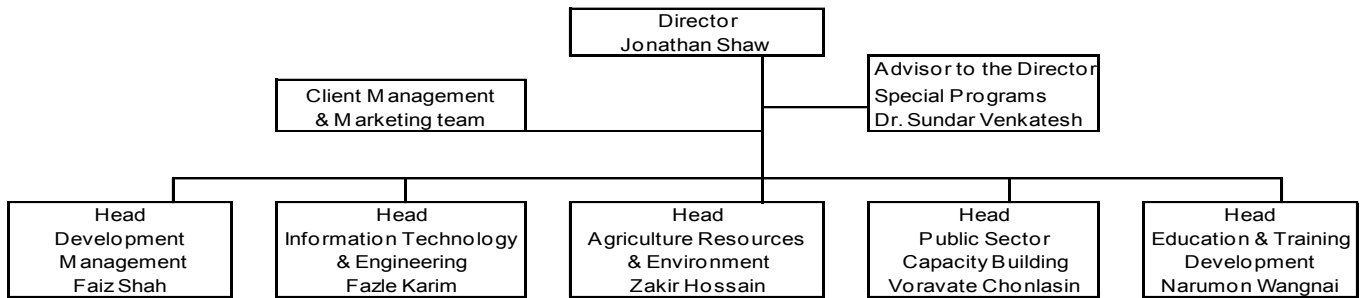
AIT Extension is responsible for non-degree programs at AIT. As the continuing professional development and short-course training arm of the institute, we identify and respond to

qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy.

Most international training courses usually last from one to three weeks.

Customized Courses

AIT Extension specializes in designing, developing and implementing short



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 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

6.2 Mission

To identify and respond to regional opportunities for continuing education, training and consultancy, and thus help to realize AIT's mission to develop highly

6.3 Unit Governance Courses and Services

AIT Extension offers courses in the following specializations:

- 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

To identify and respond to regional opportunities for continuing education, 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.

Information and Communication Technologies

- Information and Communication Management

courses to the specifications of 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 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.
- 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 2012

Banking Management

Duration: 13-Aug-2012 to 15-Nov-2012
Project Investigator(s): Mathew Kuruville
Sponsor: Bhutan Development Bank
Total Contracted Amount (THB): 362,500

Leadership Development Program for Irrigation Professional

Duration: 23-July-2012 to 30-Nov-2012
Project Investigator(s): Sufian Atea
Sponsor: Irrigation Development, Govt. of Nepal
Total Contracted Amount (THB): 899,000

Integrated Rural Development and Policy Planning in Vietnam

Duration: 21-May-2012 to 29-Aug-2012
Project Investigator(s): Upul Kaluhetti Brahmanage
Sponsor: Uva Province, Sri Lanka
Total Contracted Amount (THB): 362,500

Commercial Management and Customer Services

Duration: 21-May-2012 to 30-Aug-2012
Project Investigator(s): Mathew Kuruville
Sponsor: World Bank
Total Contracted Amount (THB): 2,187,760

Research and Teaching Methodology

Duration: 25-July-2012 to 6-Nov-2012
Project Investigator(s): Kanlaya Muangsan
Sponsor: MoHE, Afghanistan
Total Contracted Amount (THB): 1,253,280

Horticulture Value Chain Management

Duration: 25-Jun-2012 to 27-Sep-2012
Project Investigator(s): Sujidra Pumsombut, Dr. Md. Zakir Hossain
Sponsor: BEGP
Total Contracted Amount (THB): 375,000

Effective Contract Management

Duration: 6/18/2012 - 9/27/2012
Project Investigator(s): Rowena Alcoba
Sponsor: World Bank
Total Contracted Amount (THB): 2,820,000

Strategic Planning and Project Management

Duration: 9-July-2012 to 1-Nov-2012
 Project Investigator(s): Faisal Alih
 Sponsor: Bangladesh Civil Service Administration Academy
 Total Contracted Amount (THB): 1,366,900

Accounting and Auditing for Oil and Gas Companies

Duration: 25-Jun-2012 to 6-Oct-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 1,286,460

Banking Management

Duration: 13-Aug-2012 to 15-Nov-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Development Bank
 Total Contracted Amount (THB): 362,500

International Program on Financing of Rural Infrastructure in China and Thailand

Duration: 6-Aug-2012 to 11-Nov-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: NABARD -India
 Total Contracted Amount (THB): 1,533,000

Technical Training for Grid Station Operation and Management

Duration: 18-Jan-2012 to 27-Sep-2012
 Project Investigator(s): Furqan Ali
 Sponsor: World Bank, Pakistan
 Total Contracted Amount (THB): 2,755,200

Executive Management

Duration: 11-Jun-2012 to 31-Dec-2012
 Project Investigator(s): Thaniya J.
 Sponsor: Karnaphuli Gas Distribution Co., Ltd.
 Total Contracted Amount (THB): 1,440,000

Agro Based Industry, Technology Transfer and Extension

Duration: 25-Jun-2012 to 27-Sep-2012
 Project Investigator(s): Parichad Nuntavong
 Sponsor: Government of Sri Lanka
 Total Contracted Amount (THB): 627,000

Project Procurement

Duration: 18-Jun-2012 to 31-Dec-2012
 Project Investigator(s): Thaniya J.
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,211,450

Gender planning in development

Duration: 11-Jun-2012 to 22-Sep-2012
 Project Investigator(s): Shalini Mitra
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 808,800

Supervisory Control and Data Acquisition (SCADA)

Duration: 11-Jun-2012 to 20-Sep-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,026,350

Participatory Integrated Water Resource Management (PIWRM)

Duration: 18-Jun-2012 to 27-Sep-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Bangladesh Water Development Board
 Total Contracted Amount (THB): 1,028,880

Project Management

Duration: 11-Jun-2012 to 20-Sep-2012
 Project Investigator(s): Faisal Alih, Parichad Nuntavong
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,324,575

Executive Leadership Development on Climate Change Strategy and Response

Duration: 13-Aug-2012 to 27-Nov-2012
 Project Investigator(s): Ms. Worawan Sumroetrum
 Sponsor: OCSC
 Total Contracted Amount (THB): 3,482,000

Engineering Design of Gas Distribution Pipeline

Duration: 28-May-2012 to 20-Sep-2012
 Project Investigator(s): Tharakorn Chaniapa, Furqan Ali Shaikh
 Sponsor: Karnful Gas Distribution Co. Ltd, Bangladesh
 Total Contracted Amount (THB): 1,666,250

International Immersion Program for EMBA students from IIT Khaeagour, India

Duration: 5-Jun-2012 to 9-Sep-2012
 Project Investigator(s): Myint M. Sein
 Sponsor: IIT Kharagpur
 Total Contracted Amount (THB): 350,750

Financial Reporting and Auditing Reform

Duration: 18-Jun-2012 to 27-Sep-2012
 Project Investigator(s): Ms. Worawan Sumroetrum
 Sponsor: PIFRA, Pakistan
 Total Contracted Amount (THB): 1,264,500

Remote Metering System

Duration: 4-Jun-2012 to 13-Sep-2012
 Project Investigator(s): Furqan Ali
 Sponsor: world Bank
 Total Contracted Amount (THB): 3,166,800

Leadership, Good Governance and Decentralization in Thailand & Vietnam

Duration: 25-Jun-2012 to 29-Nov-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 810,000

Operation and Maintenance of Remote Tele-Metering System

Duration: 21-May-2012 to 13-Nov-2012
 Project Investigator(s): Tharakorn Chaniapa, Furqan Ali Shaikh
 Sponsor: Karnful Gas Distribution Co. Ltd, Bangladesh
 Total Contracted Amount (THB): 1,500,000

Sustainable Communities

Duration: 15-Nov-2012 to 7-Jun-2012
 Project Investigator(s): Dr. Edsel Sajor, Evanshainia Syiem
 Sponsor: Alto University, Finland
 Total Contracted Amount (THB): 2,472,390

Governance and Anti-Corruption: Methods and Tools behind an Effective Corruption Eradication Strategy

Duration: 21-May-2012 to 8-Oct-2012
 Project Investigator(s): Sufian Atea
 Sponsor: DoPT
 Total Contracted Amount (THB): 581,400

Materials and Procurement Management

Duration: 28-May-2012 to 6-Sep-2012
 Project Investigator(s): Rowena Alcoba
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,820,000

Professional Development Program on Customer Service Excellence

Duration: 11-Jun-2012 to 13-Sep-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Telecom
 Total Contracted Amount (THB): 303,050

Essential Management Skills Using IT Karnaphul

Duration: 21-May-2012 to 20-Dec-2012
 Project Investigator(s): Thaniya J.
 Sponsor: Gas Distribution Co., Ltd.
 Total Contracted Amount (THB): 737,500

Financial Reporting and Auditing Reform

Duration: 18-Jun-2012 to 27-Sep-2012
 Project Investigator(s): Ms. Worawan Sumroetrum
 Sponsor: PIFRA, Pakistan
 Total Contracted Amount (THB): 1,264,500

University Foundation Program for Timor Leste

Duration: 28-May-2012 to 22-Nov-2012
 Project Investigator(s): Myint M. Sein
 Sponsor: Govt. of Timor Leste
 Total Contracted Amount (THB): 2,520,012

