



AIT
Asian Institute of Technology



ANNUAL REPORT ON RESEARCH **2009**



AIT Annual Report on Research 2009

PREFACE

The Asian Institute of Technology celebrated its Golden Jubilee last year. Based on the achievements and experiences and the rapidly changing needs of the region and indeed the world, the institute realizes that there is an urgent need to adapt and position ourselves to meet the coming decades. While higher education demands in the region are expected to expand, there is also increased number of good educational institutions and mobility of students all over the world in pursuit of their interests and thirst for knowledge. While academic quality is important in any institute, such organizations have long term recognition based on the research and development activity that is carried out and brings benefit to society. It is with this background that AIT plans to consolidate its research and build stronger inter-disciplinary teams, bring greater focus to research and develop new strong partnerships to face up to the emerging needs of the region and beyond.

The past year has been a successful year with about thirty percent increase in the number of sponsored projects and there being an increased number of projects which have built on partnerships with external and internal trans-disciplinary partners. After considerable deliberation inside the institute a Center of Excellence in “Sustainable Development in the context of climate change” was launched. The six themes under this umbrella area has been agreed to be Vulnerability and Risk Reduction, Adaptation and Livelihood Strategies, Urban and Rural Sustainability, Water and Food Security, Energy Security and Low Carbon Society, Cleaner Production and Waste Refining. During the launch of this centre external partners and AIT faculty and staff deliberated on some of the research needs in the near and middle term future. This will be further elaborated further to include the emerging areas like climate science to determine local societies which are more vulnerable while working on adaptation and mitigation options which are urgently needed.



While the institute debates a new financial model to bring stability and sustainability to the institute, it has also created an AIT Strategy document which highlights present strengths and future needs. The activities include developing a research strategy for the institute. The latter is being developed and will include four major components, namely, focus of research, research quality, partnership and collaboration and fund raising for developing capacity and infrastructure which will attract some of the best researchers to the institute. In order to do this in a systematic manner a Results Based Management (RBM) approach is being used. It is hoped that this will be used in the future to hold discussions with various stake holders which will include donors, government agencies and the private sector so that AIT can serve as a platform for innovative research and development.

We take this opportunity to thank all faculties, staff, students and indeed the vast variety of external partners who made our achievements possible. We look forward to increased collaboration and partnership to expand the knowledge base we have created and improve the quality of life of those who those most need it.

Professor Sudip K Rakshit
Vice President for Research
June 2010

TABLE OF CONTENTS

PREFACE	i
TABLE OF CONTENTS	ii
Chapter 1: INTRODUCTION	1
Chapter 2: SCHOOL OF ENGINEERING AND TECHNOLOGY	3
Chapter 3: SET – COMPUTER SCIENCE and INFORMATION MANAGEMENT FIELDS OF STUDY	7
Chapter 4: SET – CONSTRUCTION, ENGINEERING AND INFRASTRUCTURE MANAGEMENT FIELD OF STUDY	13
Chapter 5: SET – GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING FIELD OF STUDY	17
Chapter 6: SET – INDUSTRIAL AND MANUFACTURING ENGINEERING FIELD OF STUDY	23
Chapter 7: SET – MECHATRONICS and MICROELECTRONICS FIELDS OF STUDY	31
Chapter 8: SET – REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS FIELD OF STUDY	39
Chapter 9: SET – STRUCTURAL ENGINEERING FIELD OF STUDY	45
Chapter 10: SET – TELECOMMUNICATIONS FIELD OF STUDY	51
Chapter 11: SET – TRANSPORTATION ENGINEERING FIELD OF STUDY	57
Chapter 12: SET – WATER ENGINEERING AND MANAGEMENT FIELD OF STUDY	63
Chapter 13: SET – INFORMATION AND COMMUNICATIONS TECHNOLOGIES AREA OF STUDY	71
Chapter 14: SET – OFFSHORE TECHNOLOGY AND MANAGEMENT PROGRAM	73
Chapter 15: SCHOOL OF ENVIRONMENT, RESOURCE AND DEVELOPMENT	75
Chapter 16: SERD – AGRICULTURAL SYSTEMS AND ENGINEERING FIELD OF STUDY	77
Chapter 17: SERD – AQUACULTURE AND AQUATIC RESOURCES MANAGEMENT FIELD OF STUDY	81
Chapter 18: SERD – ENERGY FIELD OF STUDY	85
Chapter 19: SERD – ENVIRONMENTAL ENGINEERING AND MANAGEMENT FIELD OF STUDY	89
Chapter 20: SERD – FOOD ENGINEERING AND BIOPROCESS TECHNOLOGY FIELD OF STUDY	101
Chapter 21: SERD – GENDER AND DEVELOPMENT STUDIES FIELD OF STUDY	107
Chapter 22: SERD – NATURAL RESOURCES MANAGEMENT FIELD OF STUDY	111
Chapter 23: SERD – PULP AND PAPER TECHNOLOGY FIELD OF STUDY	115
Chapter 24: SERD – REGIONAL AND RURAL DEVELOPMENT PLANNING FIELD OF STUDY	119
Chapter 25: SERD – URBAN ENVIRONMENTAL MANAGEMENT FIELD OF STUDY	121
Chapter 26: SERD – AGRIBUSINESS MANAGEMENT PROGRAM	127
Chapter 27: GENDER, TRANSPORTATION AND DEVELOPMENT AREA OF STUDY	129
Chapter 28: SCHOOL OF MANAGEMENT	131
Chapter 29: AIT EXTENSION	143
Chapter 30 : INTERNET EDUCATION AND RESEARCH LABORATORY (intERLab)	149
Chapter 31: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS.....	153
Chapter 32: AIT – VIETNAM	153
Chapter 33: OVERVIEW OF RESEARCH ACTIVITIES FOR 2009	161
Chapter 34: AIT Masters Theses Competition 2009	163

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: SCHOOL OF ENGINEERING AND TECHNOLOGY

2.1 Mission

School of Engineering and Technology (SET) is the synergistic integration in November 2005 of the two former Schools, namely, the School of Civil Engineering (SCE) and the School of Advanced Technologies (SAT).

Historically, these two schools came into existence only in January 1993 when the Institute reorganized the need to reform its academic structure from smaller-sized units called "Divisions" to larger bodies named "Schools".

The School of Civil Engineering (SCE) represents the legacy of AIT when it was established with a single field of study in Hydraulics Engineering. Subsequently, other civil engineering fields of study were launched to assist the recovery from the ravages of the Second World War. SCE emphasized on a learning process that combines theoretical problem-solving and real life application of engineering principles. Its research orientation was outward-looking, addressing the actual and anticipated needs of the built environment.