Health and Safety

Duration: 18-Jun-2012 to 27-Sep-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: World Bank
 Total Contracted Amount (THB): 1,902,400

Professional Development Workshop on Development of Training Materials

Duration: 17-Jun-2012 to 19-Sep-2012
 Project Investigator(s): Myint M. Sein
 Sponsor: Institute of Microfinance
 Total Contracted Amount (THB): 300,000

Agricultural Extension Practices

Duration: 23-Apr-2012 to 2-Aug-2012
 Project Investigator(s): Evanshainia Syiem, Dr. Md. Zakir Hossain, Sujidtra Pumsombut
 Sponsor: IAARD
 Total Contracted Amount (THB): 1,333,128.55

Geographic Information System

Duration: 21-May 2012 to 30-Aug-2012
 Project Investigator(s): Dr. Md. Zakir Hossain, Ms. Sujidtra Pumsombut, Ms. Evanshainia Syiem
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,164,800

Development Program and Management Planning for Sustainable Marine, Coastal and Small Island Resource

Duration: 7-May-2012 to 23-Aug-2012
 Project Investigator(s): Dr. Md. Zakir Hossain, Ms. Sujidtra Pumsombut, Ms. Evanshainia Syiem
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 685,750

Operation and Maintenance of Customer Metering System

Duration: 14-May-2012 to 6-Sep-2012
 Project Investigator(s): Tharakorn Chanlapa
 Sponsor: Karnful Gas Distribution Co. Ltd, Bangladesh
 Total Contracted Amount (THB): 1,500,000

Environment and Social Impact Assessment and Management

Duration: 14-May-2012 to 23-Aug-2012
 Project Investigator(s): Phyu Sin
 Sponsor: World Bank, Pakistan
 Total Contracted Amount (THB): 2,056,100

Disaster and Food Security, Batch I & Batch II

Duration: 28-May-2012 to 28-Sep-2012
 Project Investigator(s): Phyu Sin
 Sponsor: World Bank, Ethiopia
 Total Contracted Amount (THB): 1,622,500

Professional Workshops for strategic Planning

Duration: 21-May-2012 to 30-Aug-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Telecom
 Total Contracted Amount (THB): 217,500

Agro Based Industry, Technology Transfer and Extension Techniques

Duration: 14-May-2012 to 16-Aug-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 562,500

Strategic Planning and Implementation of Cloud Computing

Duration: 7-May-2012 to 13-Jun-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: IAARD, Indonesia
 Total Contracted Amount (THB): 442,500

Implementing Selective ERP Applications and Management

Duration: 14-May-2012 to 23-Jun-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: World Bank
 Total Contracted Amount (THB): 1,917,500

Planning & Design of Power Transmission and Distribution System

Duration: 7-May-2012 to 16-Aug-2012
 Project Investigator(s): Furqan Ali
 Sponsor: World Bank, Pakistan
 Total Contracted Amount (THB): 2,552,846.22

Participatory Integrated Water Resources Management

Duration: 14-May-2012 to 30-Nov-2012
 Project Investigator(s): Thaniya Jirasathipornpong, Furqan Ali Shaik
 Sponsor: World Bank
 Total Contracted Amount (THB): 1,402,489

Construction Management

Duration: 21-May-2012 to 30-Nov-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,874,546.08

Planning and Management

Duration: 12-March to 30-Nov-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Karnafuli Gas Distribution Co. Ltd.
 Total Contracted Amount (THB): 1,044,000

Central Banking Issues

Duration: 23-Apr-2012 to 26-July-2012
 Project Investigator(s): Faisal Alih
 Sponsor: Nepal Rastra Bank
 Total Contracted Amount (THB): 525,000

Financial and Economic Planning

Duration: 29-Apr-2012 to 10-Aug-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,707,200

Administration and Human Resources Management

Duration: 30-Apr-2012 to 9-Aug-2012
 Project Investigator(s): Rowena Alcoba
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,820,000

Analysis of Investment Projects

Duration: 29-Apr-2012 to 10-Aug-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: World Bank
 Total Contracted Amount (THB): 2,820,000

Engineering Design, Operation, Maintenance and Protection

Duration: 23-Apr-2012 to 16-Aug-2012
 Project Investigator(s): Tharakorn Chaniapa
 Sponsor: Karnafuli Gas Distribution Co. Ltd, Bagladesh
 Total Contracted Amount (THB): 1,450,000

International Program on Urban Cooperative Credit Organization

Duration: 29-Feb-2012 to 5-Jun-2012
 Project Investigator(s): Rowena Alcoba
 Sponsor: CAB, RBI
 Total Contracted Amount (THB): 1,171,444

Accounting and Auditing for Oil and Gas Companies

Duration: 12-March-2012 to 31-Aug-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Titas Gas T&D Co., Ltd
 Total Contracted Amount (THB): 1,566,000

Leadership in the Civil Service

Duration: 19-March to 11-July-2012
 Project Investigator(s): Parichad Nuntavong
 Sponsor: BCSAA
 Total Contracted Amount (THB): 973,500

Application of Biotechnology in Genetic Improvements of Agriculture Commodities

Duration: 19-March-2012 to 28-Jun-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: IAARD, Indonesia
 Total Contracted Amount (THB): 885,521

Technical and Management Skills for Gas and Oil Industry

Duration: 13-Feb-2012 to 30-Jun-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Titas Gas T&D Co., Ltd
 Total Contracted Amount (THB): 1,892,250

White Shrimp Farming

Duration: 20-Feb-2012 to 24-March-2012
 Project Investigator(s): Phyu Sin
 Sponsor: Iran Fisheries Organization
 Total Contracted Amount (THB): 450,000

Participatory Integrated Water Resource Management

Duration: 12-March to 21-Jun-2012
 Project Investigator(s): Tharakorn Chanlapa

Sponsor: Bangladesh Water Development Board
 Total Contracted Amount (THB): 1,313,004

Management of Development and Finance Program

Duration: 19-March-2012 to 5-July-2012
 Project Investigator(s): Parichad Nuntavong
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 1,172,625

Professional Management Program on Marketing Innovation

Duration: 16-March to 25-Jun-2012
 Project Investigator(s): Mathew Kuruville
 Sponsor: Teshi Infocomm Ltd
 Total Contracted Amount (THB): 652,500

Education Management Introduction System

Duration: 16-July-2012 to 25-Oct-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Ministry of Education, Bangladesh
 Total Contracted Amount (THB): 1,045,572

HR Development Skills for Functional Managers

Duration: 12-July-2012 to 23-Oct-2012
 Project Investigator(s): Rowena Alcoba
 Sponsor: Petro Bangladesh
 Total Contracted Amount (THB): 1,356,600

Result Based Monitoring and Evaluation (RBM)

Duration: 14-July-2012 to 30-Oct-2012
 Project Investigator(s): Voravate C
 Sponsor: Teshi Infocomm Ltd
 Total Contracted Amount (THB): 611,905

Management and Implementation of development Projects

Duration: 6-Aug-2012 to 22-Nov-2012
 Project Investigator(s): Faisal Alih
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 577,500

Project Management and Financial Management

Duration: 20-Aug-2012 to 29-Oct-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: EKSP-MoE, Sri Lanka
 Total Contracted Amount (THB): 930,000

Urban Environmental Management

Duration: 6-Aug-2012 to 15-Nov-2012
 Project Investigator(s): Phyu Sin
 Sponsor: Government of India
 Total Contracted Amount (THB): 480,375

Solid Waste Management System

Duration: 6-Aug-2012 to 31-Dec-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Government of Bangladesh
 Total Contracted Amount (THB): 1,499,100

Urban Environmental Management

Duration: 6-Aug-2012 to 15-Nov-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Government of India
 Total Contracted Amount (THB): 480,375

International Financial Reporting Stanadards

Duration: 10-Sep-2012 to 13-Dec-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Bangladesh Bank
 Total Contracted Amount (THB): 799,200

Project Planning, and Management for Oil and Gas Industries

Duration: 24-Sep-2012 to 31-Dec-2012
 Project Investigator(s): Agus S. Prajogo
 Sponsor: Government of Bangladesh
 Total Contracted Amount (THB): 1,080,000

Management Skill Development for Provincial Council's Public Service Officers

Duration: 25-Sep-2012 to 28-Dec-2012
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 1,128,900

Financial Analysis, Production Accounting and Forecasting

Duration: 10-Sep-2012 to 13-Dec-2012
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: BAPEX
 Total Contracted Amount (THB): 372,000

Leather Value Chain Management

Duration: 16-July-2012 to 18-Oct-2012
 Project Investigator(s): Dr. Md. Zakir Hossain
 Sponsor: BEGP
 Total Contracted Amount (THB): 375,000

Construction Management and Quality Control of Roads Works

Duration: 23-Apr-2012 to 2-Aug-2012
 Project Investigator(s): Ms. Worawan Sumroetrum
 Sponsor: Government of Bhutan
 Total Contracted Amount (THB): 548,999