The School of Advanced Technologies (SAT) consisted of fields of study that were launched in response to the needs of the regional industrialization in the second and third decades of AIT's existence. The School was committed to being international, multidisciplinary centers of excellence in Information, Communications, Industrial Systems, and Space Technologies through education, research and outreach.

The new School of Engineering and Technology amalgamating the School of Civil Engineering (SCE) and the School of Advanced Technologies (SAT) will strive to create synergies between the activities of the two former schools to build up world-class multidisciplinary and cross-disciplinary education, research and outreach activities across the boundaries

of traditional fields of knowledge. More interdisciplinary programs shall be launched so faculty members can work effectively across the disciplinary walls. The new school will enhance its academic portfolio by emphatically injecting the "5I" features namely internationality, innovation, integration, information technology and industrial partnership.

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/>.

2.2 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:

- Construction, Engineering and Infrastructure Management (CEIM)
- Geotechnical and Geoenvironmental Engineering (GGE)
- Structural Engineering (StE)
- Transportation Engineering (TrE)

- 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:

- Industrial and Manufacturing Engineering (IME)
- Nanotechnology
- Mechatronics (Mec)
- Microelectronics (Mic)

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:

- Computer Science (CS)
- Information Management (IM)
- Remote Sensing and Geographic Information Systems (RSGIS)
- Telecommunications (TC)

Interdisciplinary Programs

- Offshore Technology and Management (OTM)
- Information and Communications Technologies (ICT)
- Disaster Preparedness, Mitigation and Management (DPMM)
- Gender, Transportation and Development (GTD)

2.3 Strategic Research Areas

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

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

Computer Science and Information Management (CSIM)

Software Engineering and Development; Information and Knowledge Management

Industrial Systems Engineering (ISE)

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

Remote Sensing and Geographic Information Systems (RS&GIS)

Remote sensing (RS); Geographic information system (GIS); Global 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 (StE)

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)

2.4 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/>

Geoinformatics Center

Geoinformatics 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>

International Ferrocement Information Center

IFIC coordinates the activities of the International Ferrocement Society (IFS) including publication of "Journal of Ferrocement", 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>

2.5 School Governance

Deans of School

until 31 August 2009

WORSAK KANOK-NUKULCHAI, BEng (Hon), Chulalongkorn Univ, Thailand; MEng, AIT, Thailand; PhD, Univ of California (Berkeley), USA.

Professor (*Computational Mechanics; Tall Building Static and Seismic Analysis; Bridge Engineering; Genetic Algorithms; Nonlinear Analysis of Structures and Continua; Plate/Shell Structures; Engineering Education; Nanomechanics*)

from 1 September 2009

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 Deans

until 31 August 2009

JOYDEEP DUTTA, PhD, IACS, Calcutta Univ, India; BSc (Hon), MSc, North Eastern Hill Univ, India.

Professor (*Functional materials, nanomaterials, Nanoparticles, selforganisation, Biomimetic processes, Polyelectrolyte deposition, Gas sensors, Bio-sensors, optoelectronic devices*)

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*)

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

Associate Professor (*Tunnelling and other underground excavations in rocks and soils; Slope stability and retaining structures; Landslides; Earth structures and dams; Pile foundations; Buried pipes and culverts*) [*Soft ground tunnelling; Underground excavations in rock; Deep excavations; Land subsidence from deep well pumping; Rock properties*]

from 1 December 2009

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

Associate Professor (*Tunnelling and other underground excavations in rocks and soils; Slope stability and retaining structures; Landslides; Earth structures and dams; Pile foundations; Buried pipes and culverts*) [*Soft ground tunnelling; Underground excavations in rock; Deep excavations; Land*

subsidence from deep well pumping; Rock properties]

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)*)

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*)

2.6 Grants and Sponsored Research Completed in 2009 (ACECOMS)

Nigeria Crossing Bridge

Duration: August 2008 – February 2009
Project Investigator: Dr. Naveed Anwar
Sponsor: Advance Engineering Consultants, Lagos, Nigeria
Total Contract Amount: 1,020,000 Baht

Seismic Acceptance Evaluation of Preuksa Precast Bearing Wall Building System

Duration: May 2008 - May 2009
Project Investigator: Dr. Pennung Warnitchai/ Dr. Naveed Anwar
Sponsor: Preuksa Real Estate Company Ltd.
Total Contract Amount: 950,000 Baht

Structural Design Review of Concrete Silos

Duration: May 2008 - May 2009
Project Investigator: Dr. Naveed Anwar/ Keerati Tunthasuwattana
Sponsor: Siam City Cement Public Co. Ltd.
Total Contract Amount: 480,000 Baht

Structural Design Review of Pelletizer Structure

Duration: July 2008 – August 2009
Project Investigator: Dr. Naveed Anwar/ Keerati Tunthasuwattana
Sponsor: Toyo-Thai Corporation Public Company Limited
Total Contract Amount: 650,000 Baht

Wind tunnel Testing of Gramercy Residences and Knightsbridge Buildings

Duration: July 2008 – August 2009
Project Investigator: Dr. Pennung Warnitchai/ Dr. Naveed Anwar
Sponsor: Century Properties, Inc.
Total Contract Amount: 45,000 USD

Structural Design Review for Investigation of Deflected Slab

Duration: April 2009 – August 2009
Project Investigator: Dr. Naveed Anwar
Sponsor: One Serendra Section D&E P-2B, Ayala Land, Inc.
Total Contract Amount: 6,500 USD

Performance Based Evaluation of Embassy Building in Manila

Duration: July 2009 – August 2009
Project Investigator: Dr. Naveed Anwar
Sponsor: Makati Development Corporation
Total Contract Amount: 7,500 USD

2.7 On-going Grants and Sponsored Research in 2009 (ACECOMS)

Structural Design Review of HP456 Structure

Duration: May 2009 – January 2010
Project Investigator: Dr. Naveed Anwar
Sponsor: Toyo-Thai Corporation Public Company Limited
Total Contract Amount: 250,000 Baht

Structural Design Review of HP3 Structure

Duration: May 2009 – January 2010
Project Investigator: Dr. Naveed Anwar
Sponsor: Toyo-Thai Corporation Public Company Limited
Total Contract Amount: 100,000 Baht

Structural Design Peer Review of 42-Story East Tower at One Serendra Building

Duration: January 2009 – March 2010
Project Investigator: Dr. Naveed Anwar
Sponsor: Toyo-Thai Corporation Public Company Limited
Total Contract Amount: 100,000 Baht

Performance Based Design of 70 Storey Gramercy Residence Building

Duration: July 2008 –
Project Investigator: Dr. Pennung Warnitchai/ Dr. Naveed Anwar
Sponsor: Century Properties, Inc.
Total Contract Amount: 35,000 USD

Performance Based Design of Knightsbridge Building

Duration: February 2009 -
Project Investigator: Dr. Pennung Warnitchai/ Dr. Naveed Anwar
Sponsor: Century Properties, Inc.
Total Contract Amount: 30,000 USD

Structural Peer Review Cluster 1 (Phase 1) Lot G

Duration: November 2009 -
Project Investigator: Dr. Naveed Anwar
Sponsor: Ayala Land Inc.
Total Contract Amount: 30,000 USD

2.8 Publications

Conference Proceedings

J. Chandra, N. Anwar and D. Rayamajhi, "Different Techniques for the Modeling of Post-tensioned Concrete I-Girder Bridge" IABSE Symposium Bangkok 2009: Sustainable Infrastructure Environment Friendly, Safe and Resource Efficient

N. Anwar, P. Warnitchai and K. Tunthasuwattana, "Finite Element Based Analysis and Design of Sandwich Panel Structures", Proceedings of the 9th International Symposium on Ferrocement and Thin Reinforced Cement Composites: Green Technology for Housing and Infrastructure Construction, May 18-20, 2009, Bali, Indonesia, pp. 229-243.

2.9 Masters Students' Thesis

Extraction of Strut and Tie Model from 3D Solid Element Mesh Analysis

By: Abeykoon Jalath Dammika
Supervisor: Dr. Pennung Warnitchai / Dr. Naveed Anwar

Chapter 3: SET – COMPUTER SCIENCE and INFORMATION MANAGEMENT FIELDS OF STUDY

3.1 Introduction

Computer Science Field of Study

This field of study fosters high-level teaching and research in computer science and aims to meet the growing regional demand for persons skilled in various aspects of computing. One focus is on educating educators who can, in turn, effectively disseminate knowledge and skills to more people.

The core curriculum in computer science covers all aspects of computing, with the faculty particularly active in artificial intelligence, software engineering, networking and information systems. The field of study also endeavors to enhance teaching and research activities in computer architectures, object orientation, neural networks, multimedia and other rapidly evolving areas in computer science.

The courses and research topics range from those addressing the practical problems of applications development, to those dealing with the abstract and theoretical issues of computer science and advanced computing. Students are also encouraged to take courses and conduct research in areas of Computer Science which interact with Information Management, Industrial Engineering, Manufacturing Systems Engineering, Telecommunications, Mechatronics and other fields of study covered 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 regions needs for highly-trained specialists in software development and the management of software development projects. Students in the program will:

- Receive in-depth training in the latest software development tools, techniques, and trends;
- Learn the industries best practices for management of large software projects;
- Get experience on real problems in collaboration with public and private sector partners during internships.

The software engineering program is particularly aimed at students already having work experience in the software industry.

Information Management Field of Study

This field of study is a strategic response to society's changing needs. It will continue to evolve as organizations cope with the proliferation and complexity of new information technologies and services. It is the first of its kind in Southeast Asia.

Information is an essential resource for academic excellence, competitiveness in business and industry, scientific progress, and national development. Like any other resource, information must be managed. High-quality sources must be located, and arrangements must be made for access to timely, accurate, appropriate, and cost-effective information. Technological advances in telecommunications and the hardware and software of computing can be utilized to provide the optimum access to information.

The need for information management skills in government and private organizations is increasingly recognized. People knowledgeable in methods of facilitating information collection, dissemination, and use are in demand. Such persons should also be skilled in identifying information needs and in accessing, repackaging, and presenting information in such a way that it can be utilized in support of the objectives of the users.

The Information Management curriculum is designed to prepare students to respond to four basic challenges confronting organizations today:

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 Research Facilities and Laboratories

Organized around ten Unix servers, some of them being multiprocessors, CSIM network comprise about 60 micro-computers, running desktop and engineering applications, scientific and research software and programming languages, with full access to the Internet. Through AI3 project, a

broadband satellite link is available to Japan and other countries in the region. This link is primarily dedicated for research activities in the field of internetworking, like the new generation of Internet IPv6, distributed education, video conferencing, and unidirectional routing. Dedicated laboratories are set-up with specialized equipments. Full wireless coverage in the building allows students to conveniently work with their personal notebook computers.

3.3 Faculty and Research Staff

Full-time Faculty

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

Professor, and IntERLab Director (*Networking and Distributed Computing, Algorithms, Programming Languages*)

PETER HADDAWY, BA, Pomona College, Claremont, USA; MSc, PhD, Univ of Illinois, Urbana, USA.

Professor and Vice President for Academic Affairs (*Decision-Theoretic Problem Solving, Probabilities Reasoning, Modeling of User Preferences, Electronic Commerce, Medical Decision Making*)

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

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

VILAS WUWONGSE, DEng Systems Science, MEng Control Engineering, BEng Control Engineering, Tokyo Institute of Engineering, Japan.

Professor and Vice President for External Relations (*Information Representation, Semantic Web, Digital Libraries*)

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

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

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

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

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

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

PAUL JANECEK, BSEE, US Military Academy; MSc, Univ of London, UK; PhD, Swiss Federal Inst of Tech, Switzerland.

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

Visiting and Adjunct Faculty

KIM H W JOON, BSc, MSc, DSc, Dankook Graduate School, Korea.

Visiting Assistant Professor and Assistant Professor, Rangsit University (*Bounded Variation & its Application, Fuzzy Integral, Fuzzy System & Type-2 Fuzzy Set, Discrete Math*)

FINN ARVE AAGESEN, MSc, PhD, Norwegian Institute of Technology, Norway.

Adjunct Professor and Professor in NTNU (*Telematics Systems, Telecommunication Information Networking Architecture, Services & Resource Management, Communication Services & Networks*)

CHUTIPORN ANUTARIYA, BSc, Chulalongkorn University, MSc, DTech Sc, Asian Institute of Technology, Thailand.

Adjunct Faculty and Assistant Professor in Shinawatra Univ. (*Knowledge Representation, Intelligent Information Systems, Semantic Technologies, XML & Web Service Technologies*)

Research Staff

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

Researcher (*Argumentation*)

3.4 Grants and Sponsored Research Completed in 2009

Argumentation as Foundation for Semantic Grid

Duration 2-Jun-06 - 31-Aug-09
Project Investigator Pham Minh Dung
Sponsor European Commission
Total Contracted Amount (THB) 10,000,000

Asian Autumn School Semantic Web 2008

Duration 1-Jul-08 - 01-Jun-09
 Project Investigator Vilas Wuwongse
 Sponsor Participants
 Total Contracted Amount (THB) 500,000

Asian Semantic Web Conference 2008

Duration 1-Jul-08 - 01-Jun-09
 Project Investigator Vilas Wuwongse
 Sponsor Participants
 Total Contracted Amount (THB) 2,000,000

Building an Integrated leading Euro-Asian higher Education and research community in the field of the Semantic Web