Management of Small Scale Irrigation Systems

Duration: 18-Apr-2012 to 24-July-2012
 Project Investigator(s): Dr. Md. Zakir Hossain
 Sponsor: Asian Development Fund, Nepal
 Total Contracted Amount (THB): 375,000

Professional Workshops for Training of Trainers

Duration: 9-Apr-2012 to 19-July-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Telecom
 Total Contracted Amount (THB): 290,000

Professional Workshops for Training of Trainers

Duration: 9-Apr-2012 to 19-July-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: Bhutan Telecom
 Total Contracted Amount (THB): 290,000

Implementing Selective ERP Applications and Management

Duration: 14-May-2012 to 23-Jun-2012
 Project Investigator(s): Mr. Agus S. Prajoge
 Sponsor: World Bank
 Total Contracted Amount (THB): 1,917,500

Project Financial management

Duration: 12-Oct-2011 to 19-Jan-2012
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: Ministry of Local Development Nepal
 Total Contracted Amount (THB): 702,102

Project Financial management

Duration: 12-Oct-2011 to 19-Jan-2012
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: Ministry of Local Development Nepal
 Total Contracted Amount (THB): 702,102

White Shrimp Farming

Duration: 20-Feb=2012 to 24-May-2012
 Project Investigator(s): Phyu sin
 Sponsor: Ministry of Local Development Nepal
 Total Contracted Amount (THB): 450,000

Construction and maintence of Rural road

Duration: 8-Jan-2012 to 30-Jun-2012
 Project Investigator(s): Fazle Karim
 Sponsor: LGED Bangladesh
 Total Contracted Amount (THB): 705,000

Management of Flood control and Disaster Management

Duration: 25-Dec-2011 to 6-Apr-2012
 Project Investigator(s): Agus S Prajogo
 Sponsor: Bangladesh Water Development Board
 Total Contracted Amount (THB): 1,268,778

Study Tour Program SDM Institute of Management Development India

Duration: 29-Nov-2011 to 13-Mar-2012
 Project Investigator(s): Myint Myint Sein
 Sponsor: SDM Institute of Management Development India
 Total Contracted Amount (THB): 856,800

Agricultural Systems Agro Tourism and Tourist industry in Vietnam

Duration: 12-Dec-2011 to 16-Mar-2012
 Project Investigator(s): Upul Kaluhetti Bramahnage
 Sponsor: Uva Provinsial Govt of Sri Lanka
 Total Contracted Amount (THB): 459,000

Dengue epidemic prevention Control and management program

Duration: 14-Nov-2011 to 31-July-2012
 Project Investigator(s): Mathew Kuruvilla
 Sponsor: PRMP
 Total Contracted Amount (THB): 9,280,000

International Exposure Program on MSME Financing

Duration: 7-Dec-2011 to 13-March-2012
 Project Investigator(s): Rowena C Alcoba
 Sponsor: CAB/RBI
 Total Contracted Amount (THB): 1,324,491

Strategic IT management

Duration: 12-Dec-2011 to 22-Mar-2012
 Project Investigator(s): Parichard Nuntavong
 Sponsor: Ministry of education, Sri Lanka
 Total Contracted Amount (THB): 975,000

White Shrimp Farming and Biofloc system

Duration: 10-Oct-2011 to 19-Jan-2012
 Project Investigator(s): Phyu sin
 Sponsor: Multi donors
 Total Contracted Amount (THB): 613,200

MATT-2: 10th regional Exposure Visit program (Batch 35)

Duration: 27-Feb-2011 to 8-March-2012
 Project Investigator(s): Voravate Chonlasin
 Sponsor: DFID
 Total Contracted Amount (THB): 5,060,610

MATT2:2nd Regional Exposure visit Program Batch 36

Duration: 23-Jan-2012 to 4-May-2012
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: DFID
 Total Contracted Amount (THB): 5,167,655

Toxic Waste Management

Duration: 16-Jan-2012 to 26-Apr-2012
 Project Investigator(s): Md Zakir Hossain
 Sponsor: NIRAS Denmark
 Total Contracted Amount (THB): 450,000

Education Management information system in Thailand and Malaysia

Duration: 19-Dec-2011 to 30-Mar-2012
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: MOE Sri Lanka
 Total Contracted Amount (THB): 1,444,400

Planning and Monitoring of Water Resource projects II

Duration: 12-Dec-2011 to 21-Mar-2012
 Project Investigator(s): Phyu sin
 Sponsor: Water Resource Planning Organization
 Total Contracted Amount (THB): 794,790

MBA Exposure visit program

Duration: 12-Oct-2011 to 17-Jan-2012
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: White House GSM Nepal
 Total Contracted Amount (THB): 521,500

Public Financial Management

Duration: 12-Oct-2011 to 19-Jan-2012
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: Ministry of Local Development Nepal
 Total Contracted Amount (THB): 702,012

Nanotechnology for Food and Agriculture

Duration: 26-Sep-2011 to 5-Jan-2012
 Project Investigator(s): Thaniya Jirasathitpornpong
 Sponsor: IAARD/Indonesia
 Total Contracted Amount (THB): 980,700

Data Collection Analysis and Dissemination of Health Information

Duration: 3-Oct-2011 to 30-Jun-2012
 Project Investigator(s): Agus Prajogo
 Sponsor: WHO
 Total Contracted Amount (THB): 410,001

Project Management Monitoring and Evaluation

Duration: 26-Sep-2011 to 15-Mar-2012
 Project Investigator(s): Faisal Alih
 Sponsor: Multi donors
 Total Contracted Amount (THB): 980,875

19th Fredskorpset Preparatory Courses in Asia

Duration: 29-Sep-2011 to 29-Feb-2012
 Project Investigator(s): Warindhorn Srina
 Sponsor: Fredskorpset Norway
 Total Contracted Amount (THB): 2,592,410

International Management Studies Exposure Program

Duration: 27-Sep-2011 to 15-Mar-2012
 Project Investigator(s): Rowena C Alcoba
 Sponsor: University of Kelaniya, Sri Lanka
 Total Contracted Amount (THB): 849,502

Effective office management skills for support staff

Duration: 29-Aug-2011 to 31-May-2012
 Project Investigator(s): Faisal Alih
 Sponsor: NCED Nepal
 Total Contracted Amount (THB): 590,000

Preparing the Next Generation Leaders for the Challenges of the 21st Century Bangladesh Batch II

Duration: 21-Aug-2011 to 30-Apr-2012
 Project Investigator(s): Md Zakir Hossain
 Sponsor: Ministry of Public Administration Bangladesh
 Total Contracted Amount (THB): 11,131,260

Summer Internship program HKU

Duration: 28-May-2011 to 31-Mar-2012
 Project Investigator(s): Myint Myint Sein
 Sponsor: HKU
 Total Contracted Amount (THB): 1,133,209

Capacity Development Program for Maldivians and Indian Governments

Duration: 15-Sep-2011 to 30-Jun-2012
 Project Investigator(s): Sufian Etea
 Sponsor: MOH Maldives & DOPT India
 Total Contracted Amount (THB): 1,089,000

Professional Masters Program in Banking and Finance

Duration: 1-Jan-2011 to 30-Sep-2012
 Project Investigator(s): Jonathan Shaw
 Sponsor: Bangladesh Bank
 Total Contracted Amount (THB): 10,962,000

ICT Training 01/2011 AIT Support NUOL SIDA SAREC Project

Duration: 28-Feb-2011 to 30-Jun-2012
 Project Investigator(s): Augus S Prajogo
 Sponsor: SIDA
 Total Contracted Amount (THB): 387,751

ICT Training 03/2011 AIT Support NUOL SIDA SAREC Project

Duration: 6-Jun-2011 to 30-Jun-2012
 Project Investigator(s): Augus S Prajogo
 Sponsor: SIDA
 Total Contracted Amount (THB): 446,250

ICT Training 02/2011 AIT Support NUOL SIDA SAREC Project

Duration: 9-May-2011 to 30-Jun-2012
 Project Investigator(s): Augus S Prajogo
 Sponsor: SIDA
 Total Contracted Amount (THB): 387,751

AIT INM teaching Case Bank

Duration: 28-Feb-2011 to 30-Sep-2012
 Project Investigator(s): Rowena C Alcoba
 Sponsor: INM Bangladesh
 Total Contracted Amount (THB): 1,853,190

InM Micro credit Software Application

Duration: 1-Jan-2011 to 31-Oct-2012
 Project Investigator(s): Augus S Prajogo
 Sponsor: INM Bangladesh
 Total Contracted Amount (THB): 892,388

6.7 On-going Grant and Sponsored Trainings**Study tour on integrated approach to climate change in neighboring provinces of Thailand**

Duration: 17-Dec-2012 to 21-Mar-2013
 Project Investigator(s): Phyu Sin, Dr. Md. Zakir Hossain
 Sponsor: UNDP
 Total Contracted Amount (THB): 600,000

Digital Library

Duration: 10-Dec-2012 to 21-Mar-2013
 Project Investigator(s): Agus S. Prajogo
 Sponsor: IAARD Indonesia
 Total Contracted Amount (THB): 1,213,100

Tariff Management

Duration: 17-Dec-2012 to 30-Jun-2013
 Project Investigator(s): Furqan Ali Shaikh
 Sponsor: ADB
 Total Contracted Amount (THB): 599,997.60