Duration 1-Oct-06 - 30-Sep-09
 Project Investigator Vilas Wuwongse
 Sponsor EU (Contract TH/Asia Link/010 (111084)
 Total Contracted Amount (THB) 2,960,964

Database Systems for Advanced Applications

Duration 1-Dec-06 - 31-May-09
 Project Investigator Vilas Wuwongse
 Sponsor Participants
 Total Contracted Amount (THB) 2,788,434

Enhancement of Efficiency in Inventory Management of Corrugated Paper Carton Manufacturer using RFID Technology

Duration 1-Jun-07 - 30-Mar-09
 Project Investigator Paul Janecek
 Sponsor RTG and LIKOTIMO
 Total Contracted Amount (THB) 2,000,000

Improvement of Logistics and Planning for Fashion Merchandise

Duration 1-Jun-07 - 30-Mar-09
 Project Investigator Paul Janecek
 Sponsor RTG and BTNC Company
 Total Contracted Amount (THB) 1,500,000

Ministry of Science and Technology: Content Management Systems for Tourism

Duration 25-Nov-07 - 31-May-09
 Project Investigator Vilas Wuwongse
 Sponsor Thaksin University
 Total Contracted Amount (THB) 800,000

Ministry of Science and Technology Virtual Library

Duration 1-Dec-06 - 31-May-09
 Project Investigator Vilas Wuwongse
 Sponsor Thaksin University
 Total Contracted Amount (THB) 999,436

Vision-Based Industrial Robotic Bin-Picking System

Duration 1-Oct-08 - 30-Sep-09
 Project Investigator Matthew Dailey
 Sponsor Solimac Co, Ltd
 Total Contracted Amount (THB) 765,000

3.5 On-going Grants and Sponsored Research

A Ubiquitous computing architecture, for factory Automation, Control and Traceability

Duration 1-Oct-09 - 01-Mar-11
 Project Investigator Paul Janecek
 Sponsor RTG/LIKITOMI
 Total Contracted Amount (THB) 2,000,000

Inexus Thailand Robotics Competition

Duration 1-Dec-09 - 01-Feb-10
 Project Investigator Matthew Dailey
 Sponsor Western Digital Co. Ltd.,NECTEC
 Total Contracted Amount (THB) 350,000

Professional Masters in Software Engineering

Duration 1-Jan-09 - 30-Mar-10
 Project Investigator Matthew Dailey
 Sponsor Professional Managers
 Total Contracted Amount (THB) 9,918,000

Professional Masters in Software Engineering in Vietnam

Duration 1-May-09 - 30-Apr-10
 Project Investigator Matthew Dailey
 Sponsor Professional Managers
 Total Contracted Amount (THB) 11,284,412

Suspicious Target Tracking Robot

Duration 1-Aug-09 - 01-Aug-10
 Project Investigator Matthew N Dailey
 Sponsor RTG
 Total Contracted Amount (THB) 900,000

Top 20 RTG- Asian University Research Ranking

Duration 1-Sep-09 - 31-Aug-10
 Project Investigator Peter F Haddawy
 Sponsor RTG
 Total Contracted Amount (THB) 949,000

Vision-Based Industrial Robotic Bin-Picking System (Phase III)

Duration 1-Nov-09 - 31-Jan-10
 Project Investigator Matthew Dailey
 Sponsor Solimac Co, Ltd
 Total Contracted Amount (THB) 183,750

3.6 Publications

Refereed National Journals

Bo Bo, N., Dailey, M.N., and Uyyanonvara, B., Natural-pose hand detection in low-resolution images Songklanakarin Journal of Science and Technology, 31(2): 157-165, 2009.

Refereed International Conferences

Ali, I. and Dailey, M.N., Multiple human tracking in high-density crowds In Advanced Concepts in Intelligent Vision Systems Lecture Notes in Computer Science, pages 540-549, 2009.

Iqbal, W., Dailey, M.N., and Carrera, D., SLA-driven adaptive resource management for Web applications on a heterogeneous compute cloud In International Conference on Cloud Computing, volume 5931 of Lecture Notes in Computer Science, pages 243-253, 2009.

Limsoonthrakul, S., Dailey, M.N., and Parnichkun, M., Intelligent vehicle localization using GPS, compass, and machine vision In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 3981-3986, 2009.

Rhienmora, P., Haddawy, P., Suebnukarn, S., and Dailey, M.N., A VR environment for assessing dental surgical expertise In International Conference on Artificial Intelligence in Education, pages 746-748, 2009.

Rhienmora, P., Haddawy, P., Suebnukarn, S., and Dailey, M.N., Providing objective feedback on skill assessment in a dental surgical training simulator In Proceedings of the Conference on Artificial Intelligence in Medicine Lecture Notes in Computer Science, pages 305-314, 2009.

Tongphu, S., Thongsak, N., and Dailey, M.N., Rapid detection of many object instances In Advanced Concepts in Intelligent Vision Systems Lecture Notes in Computer Science, pages 434-444, 2009.

Waranusast, Rattapoom, Haddawy, P., and Dailey, M.N., Segmentation of text and non-text in on-line handwritten patient record based on spatio-temporal analysis In Proceedings of the Conference on Artificial Intelligence in Medicine Lecture Notes in Computer Science, pages 345-354, 2009.

Zask, R. and Dailey, M.N., Rapid 3D visualization of indoor scenes using 3D occupancy grid isosurfaces In Proceedings of ECTI-CON, 2009, pp. 672–675.

Ziauddin, S. and Dailey, M.N., A robust hybrid iris localization technique In Proceedings of ECTI-CON, 2009, pp. 1058–1061.

3.7 Masters Students' Theses and Research Studies

Computer Science

3D Reconstruction using Dense Stereo Correspondence
By Akhtar Hussain
Supervisor: Dr. Matthew Dailey

A Framework for Service Composition in Smartphone
By Sahasbhop Suvadhanabhakdi
Supervisor: Prof. Phan Minh Dung

Annotation Recognition for Medical Patient Records
By Rawin Viruchpintu
Supervisor: Prof. Peter Haddawy

An OpenId Based System for Managing Web Resources by Using Collaborative Tagging and Social Bookmarking
By Muhammad Asif
Supervisor: Prof. Vilas Wuwongse

Argumentation-Based Framework for Negotiation Support
By Hoang Bao Thien
Supervisor: Prof. Phan Minh Dung

Automatic Bitext Alignment for Southeast Asian Languages
By Lwin Moe
Supervisor: Dr. Paul Janecek

Consistency Checking of UML Class Diagrams
By Han Win
Supervisor: Prof. Phan Minh Dung

Context-aware Workflow Adaptation: A Case Study of Dynamic Route Selection in a Warehouse Environment
By Anu Tuladhar
Supervisor: Dr. Paul Janecek

Delaunay Triangulation Based Sparse 3D Reconstruction of Indoor Scenes Using a Monocular Camera
By Faisal Bukhari
Supervisor: Dr. Matthew Dailey

Distributed P2P Search in Data-Centric User Communities
By Piyatat Chatvorawit
Supervisor: Prof. Vilas Wuwongse

Financial Aid Policy Authoring and Simulation Tool for Enrollment Management
By Euam Chantarasombat
Supervisors: Prof. Peter Haddawy/Dr. Paul Janecek

Image Search Result Clustering Using Latent Dirichlet Allocation
By Chaianun Damrongrat
Supervisor: Dr. Matthew Dailey

Intelligent Video Surveillance Using Dynamic Object Relationship Models
By Suwan Tongphu
Supervisor: Dr. Matthew Dailey

Intelligent Vehicle Localization Using GPS, Compass, and Machine Vision
By Somphop Limsoonthrakul
Supervisor: Dr. Matthew Dailey

Inter-Vehicular Data Aggregation
By Chhun Sophea
Supervisor: Dr. Sumanta Guha

Key Frame Extraction and Browser-Based Visualization for 3D Reconstruction from Video Streams
By Mirza Tahir Ahmed
Supervisor: Dr. Matthew Dailey

MashupSheet: A Web Integration Platform for Interactive Visualization Applications
By Supasak Kulawonganuchai
Supervisor: Prof. Vilas Wuwongse

Named Entity Recognition in Semi-Structured Texts
By Nguyen Cao Hong Ngoc
Supervisor: Dr. Paul Janecek

Real Time Object Detection in Aerial Imagery
By Naddao Thongsak
Supervisor: Dr. Matthew Dailey

Reasoning Algorithm in Abstract Argumentation System
By Loc Cu Vinh
Supervisor: Prof. Phan Minh Dung

Visual Odometry and Traffic Sign Recognition Modules for an Intelligent Vehicle
By Thu Yein Win
Supervisor: Dr. Matthew Dailey

Research Study: A Recommender System for Improving Web Services Discovery
By Nguyen Ngoc Chan
Supervisor: Prof. Vilas Wuwongse

Research Study: Cross Language Information Retrieval: A Case Study of the Greater Mekong Sub-Region (GMS) Language
By Pyae Phyo Thu
Supervisor: Dr. Paul Janecek

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

Research Study: Efficiently Mining Frequent Subpaths in Undirected Graphs
By Junaid Baber
Supervisor: Dr. Sumanta Guha

Research Study: Online Advertising and Online Advertisement Techniques
By Kyi Cin Shwe
Supervisor: Prof. Phan Minh Dung

Research Study: Optimal Operation of Tarbela Reservoir under Changing Climatic Conditions

By Kifayat Ullah
Supervisor: Dr. Sumanta Guha

Research Study: Service Level Agreement Driven Adaptive Resource Management for Web Applications on Heterogenous Compute Cloud

By Waheed Iqbal
Supervisor: Dr. Matthew Dailey

Information Management

Analytic Network Process and Case-Based Reasoning for a Financial Aid Recommendation System

By Pham Phi Giang
Supervisor: Dr. Vatcharaporn Esichaikul

Analyzing Email Transactions

By Le Cam Loan
Supervisor: Dr. Sumanta Guha

An Interactive Decision Support System for Financial Aid Decisions

By Pham Thi Viet Linh
Supervisor: Prof. Peter Haddawy

A Spatial Decision Support System to Support Site Selection for Convenience Stores

By Chanpitch Suriyalert
Supervisor: Dr. Vatcharaporn Esichaikul

A System for Benchmarking Research Performance and Tracking Research Trends

By Saeed Ul Hassan
Supervisor: Prof. Peter Haddawy

A System to Support Faculty Performance Evaluation

By Le Thi Thu Lan
Supervisor: Prof. Peter Haddawy

Computing a Coarse-Grained Linguistic Database Using WordNet

By Kanjana Jiamjitvanich
Supervisor: Prof. Vilas Wuwongse

E-Government Framework to Support Transparent Business Service Composition: A Case Study of Online Agricultural Commodities

By Amit Pariyar
Supervisor: Supervisor: Dr. Paul Janecek

Haptic Rendering of Arbitrarily Shaped Cutting Tools Interacting with 3D Volumetric Models with Application to Dental Surgery Simulation

By Kugamoorthy Gajananan
Supervisor: Prof. Peter Haddawy

Influencing Customer Preferences to Achieve Sales Objectives

By Vu Lam Chi Nhan
Supervisor: Prof. Peter Haddawy

Integrating a Social Software Into Collaborative Customer Relationship Management

By Anie Melany
Supervisor: Dr. Vatcharaporn Esichaikul

Real-Time Monitoring System Using Unmanned Aerial Vehicle with Extension to Sensor Observation Service

By Apichon Witayangkurn
Supervisors: Dr. Matthew Dailey / Dr. Kiyoshi Honda

Semantic Classification of Social Tags for Faceted Search

By Sort Borort
Supervisor: Dr. Paul Janecek

Research Study: Duplicate Record Detection for Database Cleansing

By Mariam Rehman
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: A Personal Income Tax Consultary System: A Case Study in Vietnam

By Ngo Tan Vu Khanh
Supervisor: Prof. Phan Minh Dung

Research Study: A Ranking System for Weblog Advertising

By Ake Osothongs
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Business Intelligence to Support the Thai Bond Market

By Satit Tanakulpaisal
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Data Mining, Market Basket Analysis: A Case Study of Sales Data

By Nawarek Chalarak
Supervisor: Dr. Sumanta Guha

Research Study: Determinants of Software Piracy in Thai Workplaces

By Thanatip Suangkamol
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Extending the Functionality of Open Source E-Commerce Platforms to Wap Devices

By Luan Dang Kieu
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: In bound Inventory Management: A Case Study on Gillette India Limited

By Ripunjoy Kalita
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Integrating Boosting and Genetic Algorithm with Supervised Classification for Socio-Demographic-Based Customer Targeting

By Tutiyaorn Nitichai
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Internet Policy and Content Regulations Management in Myanmar

By Kaw Khu Htoo
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: Building a Secure Wireless Local Area Network in Tra Vinh University

By Nhiem Nguyen Ba
Supervisor: Dr. Sumanta Guha

Research Study: Web Service Composition in Travel Applications

By San San Ei
Supervisor: Prof. Phan Minh Dung

Chapter 4: SET – CONSTRUCTION, ENGINEERING AND INFRASTRUCTURE MANAGEMENT FIELD OF STUDY

4.1 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.