Water Management, Flood Control, Drainage and Irrigation in Sri Lanka

Duration: 17-Dec-2012 to 28-Mar-2013
 Project Investigator(s): Afzal Jamil
 Sponsor: Water Management, Flood Control, Drainage and Irrigation
 Total Contracted Amount (THB): 963,000

Professional Masers in Banking and Finance January 2012 Intake

Duration: 1-Jan-2012 to 31-March-2013
 Project Investigator(s): Sundar Venkatesh
 Sponsor: Bangladesh Bank and Bhutan Bank
 Total Contracted Amount (THB): 14,360,000

Ensuring Training Effectiveness - Batch 4 (Training Course)

Duration: 17-Sep-2012 to 3-Jan-2013
 Project Investigator(s): Kanlaya Muangsan
 Sponsor: HEC Pakistan
 Total Contracted Amount (THB): 2,707,500

USAID Adaptation Workshop

Duration: 24-Oct-2012 to 24-Jan-2013
 Project Investigator(s): Niramo Ponvilai
 Sponsor: USAID
 Total Contracted Amount (THB): 3,426,500

Project Management, Financial Management and Automated Accounting Systems

Duration: 24-Sep-2012 to 3-Jan-2013
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: EKSP-MoE, Sri Lanka
 Total Contracted Amount (THB): 900,000

EDSMAT Advanced Management Visit Program

Duration: 20-Oct-2012 to 14-Mar-2013
 Project Investigator(s): Faisal Alih
 Sponsor: World Bank Pakistan
 Total Contracted Amount (THB): 13,868,250

Inclusive Governance

Duration: 24-Sep-2012 to 31-Jan-2013
 Project Investigator(s): Shalini Mitra
 Sponsor: DFID-NASC
 Total Contracted Amount (THB): 1,080,000

APMAS, Learning route on the Pro-Poor Rural Public-Private Partnership

Duration: 22-Oct-2012 to 29-Jan-2013
 Project Investigator(s): Sufian Atea
 Sponsor: APMAS
 Total Contracted Amount (THB): 1,291,278.75

Management of Rural Roads Development Project (Thailand and Vietnam)

Duration: 24-Sep-2012 to 4-Jan-2013
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: DOLIBAR
 Total Contracted Amount (THB): 1,860,000

Strategic Planning Workshop

Duration: 1-Oct-2012 to 31-Jan-2013
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Campaign for Popular Education (Bangladesh)
 Total Contracted Amount (THB): 329,490.82

Study Tour Program on: Performance-Based System

Duration: 15-Oct-2012 to 17-Jan-2013
 Project Investigator(s): Kanlaya Muangsan
 Sponsor: DFID, Bangladesh
 Total Contracted Amount (THB): 428,000

Good Governance, Leadership and HRM in Public Sector

Duration: 7-Oct-2012 to 9-Jan-2013
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 562,500

Human Resources Management for Oil and Gas Industries

Duration: 8-Oct-2012 to 31-Jan-2013
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Government of Bangladesh
 Total Contracted Amount (THB): 660,000

Green Growth Capacity Development Program in South-East Asian Countries

Duration: 1-Jun-2012 to 29-Jun-2013
 Project Investigator(s): Niramo Ponvilai
 Sponsor: UK Grant
 Total Contracted Amount (THB): 2,313,900

Low Emission Asian Development (LEAD)

Duration: 17-Jun-2012 to 30-Sep-2016
 Project Investigator(s): Merina Lohani Sitoula
 Sponsor: USAID
 Total Contracted Amount (THB): 4,200,000

EDSMAT Young Professional Placement

Duration: 19-Nov-2012 to 21-March-2013
 Project Investigator(s): Furqan Ali
 Sponsor: World Bank Pakistan
 Total Contracted Amount (THB): 1,824,750

Professional Development Program on Strategic Planning and HRD Strategy

Duration: 19-Nov-2012 to 28-Feb-2013
 Project Investigator(s): Warindhorn Srina and Narumon Wangnai
 Sponsor: BPATC, Government of Bangladesh
 Total Contracted Amount (THB): 934,412.50

Agribusiness Management

Duration: 5-Nov-2012 to 14-Feb-2013
 Project Investigator(s): Evanshainia Syiem and Dr. Md. Zakir Hossain
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 959,567

Agricultural Extension Practices

Duration: 19-Nov-2012 to 28-Feb-2013
 Project Investigator(s): Phyu Sin
 Sponsor: Indonesia Agency for Agricultural Research and Dev
 Total Contracted Amount (THB): 762,256

Pump Technology for Flood Control

Duration: 29-Nov-2012 to 4-March-2013
 Project Investigator(s): Worawan Sumroetrum
 Sponsor: EBARA
 Total Contracted Amount (THB): 297,600

Workshop/Seminar and Study Visit on e-Governance

Duration: 21-Nov-2012 to 24-Feb-2013
 Project Investigator(s): -
 Sponsor: Government of Nagaland
 Total Contracted Amount (THB): 610,000

Participatory Integrated Water Resource Project Management

Duration: 3-Dec-2012 to 30-Jun-2013
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 2,029,000

Flood Control, Drainage and Irrigation with Emphasis on Disaster Management

Duration: 16-Dec-2012 to 30-Jun-2013
 Project Investigator(s): Thaniya Jirasathipornpong
 Sponsor: BWDB, Bangladesh
 Total Contracted Amount (THB): 589,200

Sludge Treatment and Odor Control

Duration: 5-Nov-2012 to 12-Feb-2013
 Project Investigator(s): Sufian Atea
 Sponsor: UDC
 Total Contracted Amount (THB): 710,400

Project Management

Duration: 26-Nov-2012 to 14-March-2013
 Project Investigator(s): Faisal Alih
 Sponsor: Multi-donor
 Total Contracted Amount (THB): 1,926,000

Modern Education Leadership and Management

Duration: 19-Nov-2012 to 23-Mar-2013
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: North Western Province, Sri Lanka
 Total Contracted Amount (THB): 607,500

Sustainable Tourism and Environment Protection (STEP) Brazil

Duration: 1-Dec-2012 to 11-March-2013
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 1,050,000

Corporate Governance

Duration: 3-Dec-2012 to 7-March-2013
 Project Investigator(s): Mathew Kuruville
 Sponsor: Bhutan Development Bank
 Total Contracted Amount (THB): 326,250

Construction Project Management

Duration: 26-Nov-2012 to 28-Feb-2013
 Project Investigator(s): Upul Kaluhetti Brahmanage
 Sponsor: Uva Province, Sri Lanka
 Total Contracted Amount (THB): 397,500

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

A.K.M. MAHTAB HOSSAIN, Ph.D. in Electrical and Computer Engineering, National University of Singapore. Master of Engineering (Computer Science), Asian Institute of Technology, Thailand. B.Sc. in Computer Science and Engineering, Bangladesh University of Engineering and Technology (BUET), Bangladesh.

Research Specialist [Mobile Ad Hoc Network; Vehicular ad hoc networking; Network Coding; Localization and Positioning Systems; Internet Mobility (Mobile IP)]

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]

PUJAN SRIVASTAVA, Master of Technology (Information Technology), Indian Institute of Information Technology, Bachelor of Engineering (Electronics & Communication) Agra University

Research Associate [M-learning, Multimedia Communication]

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 2011

TEINS Human Resource Program for 2012

Duration: 1-Jan-2012 to 1-Dec-2012
Project Investigator(s): Kanchana Kanchanasut; Sweet Mae Monteclaro
Sponsor: TEINS/DANTE
Total Contracted Amount (THB): 850,000

APStar Retreat Secretariat 2012

Duration: 1-Jan-2012 to 31-Dec-2012
Project Investigator(s): Kanchana Kanchanasut; Sweet Mae Monteclaro
Sponsor: APIA-APRICOT
Total Contracted Amount (THB): 400,000

AIT support to NUOL 2007 – 2010 Extension: ICT Capacity Building

Duration: 1-Jan-2011 to 30-Jun-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: SIDA
Total Contracted Amount (THB): 330,000

InterLab Training 2011

Duration: 1-Jan-2011 to 29-Feb-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: Multi donors

Total Contracted Amount (THB): 1,500,000

Asian Internet Engineering Conference 2011

Duration: 1-Jan-2011 to 31-March-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: Multi donors
Total Contracted Amount (THB): 800,000

TEIN3 Human Resource program for 2011

Duration: 1-Dec-2010 to 29-Feb-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: TEIN3/DANTE
Total Contracted Amount (THB): 1,200,000

UniChannel: Distance Education Infrastructure on UniNet-Phase II

Duration: 1-Aug-2010 to 31-Dec-2012
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: UniNet (MOE/RTG)
Total Contracted Amount (THB): 2,000,000

Epidemic Protocol for Car Talk

Duration: 1-Aug-2009 to 31-Dec-2012
Project Investigator(s): Kanchana Kanchanasut, Teerapat Sanguankotchakom
Sponsor: National Electronics and Computer Technology Center, Thailand
Total Contracted Amount (THB): 1,970,000

CanalAVIST (Initial Phase)

Duration: 1-Dec-2007 to 31-Dec-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: DANTE
Total Contracted Amount (THB): 729,440.49

CanalAVIST (Initial Phase)

Duration: 1-Dec-2007 to 31-Dec-2012
Project Investigator(s): Kanchana Kanchanasut
Sponsor: DANTE
Total Contracted Amount (THB): 729,440.49

7.7 On-going Grants and Sponsored Research

DTNC-CAST: A DTN-NC Overlay Service for many-to-many Bulk file Dissemination Among OS:R-Driven Mobile Ad Hoc Network Partitions for Disaster Emergency Responses

Duration: 1-Feb-2012 to 30-Jun-2013
Project Investigator(s): Kanchana Kanchanasut, Apinun Tunpan
Sponsor: Silicon Valley Community Foundation (Cisco University Foundation)
Total Contracted Amount (THB): 1,600,000

IntERLab Training 2012

Duration: 1-Jan-2012 to 31-May-2013
Project Investigator(s): Kanchana Kanchanasut, Sweet Mae Monteclaro
Sponsor: TEINS Engineers, Network Engineers
Total Contracted Amount (THB): 3,200,000

Asian Internet Engineering Conference 2012

Duration: 1-Jan-2012 to 28-Feb-2013
Project Investigator(s): Kanchana Kanchanasut, Sweet Mae Monteclaro, Rey Padilla
Sponsor: Researchers/Engineers interested in internet Technologies
Total Contracted Amount (THB): 700,000

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.

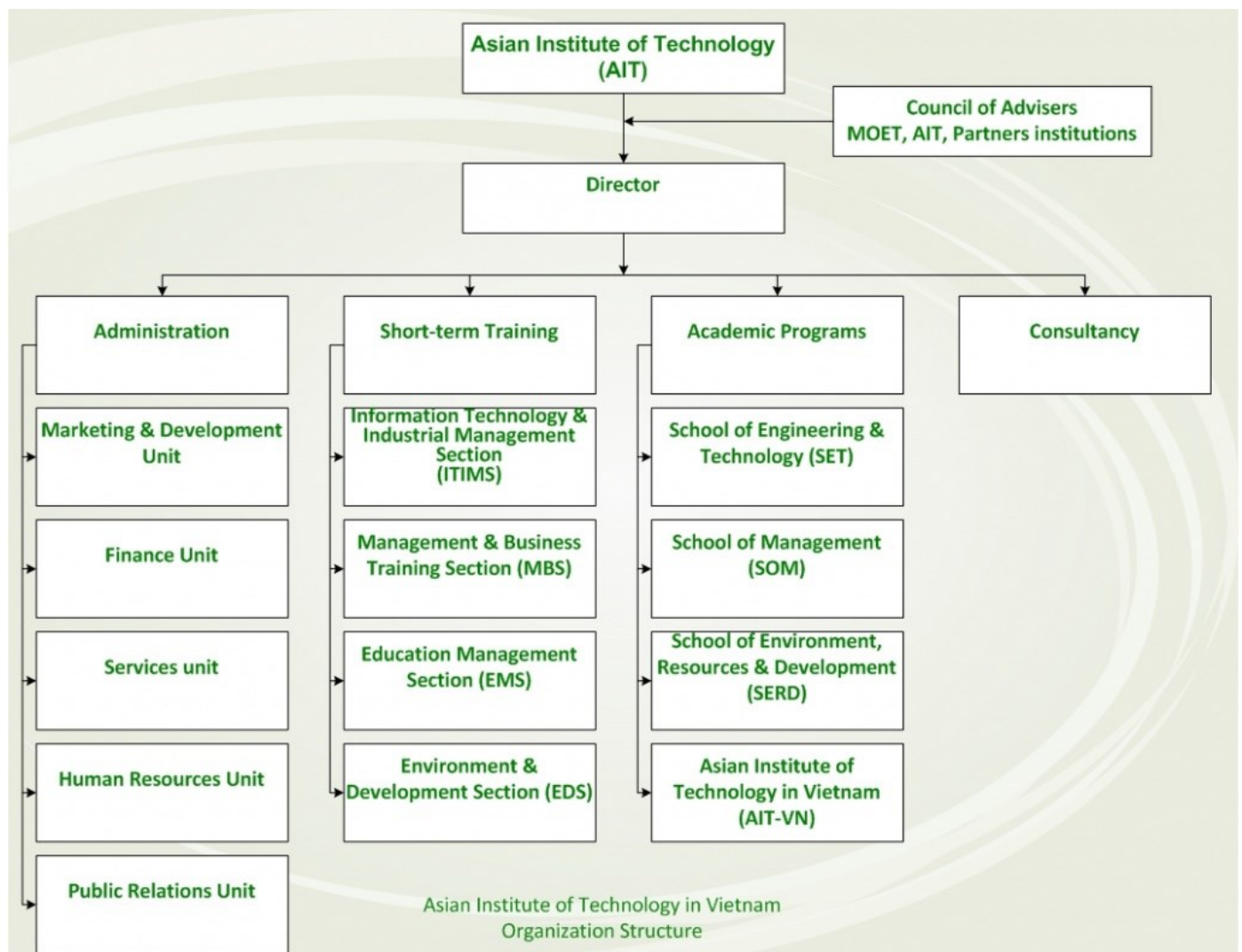
Vision

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.

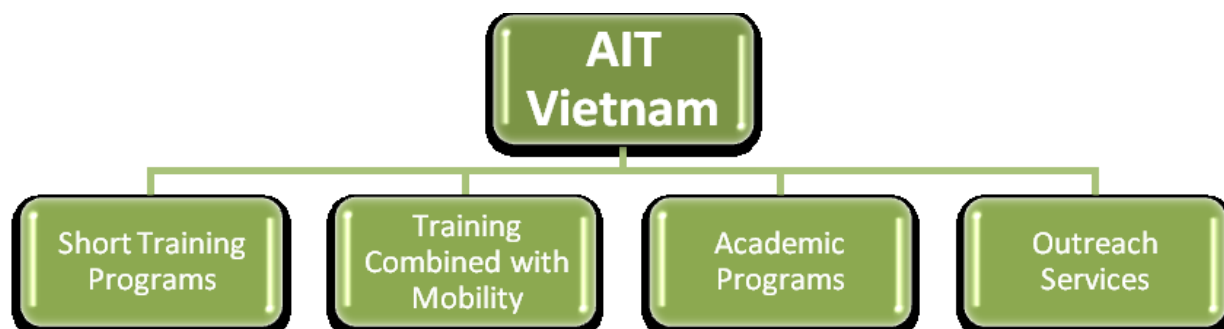
Mission

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.

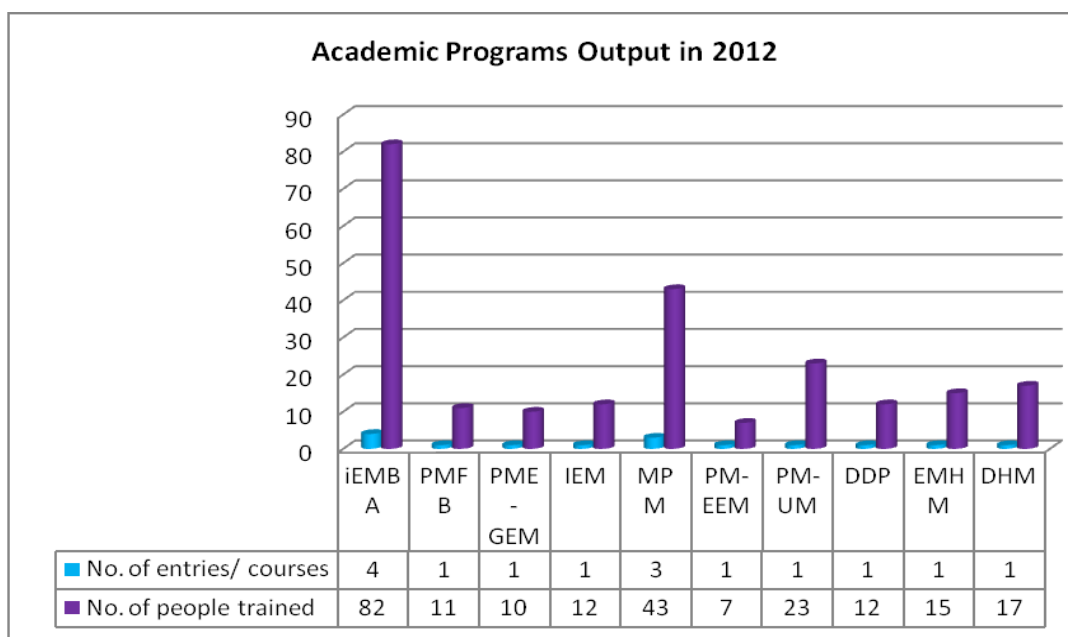
No.	Program	Section
1	International Executive Master of Business Administration (iEMBA)	Business and Management
2	Professional Master in Hospitality Management	
3	Professional Master in Environmental Engineering and Management (EEM)	Environment & Development
4	Executive Master in Development Policies 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 2012