4.2 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; Information Technology in Construction Management; Public Private Partnership Project; Project Financing; Construction Disputes and Litigation)

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)

4.3 Grants and Sponsored Research Completed in 2009

Professional Master of Engineering in Project Management in Construction, Hochiminh, Vungtau, Hanoi (51 Students)

Duration: September 2008 to December 2009
Investigator: **Dr B H W Hadikusumo and Dr. Chotchai C.**

Sponsor: PetroVietnam and Corporation in Vietnam.
Total Contracted Amount: THB 23,326,149
Overhead: 10% to SET (THB 1,771,440) and 10% to AITCV (THB 1,771,440)
Faculty Recovery : THB 1,427,019
Degree Surcharge : THB 1,427,019

Advanced Techniques for Budgeting of Capital Investment Projects

Duration: March 2008 to September 2009
Investigator: **Dr. Chotchai C.**
Sponsor: Chulalongkorn University
Total Contracted Amount: THB 600,000
Overhead: THB118,454

4.4 On-going Grants and Sponsored Research

Professional Master of Engineering in Project Management in Construction in Hochiminh and Hanoi (59 Students)

Duration: Sept 2009 to December 2010
Investigator: **Dr B H W Hadikusumo and Dr. Chotchai C.**
Sponsor: PetroVietnam and Corporation in Vietnam.
Total Contracted Amount: THB 25,486,659
Overhead: 10% to SET (THB 2,064,200) and 10% to AITCV (THB 2,064,200)
Faculty Recovery : THB 2,121,14
Degree Surcharge : THB 2,121,141

Advanced Techniques for Budgeting of Capital Investment Projects (Phase II)

Duration: August 2009 to March 2010
Investigator: **Dr. Chotchai C.**

Sponsor: Chulalongkorn University
Total Contracted Amount: THB 300,000
Overhead: THB58,454

Advanced Techniques for Public Projects Financing

Duration: April 2010 to December 2010
Investigator: **Dr. Chotchai C.**
Sponsor: Chulalongkorn University
Total Contracted Amount: THB 300,000
Overhead: THB58,454

4.5 Publications

Refereed Journals

A.N. Chowdhury and **C. Charoengam** (2009), Factors influencing finance on IPP projects in Asia: A legal framework to reach to goal, Journal of Project Management, Vol 27 pp. 51-58.

N. Suksuwan and **B.H.W. Hadikusumo** "Condition Rating System for Thailand Concrete Bridges" Journal of Construction in Development Country.

O. Kulchartchai and **B.H.W. Hadikusumo** "Exploratory Study of Obstacles in Safety; Culture Development in the Construction Industry: A Grounded Theory Approach" Journal of Construction in Development Country.

P. Wethyavivorn, **C. Charoengam**, and W. Teerajetgul (2009), Strategic Assets Driving Organizational Capabilities of Thai Construction Firms, Journal of Construction Engineering and Management, ASCE, 135(11), pp. 1222-1231, SCOPUS citation: 0

P.K. Dey, **C. Charoengam**, S.O. Ogunlana and D. Kajornkiat (2009), Multi-Party Risk Management Helps Manage Cement Plant Construction in Thailand, International Journal of Services Technology and

Management, 11(4), pp. 411-435,
SCOPUS citation: 0

T. Praserttrunguang and **B.H.W. Hadikusumo** "Study of Factors Influencing the Efficient Management and Downtime Consequences of Highway Construction Equipment in Thailand" Journal of Construction Engineering and Management, ASCE, 135(1), pp. 2-11.

W. Teerajetgul, **C. Charoenngam**, and P. Wethyavivorn (2009), Key Knowledge Factors in Thai Construction Practice. International Journal of Project Management, 27(8), pp. 833-839.

Conference Proceedings

C. Charoenngam (2009), "Financial and Funding Models for Higher Education", Higher Education Commission, Ministry of Education, RTG, 28 May, Bangkok.

C. Charoenngam (2009), "Project Management", Royal Thai Armed Forces, Ministry of Defenses, 28 December, Bangkok.

Special Lectures

Suksuwan N., **B.H.W. Hadikusumo**, "Development of Computer Applicants for Bridge Management System," Proceeding of the IABSE Symposium, Bangkok 2009.

4.6 Doctoral Students' Dissertation

Construction, Engineering and Infrastructure Management

Effective Leadership in the Construction Industry in Thailand

By Kedsuda Limsila
Supervisor: Dr. B. Harimurti W. Hadikusumo / Prof. Stephen O. Ogunlana

4.7 Masters Students' Theses and Projects

Construction, Engineering and Infrastructure Management

Benchmarking for Track Mechanized Maintenance System: A Case Study of the State Railway of Thailand

By Weraiyudh Chuenchana
Supervisor: Dr. Chotchai Charoenngam

Business Diversification of Real Estate Company

By Pichaya Bhanubhak
Supervisor: Dr. Chotchai Charoenngam

Claims in Building Project in the Public Sector: Case Study in Mekong Area, Vietnam

By Nguyen Van Tam
Supervisor: Dr. B. Harimurti W. Hadikusumo

Collaborative Strategy Between Stakeholders of Hydropower and Power Intensive Industry in Bhutan

By Karma Gyamtsho
Supervisor: Dr. B. Harimurti W. Hadikusumo

Condition Assessment Criteria for a Border Logistics Hub: A Case Study in Lao Cai Province of Vietnam

By Tran Viet Dung
Supervisor: Dr. Chotchai Charoenngam

Construction Claim Types and Causes: A Study of Tala Hydroelectric Project, Bhutan

By Sonam Tobgay
Supervisor: Dr. B. Harimurti W. Hadikusumo

Construction Management Practices Under Construction Material Price Fluctuation

By Piyachat Thaveelert
Supervisor: Dr. Chotchai Charoenngam

Developer's Investment Decision Making on Real Estate Development: A Case Study in Bangkok, Thailand

By Rahongsree Prayongrut
Supervisor: Dr. Chotchai Charoenngam

Improvement of Budgeting Systems for Transportation Projects by Enhancing Road Transportation Technical Knowledge

By Korakade Thamphongsri
Supervisor: Dr. Chotchai Charoenngam

Key Interactive Activities and Risks of PPP Infrastructure Development Projects: The Mass Rapid Transit in Thailand

By Thotsaphol Rattananapalai
Supervisor: Dr. Chotchai Charoenngam

Luxury Resort Project Development: A Case Study of Two Spa Resorts in Thailand

By Piyada Thanarojsakul
Supervisor: Dr. B. Harimurti W. Hadikusumo

Measurement and Mitigation of Noise and Dust Pollution in Highway Construction Projects in Vietnam

By Le Quang Tuan
Supervisor: Dr. B. Harimurti W. Hadikusumo

Megaproject Development Relationships Among Stakeholders: The Thai Landbridge Case

By Kantanat Chaipermak
Supervisor: Dr. Chotchai Charoenngam

Negotiation Issues, Styles and Outcomes: A Study of Building Construction Projects in Thailand

By Surapong Panja
Supervisor: Dr. B. Harimurti W. Hadikusumo

Organizational Risk Factors: A Case Study of Hydroelectric Power Projects in Myanmar