OVERVIEW



8.3.1 In collaboration with SOM

Program	Participants	Location
The 13.1 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	Hanoi
The 13.2 entry of iEMBA program with a specialization on Energy Management	20 participants from three big power players in Vietnam such as EVN, VINACOMIN and PVN. This program was sponsored by Norwegian Electricity Corporation	Hanoi
The 9th entry of iEMBA program	29 participants, mostly come from big companies in Vietnam like PV Oil, Cuu Long JOC, HCMC Power Corporation, Co-Op mart, Holcim Vietnam Ltd., ...and some private and international companies	HCMC
The 5th classes of iEMBA	20 participants in this class. Most of them came from Vietsovpetro, JVPC and other petroleum companies in Vungtau.	Vung Tau
Professional Master in Finance, Banking and Information Management (PM-FBIM)	11 participants from foreign and private banks in Vietnam, such as: Eximbank, HSBC, ...	HCMC

8.3.2 In collaboration with SET

Program	Participants	Location
Professional Master of Engineering in Geo-Engineering and Management (PME-GEM)	10 (9PME;1 Certificate)	Hanoi
Professional Master Program in Industrial Engineering & Management (IEM)	12 participants	HCMC
Professional Master Program in Project Management specialized in Construction (MPM)/ 2 stage Master/PhD Program in Construction, Engineering and Infrastructure Management (CEIM)	21 (20 MPM; 1 CEIM)	HCMC
Professional Master Program in Project Management specialized in Construction (MPM)/ 2 stage Master/PhD Program in Construction, Engineering and Infrastructure Management (CEIM)	9 (8 MPM; 1 CEIM)	Hanoi
Professional Master Program in Project Management specialized in Construction (MPM)	13 participants	Can Tho

8.3.3 In collaboration with SERD

Program	Participants	Location
Professional Master Program in Environmental Engineering & Management (PM-EEM)	7 participants from Petrolimex, Vinamotor & other private companies.	HCMC
Professional Master in Urban Management Program (PM-UM)	23 participants from Dept. of Construction, Dept. of Planning & Investment, Dept. of Urban Management, PC of provinces (HCM, Binh Duong, KienGiang, An Giang, Ca Mau, Dong Thap, NinhThuan, KhanhHoa, Dong Nai....)	HCMC

8.3.4 In collaboration with OTHERS

Program	Participants	Location
Executive Master in Development Policies & Practices (DDP) - (Joint with IHEID-Switzerland)	12 participants from public sector, NGO of 4 countries: Mianma, Cambodia, Laos & Vietnam	Hanoi
Executive Master Program in Hospitality Management (EMHM)	15 participants from SaigonTouristCorporation	HCMC
Certificate in Hotel Management (DHM)	17 participants from SaigonTouristCorporation	HCMC

8.4 AITVN Short Term Courses Completed in 2012

Overview



8.4.1 By Education Management Section (EMS)

No.	Courses/ Services	Clients	No. of people trained	Location
1	Job Interviewing Skills	KEFICO	17	Hai Duong City
2	Performance Appraisal	PANASONIC	12	Hanoi
3	English Bridging Program for Candidates of iEMBA program with specialization in Energy Management (Phase 1)		28	Hanoi
4	English Bridging Program for Candidates of iEMBA program with specialization in Energy Management (Phase 2)		28	Hanoi
5	English Skills for Interpreters	American Embassy	6	Hanoi
6	HR for non-HR managers	Kefico	16	Hai Duong City
7	Introduction to Vietnamese and Vietnamese history and culture for Macquarie University Volunteers	MACQUARIE	9	Hanoi
8	Training of Trainers	TH True Milk Hanoi	22	Hanoi
9	Training of Trainers	TH True Milk HCM	28	HCM City
10	Supervisory Skills	Panasonic	32	Hanoi
11	Advanced Training of Trainers	JICA HUE	11	Hue City
12	Effective Communication Skills	Kefico	40	Hai Duong City
13	Training of Trainers	UBCK	19	Hanoi
14	Contract Negotiation	EPTC	25	Hanoi
Total no. of courses: 14		Total no. of people trained: 293		

8.4.2 By Management Business Section (MBS)

SEQ	Courses/ Services	Clients	No. of people trained	Location
1	Leadership Skills	Lux Development Project	15	Hanoi
2	Banking Administration for Finance Department-BIDV (Asset and Liability Management, Finance management, Strategic Management)	BIDV	50	Da Nang
3	Training program on Urban Planning and Public Administration	Dong Da District	18	Berlin
4	Advanced Project Management	Cuu Long JOC	20	HCMC
5	Advanced Human Resource Management	Open	8	HN
6	Work Organization and Time Management	TH True Milk	20	Hanoi
7	Work Organization and Time Management	TH True Milk	30	HCMC
8	Project Management	BIDV	40	Hanoi
9	Management Skills for HRM (HRM and Office Administration)	BIDV	40	Hanoi
10	Management Skills for HRM (HRM and Office Administration)	BIDV	40	HCMC
11	Organization and Communication Skills	JPP Project	30	PhuQuoc
12	Training program for VNU (Strategic Talent management, Building High Performance Team)	VNU	25	Bangkok
Total no. of courses: 12		Total no. of people trained: 336		

8.4.3 By Environment & Development Section (EDS)

SEQ	Courses/ Services	Clients	No. of people trained	Location
1	Study tour on Clay Brick and Tile	USAID-funded Cambodia MSME/DAI	18	HCM City, Binh Duong, Dong Nai, Vinh Long
2	International Trade Environment for Fruit and Vegetables	College of Management for Agriculture and Rural Development (CMARD2)	15	HCMC
3	International Trade Environment for Pepper	College of Management for Agriculture and Rural Development (CMARD2)	16	HCMC
4	Budgeting and Financial Management in Development projects	Open	6	Hanoi
5	International Technology and Governance Mission - Aquaculture Hatchery Management - to Vietnam	USAID-funded Cambodia MSME/DAI	12	HCMC, Dong Nai, TienGiang, An Giang, Can Tho, Ben Tre
6	Project Planning and Management	Open	13	Hanoi
7	Climate change: Basic understanding and current issues	Open	6	Hanoi
8	Fund Raising and Resources Mobilization	Open	8	Hanoi
9	Environmental Policy Analysis and Assessment	Open	11	Hanoi
10	International Governance and Technology Mission for Cambodian Slaughterhouse Owners and Department of Animal Health and Production Officers to Ho Chi Minh, Vietnam	USAID-funded Cambodia MSME/DAI	22	HCMC
11	Participatory Monitoring and Evaluation	Open	8	Hanoi
12	International Technology and Governance Mission to Viet Nam to Learn About Improved Feed Making Machines	USAID-funded Cambodia MSME/DAI	22	HCMC and neighboring provinces
13	Program Management and Coordination	Denmark Embassy	30	QuangNinhNinhBinh
14	International Negotiation	ADB	21	Hanoi
15	Development Project Formulation and Proposal Writing	HIV/AIDs Project in HCMC	20	Hanoi
16	Training-cum-study tour on "Forestry and Biodiversity Conservation"	Tropical Forest Foundation (TFF)	7	Thailand
17	International Negotiation for GMS Learning Cooperation Program	ADB Phnom Penh Plan for Development Management	25	Hanoi
18	Advanced Method	Open	10	Hanoi
19	Public Relation and Fundraising	Project Football for All in Vietnam (FFAV)	30	Hue
20	Project Monitoring and Evaluation	Vietnamese Land Administration Project VLAP/MONRE	20	Hanoi
21	Project Monitoring and Evaluation	Vietnamese Land Administration Project VLAP/MONRE	25	BinhDinh
22	Project Monitoring and Evaluation	Vietnamese Land Administration Project VLAP/MONRE	20	Ben Tre
Total no. of courses: 22		Total no. of people trained: 365		

8.4.4 By Information and Technology and Industrial Management Section (ITIMS)

	Courses/ Services	Clients	No. of people trained	Location
A. OPEN COURSE				
1	Warehouse Management and Control		8	Ha Noi
2	Supply Chain Management and Logistics	Open	9	HCMC
3	Spare-part inventory management	Open	14	HCMC
4	Data Analysis and Presentation using Excel	Open	8	HCMC
5	Material Inventory Management	Open	6	HCMC
B. CUSTOMIZED				
6	Supervisory Skill	TH Truemilk	27	Ha Noi
7	Management skills for managers	Bim Son Cement	31	Ha Noi
8	Advanced Maintenance Management	PVD Training	25	Vung Tau
9	Production Planning and Scheduling	OBF	20	BinhPhuoc
10	Management Skill for Leaders	Ha Tien 1	32	HCMC
11	Effective Management	Ca Mau	31	Ca Mau
12	Data Analysis and Presentation using Excel	PV Drilling	18	HCMC
13	Project management	Keppel Land	25	HCMC
14	Spare-part inventory management & Advanced Maintenance Management	pvp- Ca Mau	20	HCMC
15	Spare-part inventory management & Advanced Maintenance Management	pvp- Ca Mau	20	HCMC
16	Data Analysis and Presentation using Excel	Coca Cola	23	HCMC
17	Maintenance Planning & Management in Petroleum Industry	Vietsovetro	15	HCMC
C. TRAINING CUM STUDY TOUR				
18	Training cum study visit program: Urban Development Planning and Management	Local Government Division Ministry of LGRD & Co. Government of Bangladesh	20	Germany - Austria - Italy
19	Monitoring and Evaluation of Infrastructure Development projects	Local Government Division Ministry of LGRD & Co. Government of Bangladesh	8	Vietnam - China
20	Development of Management & Leadership in the Public Sector	Local Government Division Ministry of LGRD & Co. Government of Bangladesh	6	China - Malaysia
Total no. of courses: 20		Total no. of people trained: 366		

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: SPIN VCL – Sustainable Product Innovation in Vietnam, Cambodia and Laos	Approx. value of the contract (in current US\$ or Euro): US\$ 3,820,000
Country: Vietnam, Cambodia and Lao	Duration of assignment (months):
Client: 500+ SMEs in recipient countries and local partners	Total No of staff-months of the assignment: 10
Origin of funding: EU – DG Development and Co-operation	Name of consortium members, if any: AITVN TUDelft VNCPC VCCI LNCCI NCPO Cambodia UNEP
Start date - Completion date (month/year): Jan 2010–Dec 2013	
Name of associated Consultants, if any: none	
Narrative description of Project: The specific objective of SPIN is that by the end of the action, Sustainable Product Innovation will be a proven approach in at least 500 companies in 5 of the most relevant industrial sectors in Vietnam, Laos and Cambodia (food processing including packaging, textiles, footwear, handicraft and furniture) The Target Groups of the project are - At least 500 SMEs in the 5 sectors; Governmental institutions responsible for	

<p>environmental & innovation policy (at least 30)</p> <p>Final beneficiaries of the project are Sector organisations, chambers of commerce and other intermediate business organisations, at least 20 of them actively involved in the project. Other sectors, SMEs not involved in the project, NGOs, workers and consumers.</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 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> Leading all training and capacity building activities, incl. training preparation and delivery, both for train the trainer workshops and for the innovation and marketing training activities for industry. Senior staff contribution to technical and design implementation of Sustainable product Innovation in industry, specifically on the agro-food and energy related company projects in SPIN.</p>

<p>Project 4: GetGreen Vietnam: Sustainable Consumption in Vietnam</p>	<p>Approx. value of the contract (in current US\$ or Euro): US\$ 1,850,000</p>
<p>Country: Vietnam</p>	<p>Duration of assignment (months):</p>
<p>Client: Consumer groups in Vietnam</p>	<p>Total No of staff-months of the assignment: 6</p>
<p>Origin of funding: EU – DG Development and Co-operation</p>	<p>Name of consortium members, if any: AITVN</p>
<p>Start date - Completion date (month/year): Jan 2011 – Dec 2014</p>	<p>TU Delft VNCPC</p>
<p>Name of associated Consultants, if any: none</p>	<p>VCCI</p>
<p>Narrative description of Project:</p> <p>GetGreen Vietnam has as specific objectives:</p> <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>	

Description of actual services provided:

TU Delft Valorisation Centre: 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.

TU Delft Faculty of Industrial Design: 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.

AIT in Vietnam: 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.

8.6 Highlights in 2012

- 25th Meeting - AIT Vietnam Council of Advisors
- AIT Delegation Meets with Vietnam Ministry of Education and Training
- The Socialist Republic of Vietnam has become the eighth country to join the Council of the Asian Institute of Technology (AIT)
- AITVN diversified its portfolio by successfully bidding and implementing external projects (HFIC, SPIN, GetGreen...)
- New iEMBA Scholarship Scheme for AIT Vietnam staff
- AIT Vietnam International Day
- AIT Vietnam Staff Retreat 2012
- AIT Alumni Vietnam - Remembering our good-old-days at AIT

Chapter 9: CENTER OF EXCELLENCE ON SUSTAINABLE DEVELOPMENT IN THE CONTEXT OF CLIMATE CHANGE (Coe SDCC)

9.1 Background

Sustainable development has been part of AIT's continuous education and research efforts over the last five decades in the Asian region. The Institute has responded rapidly to the new challenges the region faces. Climate change is a global challenge and concerted trans-disciplinary efforts are required to develop new adaptation and mitigation strategies which will provide local communities more resilience while leading towards a more sustainable society. Based on the strength of AIT's research and experience, the Centre of Excellence on Sustainable Development in the Context of Climate Change (SDCC) was established on 24 September 2009 to support AIT's mission in playing leading role in the sustainable development of Asian region through creation of a niche that will harness the institute's range of network, experience and expertise. The Centre consolidates the Institute's research efforts and broadens the 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.

Since its inception, the SDCC has been playing its role in supporting AIT's role as an institute working in climate change platform in the region through maximizing the institute's research resources as well as its broad network. The five thematic research areas under SDCC are:



1. Disaster Risk Management (DRM)
(Thematic leader: Dr. Manzul Hazarika)
Specific Objective: To increase the capacities of Asian countries in conducting disaster risk assessments and management.



2. Sustainable Land and Water Resources Management (SLWRM)
(Thematic leader: Dr. Prabhat Kumar)
Specific Objective: To increase the co-generation and adoption of technological solutions that can address climate induced bio-physical and socio-economic challenges in Asia.



3. Business and Innovation Models for a Green Economy (BIMGE)
(Thematic leader: Dr. Yuosre Badir)
Specific Objective: To improve the efficacy of Asian businesses in their

contributions towards climate change adaptation.



4. Urban and Rural Quality of Life and Sustainability (URLS)
(Thematic leader: Dr. Edsel Sajor)
Specific Objective: To increase the use of technological and social applications by governments and industry, to improve the quality of life of the urban and rural populations of Asia.



5. Low Carbon and Sustainable Production & Consumption Technologies & Management (LCSPC)
(Thematic leader: Prof. Sivanappan Kumar)
Specific Objective: To increase adoption of policies and technologies towards a cleaner environment and sustainable energy access in Asia.
The center activities are managed by a senior program officer working under the leadership of the Institute's Vice-President for Research. SDCC is involved in working closely with AIT faculty, researchers, students and external

partners according to the needs and requirements of the type of work / projects. Senior Program officer manages the daily activities of center and liaisons routinely with five thematic groups headed by Institute wide five thematic team leaders.

9.2 Research activities carried out in the year 2012

Alternate University Appraisal (AUA); Education for Sustainable Development in Asia Pacific Universities

Alternate University Appraisal (AUA) project was launched in 2009 as a joint initiative of ProSPER.Net member institutions. The objective of the project was to enhance the recognition of Education for Sustainable Development (ESD) practices at universities to promote ESD and to create ESD learning & supporting community to improve their practices. During the third year of project, AIT along with consortium members aimed to create an instrument that recognizes good practices by universities when promoting and adopting education for sustainable development principles (AA) System, through developing "AUA Benchmarking Indicators" and refining the AUA Peer-Consultation System, especially in the outreach benchmarking part.

Linking Development Policy and Climate Change for Mekong region and Nepal

CoE -SDCC collaborated with the Finnish Environment Institute (SYKE) for a project on "Policy Learning in four countries from Mekong region and Nepal." The study aimed on policy learning by linking the development policy and climate change in Finland's relations with developing countries. The objective of project was to support the Ministry for Foreign Affairs of Finland (MFA) and other relevant ministries in

their efforts to integrate poverty reduction and climate change responses.

The project was completed in the year 2012. The study concluded that there is currently inadequate information available on the poverty and climate impacts of Finland's development cooperation.

Technology Needs Assessment (TNA)-Adaptation & Mitigation

AIT as Regional center -Adaptation & Mitigation for Asia & Eastern European countries under the Coe-SDCC & LCSPC group provided technical support and capacity building inputs to 14 participating countries. Country progress on prioritizing technologies in adaptation & mitigation sector, preparation of technology action plans and technology fact sheets was supported by the team members while undertaking country missions and providing continuous support through help desk (Coe-SDCC secretariat & LCSPC secretariat) during the year 2012.

9.3 New projects initiated in year 2012

- A. Mishra and P. Kumar, Sustaining and Enhancing the Momentum for Innovation and Learning around System of Rice Intensification (SRI) in Lower Mekong River Basin, funded by European commission.
- B. Resurreccion and E.Sajor, Adapting to Climate Change in Peri-Urban Southeast Asia, funded by IDRC Ottawa.
- P. Kumar, A.Mishra, A.Anal and W.Gallardo, Save Food Asia, funded by FAO RAP, Thailand.
- S. Dhakal and S. Shrestha, Energy-carbon-water nexus, funded by Asia Pacific Network, Japan.
- S. Kumar, Capacity Development on Clean Coal Technology and Carbon Sequestration, funded by

ADW, Inc/NexGen Systems Corporation, USA.

9.4 Organization of conferences/workshops in year 2012

- Technology Needs Assessment Second Regional Capacity Building workshop in Asia, February 2012, Bangkok, Thailand.
- Technology Needs Assessment Experience Sharing workshop, September 2012, Bangkok, Thailand.
- 9th AUA core member meeting and one day workshop to finalize the benchmarking indicators, April 2012, Bangkok, Thailand.
- Co-organized a training program on 'GIS for Disaster Risk Management' in collaboration ADCP (Thailand), ITC (Netherlands), and UNOSAT (Switzerland), May 2012, Bangkok, Thailand.
- Co-organized training at AIT with the United Nations University (UNU) on climate change down scaling, November 2012, Thailand.
- Co-organized an Asia Pacific High Level Regional Consultation along with FAO-RAP on the theme of "Food Losses and Food Waste."