By Aung Myo Hein
Supervisor: Dr. Chotchai Charoenngam

Problems and Practices in EPC Project Management: A Case Study of Petrochemical Oil and Gas EPC Projects in Thailand

By Raman Awale
Supervisor: Dr. B. Harimurti W. Hadikusumo

Quality Improvement in Public Construction Projects: Case Studies in Daklak Province, Vietnam

By Tran Duc Nhat
Supervisor: Dr. B. Harimurti W. Hadikusumo

Real Option Application in Managing Uncertainty in Real Estate Development Projects: A Case Study in Ho Chi Minh City, Vietnam

By Pham Vuong Trung
Supervisor: Dr. B. Harimurti W. Hadikusumo

Strategy in Working Capital Management Under Adverse

Economic Condition: A Case Study of Indonesia Construction SMEs

By Andi Sanjaya
Supervisor: Dr. Chotchai Charoenngam

Success Factors for Small and Medium-Sized Contractors: A Study of Mechanical Contractors in Vietnam

By Dam Thanh Binh
Supervisor: Dr. B. Harimurti W. Hadikusumo

The Benefits of Implementing Sustainable Construction Concept: A Case Study of the Construction Company in Thailand

By Panwimon Jornjaran
Supervisor: Dr. B. Harimurti W. Hadikusumo

The Characteristics of Innovative Construction Project: A Study in Thailand Construction Industry

By Willy Sanjaya
Supervisor: Dr. B. Harimurti W. Hadikusumo

The Practice and Management of Property Funds: A Study of Different Assets in Thailand

By Kriangsak Kiatkittikorn
Supervisor: Dr. Chotchai Charoenngam

The Relationships Between Personality and Job Performance in Myanmar Construction Projects

By Swe Zin Myint
Supervisor: Dr. B. Harimurti W. Hadikusumo

Total Quality Management in Property Development Projects in Vietnam

By Nguyen Viet Nhan
Supervisor: Dr. B. Harimurti W. Hadikusumo

Turnkey Contract Implementation in Myanmar: A Case Study of Mandalay International Airport

By Htet Htet Shein
Supervisor: Dr. Chotchai Charoenngam

Research Study: Risk Factors Influencing International Construction Projects in Pakistan

By Ahsen Maqsoom
Supervisor: Dr. Chotchai Charoenngam

Project: Analyzing the Logistic Process for Pre-Engineering Building (PEB) Construction

By Le Khac Bao
Supervisor: Dr. Chotchai Charoenngam

Project: Application of Project Management Functions in Small Construction Companies: Case Study of Small Contractors in Hochiminh City

By Le Hoai Viet
Supervisor: Dr. Chotchai Charoenngam

Project: Case Studies Comparing the Role of Engineers in Vietnamese and FIDIC Contracts

By Nguyen Anh Khe
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Cash Flow Projection Management in Small-Medium Sized Vietnamese Contractors

By Pham Thi Ngoc Hien
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Claim Management and Analysis: Case Study of a Hydropower Plant

By Nguyen Thi Thanh Truc
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Communication in Design Process Between Employers and Consultants

By Tran Thi Nguyen Cat
Supervisor: Dr. Chotchai Charoenngam

Project: Communication Management Within a Construction Project Team: A Case Study of a Condominium Project in Ho Chi Minh City

By Nguyen Canh Toan
Supervisor: Dr. Chotchai Charoenngam

Project: Contract Clauses in EPC Contract: A Case Study of Dinh Vu Polyester Project, Hai Phong, Vietnam

By Vu Dinh Duy
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Contract Clauses in EPC Thermal Power Project: A Case Study of Hai Phong Thermal Power Project

By Bui Tien Dung
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Contract Management-How Owner Can be Responsible in Changing Order in Oil and Gas Project Management

By Do Van Hanh
Supervisor: Dr. Chotchai Charoenngam

Project: Customer-Driven Strategy and KPIs Using CRM Approach: A Case Study of Construction Enterprises in Vietnam

By Manh Tran Dang
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Delay Causes in Sub-Projects of the Ho Chi Minh National Highway Construction Project: A Case Study of the Road Construction Connecting the Ho Chi Minh Highway to Lan Ong Commemorative Area

By Nguyen Dinh Duong
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Delay Causes in the Construction of Refinery Projects in Vietnam: A Case Study of Dung Quat Refinery Project

By Nguyen Thi Thu Huong
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Delay Factors in Building Construction Stage: A Case Study of Office Building in Hochiminh City, Vietnam

By Phan Vu
Supervisor: Dr. Chotchai Charoenngam

Project: Delays in Construction Project in Vietnam, Causes and Effects

By Truong Quang Dien
Supervisor: Dr. Chotchai Charoenngam

Project: Design Management for Architectural Project: A Case Study of PVMTC-PetroVietnam Building Project

By Dang Dinh Lam
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Engineering, Procurement, Construction (EPC) Contract Management-Case Study: EPC Contract Management for Rang Dong Full Field Development for Rang Dong Full Field Development Block 15-2 Offshore, Vietnam

By Phan Tuong Liem
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Engineering, Procurement and Construction (EPC) Contracts Performance in Oil and Gas Industry: A Case Study of Delay in Commissioning Activity of EPC Contract of the Phu My Gas Distribution Center (GDC) Project in Vietnam

By Hoang Huu Cam
Supervisor: Dr. Chotchai Charoenngam

Project: Factors Causing Delay in Construction Projects: A Case Study of Commercial Construction Project in Ho Chi Minh City

Phan Hong Hoan
Dr. Chotchai Charoenngam

Project: Factors Influencing the Benefits of a Project: A Case Study of PetroVietnam Hotel Complex Project

By Dang Viet Cuong
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Green Building: Issues, Approaches and Implementation

By Nguyen Huynh Trung Hai
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Integration of Gas Gathering System in Oil Field Development Project - A Solution for Oil Filed Early Development: A Case Study on the Gas Gathering System for Block 16-1 TE GIAC Trang & Block 15-2/1 Hai Su Trang - Hai Su Den Field Development

By Pham Minh Nga
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Managing Front End Engineering Design Execution in an EPC Project: Case Study of Dung Quat Refinery in Vietnam

By Ngo Duc Binh
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Managing the Precommissioning and Commissioning Phase in EPC Contract: A Case Study of Dung Quat Refinery Project, Quang Ngai, Vietnam

By Dinh Van Ngu
Supervisor: Dr. Chotchai Charoenngam

Project: Marine Facility Design and Its Impact to Project Cost in Refinery Projects: A Case Study of Nghison

Refinery and Petrochemical Complex Project

By Le Thu Anh
Supervisor: Dr. Chotchai Charoenngam

Project: Matrix Structure in Small Scale & Fast Track Construction Project: A Case Study of Fitting Out & Interior Project