9.5 Participation in regional public forums

- E. Sajor, Expert Group Meeting of the UN-HABITAT, UN-ESCAP and Rockefeller Foundation, July 2012, Surabaya, Indonesia.
- M. Hazarika, International workshop to finalize the Sri Lanka National Hazard Profiles and identify ways of mainstreaming the

information in Sri Lanka, October 2012, Sri Lanka.

- M. Hazarika, Importance of disaster risk assessment for compensatory risk assessment in agricultural insurance sector in Aon Benfield Asia Pacific Agricultural Reinsurance and Insurance Conference, April 2012, Bangkok, Thailand.
- M. Hazarika, Intergovernmental Meeting on Asia-Pacific Years of Action for Applications of Space Technology and the Geographic Information System for DRR and Sustainable Development, December 2012, UNESCAP, Bangkok, Thailand.
- P. Kumar, Climate Change Adaptation by Smallholder Farmers to Enhance Water Use Efficiency: Experiences from AIT's works in Asia. Climate Change Adaptation: Reducing Vulnerabilities in the water sector of Mongolia, Ministry of Environment and Green Development and GIZ supported, 17-18 October 2012, UB Hotel, Ulaanbaatar, Mongolia.
- P. Kumar, J. W. Ketelaar and A. Abubakar. 2012. Experiences of Area-Wide Promotion and Adoption of Fruit Fly IPM-FFS from

SE Asia: Lessons for smallholder horticultural production in South Asia. GLOBAL CONFERENCE on "Horticulture for Food, Nutrition and a livelihood option", 29-31 May 2012, Bhubaneshwar, Odisha, India.

- S. Kumar, Sustainable Energy Futures 2012 and 10th SEE Forum Innovations for Sustainable and Secure Energy, 21-23 November 2012, Brunei Darussalam.

9.6 Other activities

- Collaborated with UNU to develop a module on impacts of climate change in disasters (such as flood) as well as agricultural production, November 2012.
- Developed a road map for activities to be undertaken in next three years between AIT and FAO to cover entire gamut of research, development and academic collaboration, November 2012.
- Assisted UNU-CECAR in their renewable energy on-line course development and curriculum, May 2012.

- Assisted VPAA in preparing a proposal for SIDA titled "A Regional Platform for Research on Lower Carbon and Sustainable Production and Consumption Technologies and Management in South-East Asia", September 2012.

Web links

- www.lcspc.ait.ac.th
- www.sdcc.ait.asia

9.7 CoE-SDCC Plans for the year 2013

1. Continuing the current research projects.
2. Approaching new research projects related to SDCC mandate

Chapter 10: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS

10.1 Grants and Sponsored Research Completed in 2012

Development planning management and governance

Duration: 9-Jan-2011 to 28-Feb-2012
Project Investigator(s): Sandro Calvani, Lal Samarakoon
Sponsor: State Govt of Manipur India
Total Contracted Amount (THB): 2,244,600

Sustainable Management of the Bay of Bengal large marine ecosystem

Duration: 1-Aug-2011 to 28-Feb-2012
Project Investigator(s): Theo Ebbers
Sponsor: FAO
Total Contracted Amount (THB): 3,144,900

Comprehensive Programme to enhance Engineering Technology and Science Education in Asia

Duration: 1-Jan-2012 to 15-Apr-2012
Project Investigator(s): Theo Ebbers
Sponsor: UNESCO Jakarta Office
Total Contracted Amount (THB): 1,012,200

Asia Pacific International Model Institutions

Duration: 1-Sep-2011 to 30-Oct-2012
Project Investigator(s): Sandro Calvani
Sponsor: AIT/Multi donors
Total Contracted Amount (THB): 1,498,512

URC TNA Project

Duration: 9-Sep-2010 to 30-Apr-2012
Project Investigator(s): Sudip Kumar Rakshit
Sponsor: UNEP Riso Center Denmark
Total Contracted Amount (THB): 4,516,024

Wetland Alliance Aqua Outreach Program

Duration: 1-Jun-2009 to 31-Dec-2012
Project Investigator(s): Theo Ebbers
Sponsor: SIDA

Total Contracted Amount (THB): 11,086,333.16

Wetland Alliance Secretariat

Duration: 1-Jun-2009 to 31-Dec-2012
Project Investigator(s): Hans Guttman
Sponsor: SIDA
Total Contracted Amount (THB): 18,529,145.16

Training Workshop Thematic Research on Gender mainstreaming and Economic empowerment

Duration: 6-Feb-2009 to 15-Jun-2012
Project Investigator(s): Jayant K Routray
Sponsor: UNIFEM
Total Contracted Amount (THB): 1,650,000

Workshop on "Doing Business in Africa"

Duration: 1-Sep-2007 to 31-Dec-2012
Project Investigator(s): Vilas Wuwongse
Sponsor: Ministry of Foreign Affairs (MFA) Thailand
Total Contracted Amount (THB): 2,194,280

Capacity Building of Faculty of Engineering, Balkh University, Afghanistan

Duration: 1-Jan-2008 to 30-Jun-2012
Project Investigator(s): Naveed Anwar
Sponsor: Ministry of Foreign Affairs (MFA) Thailand
Total Contracted Amount (THB): 42,979,260

10.2 On-going Grants and Sponsored Research

Project Monitoring and Evaluation for Local Governance and Decentralization Focused including Poverty Reduction and Millenium Development Goals (MDGs)

Duration: 15-Oct-2012 to 14-Apr-2013
Project Investigator(s): Sandro Calvani
Sponsor: UNDP
Total Contracted Amount (THB): 612,000

Mekong region waste refinery: Inetrnational partnerships towards Zero waste Zero landfill and reduce greenhouse gas emission

Duration: 20-Sep-2011 to 31-May-2013
Project Investigator(s): Muhammad Abu Yusuf
Sponsor: EEP Mekong
Total Contracted Amount (THB): 8,406,000

Improving Marine Protected Area management in Thailand

Duration: 1-Dec-2011 to 1-Aug-2013
Project Investigator(s): Theo Ebbers
Sponsor: FAO
Total Contracted Amount (THB): 1,132,000

SYKE - Policy Learning

Duration: 1-May-2011 to 31-July-2013
Project Investigator(s): Sudip K Rakshit, Sangam Shrestha
Sponsor: Ministry of Foreign Affairs of Finland
Total Contracted Amount (THB): 1,504,404

Chapter 11: OVERVIEW OF RESEARCH ACTIVITIES FOR 2012

Overall during the period January to December of 2012 there were **434** 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 **516** 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	54	50	104	115	98	9	4	226
CS/IM	4		4	6	12			18
CEIM	3	4	7	5				5
GTE	6	5	11	3	10	6		19
IME	6	5	11	22	11			33
Mech/MES	4	9	13	4	17	1	1	23
Nano	5	1	6	19	12	1		32
RSGIS	5	11	16	7	10			17
StE	4	3	7					
TC				9	10			19
TrE		4	8	6	1			7
WEM	13	8	21	34	15	1	3	53
OTM								
SERD	30	78	108	120	67	41	41	269
SERD		2	2					
ASE	1	1	2	10	14		2	26
AARM	2	2	4	7	8	2	2	19
E	9	12	21	17	1	5	24	47
EEM	9	24	33	23	23	18	3	67
FEBT	3	5	8	18	12	1		31
GDS	2	18	20	7	4	8	5	24
NRM	3	7	10	10	4	2	4	20
PPT			0					0
RRDP	1		1	18		3	1	22
UEM		6	6	9	1	2		12
ABM		1	1	1				1
DPMM	1	2	3					
SOM	4	22	26	14	6		1	21
intERLab	10	3	13					0
AIT Ext	111	32	143					0
SDCC	3	5	8					0
Inst-wide	21	8	29					0
TOTAL	234	200	434	249	171	50	46	516

For the same period January to December of 2012 there was a total of **103** 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 **585** 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	47	181	40	39	4	264
CS/IM	16	11	8			19
CEIM	1	15	1	28		44
GTE	1	18	12			30
IME	3	18		11		29
Mech/MES		6				6
RSGIS	7	18				18
StE	2	11				11
TC	2	6	2			8
TrE	2	10	1			11
WEM	3	20	2			22
ICT	3	6	3			9
OTM		9			4	13
IM	2	6	11			17
ME	1	21				21
MI	1	2				2
NT	3	4				4
SERD	38	162	12	0	0	174
ASE	3	5				5
AARM	3	10	1			11
E	5	21				21
EEM	5	28	7			35
FEBT	8	22				22
GDS	2	15	1			16
NRM	5	17				17
PPT		10	2			12
RRDP	3	11				11
UEM	4	7				7
ABM		16	1			17
DPMM		6				6
SOM	18	14	8	119		141
TOTAL	103	363	60	158	4	585