By Nguyen Phong
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: New Urban Zone Infrastructure Development Project Risks: A Case Study of An Phu Tay Residential Project

By Hoang Ngoc Anh
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Owner's EPCI Contract Management for Oil and Gas Development Project: A Case Study of Vietnam Oil and Gas Project

By Tran Dang Thuyet
Supervisor: Dr. Chotchai Charoenngam

Project: Owner's Project Cost Management Approach: A Case Study of Underground Storage Cavern in Vietnam

Nguyen Sinh Khang
Dr. B. Harimurti W. Hadikusumo

Project: Practices of Contractor in Scheduling/Cost Planning and Control: A Case Study of Resettlement High-Rise Building Project in Ho Chi Minh City

By Bui Van Cuong
Supervisor: Dr. Chotchai Charoenngam

Project: Project Delay in Mechanical Factory Construction Project: A Case Study of an Industry Park, Ho Chi Minh City, Vietnam

By Nguyen Duc Hung
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Project Materials Management for Telecom Steel Towers Erected Project in Vietnam

By Nguyen Huu Phuc
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Project Owner's Quality Management System: A Case Study of Estella Residential Development Building Construction Project

By Tran Hong Quan
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Quality Management in Construction Projects: A Case Study of Quality Management in Construction Projects of an Oil and Gas Company

By Le Van Thong
Supervisor: Dr. Chotchai Charoenngam

Project: Quality Management in Design Phase of a Construction Project

By Nguyen Anh Kiet
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Quality Management in Soil Improvement Projects: A Case Study of a Power Plant Project in Vietnam

By Tran Tuan Binh
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Quality Management System for Manufacturer and Contractor of Precast Pile Foundation

By Pham Quoc Hung
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Risk Management in a New Residential Development Project: A Case Study of Phuockien 1 Project (SADECO)

By Nguyen Hoang Anh Chuong
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Safety and Quality Management for Constructing of Temporary Structures with Reference to Construction Regulations and Contracts in Vietnam

By Hoang Don Dung
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Safety Management in Steel Structure Fabrication and Erection: A Case of Tien Tien Construction Company

By Bui Giang Nam
Supervisor: Dr. B. Harimurti W. Hadikusumo

Project: Some Main Factors Affecting Quality of Construction Projects: A Case Study of Expanding Phase III Port - Petroleum Technical Service Base in Vung Tau, Vietnam

By Pham Xuan Thinh
Supervisor: Dr. Chotchai Charoenngam

Project: Subcontractor Management of a Pipeline Construction Project

By Pham Thi Thuy Giang
Supervisor: Dr. B. Harimurti W. Hadikusumo

Chapter 5: SET – GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING

FIELD OF STUDY

5.1 Introduction

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. Furthermore, 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. The GGE field of study also opens new programs for training and education in onshore and offshore exploration of oil and gas. 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, biological processes, petroleum engineering, resource exploration, and geophysics. Students in the field are exposed to geomaterials, continuum mechanics and particulate/discontinuous media. Since 2008 the field had successfully opened and operated professional programs in Geoexploration & Petroleum Genengineering and Geotechnical Engineering and Management in HCM City to meet the increasing demands of Vietnam in these areas.

5.2 Research Facilities and Laboratories

The Geotechnical and Geoenvironmental 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 five (5) sections - Soil Mechanics, Rock Mechanics, Engineering Geology, Geophysics, and Geoenvironmental Engineering.

Soil Mechanics Laboratory

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

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

Rock Mechanics Laboratory

The Rock Mechanics Laboratory has facilities to determine a variety of the physical and mechanical

properties of rocks and rock aggregates required for research and practice.

Moreover, the laboratory is capable of determining hardness, swelling and slake durability index properties of weak rocks. The laboratory has provided testing services to a large number of infrastructure projects in the region.

Engineering Geology Laboratory

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

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

Geophysics Laboratory

The Geophysics Laboratory is being developed for training and researches in Geosystem Exploration and Petroleum Geoengineering. It has a number of seismic, electric, magnetic and radiometric instruments, including some of the most advanced equipment such as DAS-1 (OYO), a multipurpose hi-performance seismic data acquisition system, or 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, mineral resources, oil and gas exploration as well as in performing analysis, interpretation and visualization of geophysical data acquired.

Geoexploration and Petroleum Geoenvironment 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, Interactive Petrophysics, Eclipse etc. which are worth of 1.6 million USD and were 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.

5.3 Faculty and Research Staff

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*)

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*)

KYUNG-HO PARK, BEng, MEng, Korea Univ; DEng, SUNY at Buffalo, USA.

Assistant Professor (*Geotechnical Engineering; Geomechanics; Computational Mechanics; Boundary Element Methods*)

PHAM HUY GIAO, DEng, MEng, Asian Institute of Technology, Thailand; Dipl Ing (MSc), Bucharest University, Romania

Assistant Professor (*Exploration and Engineering Geophysics; Geotechnical Engineering; Computer-Aided Analysis in Geoenvironment*)

5.4 Grants and Sponsored Research Completed in 2009

Geotechnical Advice in Construction Supervision on Foundation and Tunnel, Kawenoi Dam Project

Duration 1-Mar-06 28-Feb-09
Project Investigator Noppadol Phien-wej
Sponsor P&C Management, Co., Ltd., Thailand
Total Contracted Amount (Baht) 321,000

Ground deformations and effects on adjacent structures caused by subway tunneling in Bangkok

Duration 25-Apr-07 31-Dec-09
Project Investigator Kyung-Ho Park
Sponsor RTG
Total Contracted Amount (Baht) 900,000

Impact of pumping on water level change and bank erosion in Bang Pakong River project

Duration 1-Jun-08 31-Jul-09
Project Investigator Noppadol Phien-wej
Sponsor EastWater Resources Development and Management Public Company Limited
Total Contracted Amount (Baht) 1,712,000

Initial Near-surface Geophysical Investigation of the Suvarnabhumi International Airport (SBIA)

Duration 1-Sep-07 30-Mar-09
Project Investigator Pham Huy Giao
Sponsor IMMS Company Limited Thailand
Total Contracted Amount (Baht) 1,343,381

Investigation Design and Construction Supervision for Rehabilitation of Wat Borvornives Chedi, Bangkok

Duration Jan-07 Dec-09
Project Investigator Prof. Worsak Kanok-Nukulchai/Dr. Noppadol Phien-wej
Sponsor Wat Borvorniveswiharn, Bangkok
Total Contracted Amount (Baht) 2,550,000

Professional Masters in Geoexploration & petroleum Geoenvironment, HCMC

Duration 1-Sep-08 31-Dec-09
Project Investigator Pham Huy Giao, Noppadol Phien Wej
Sponsor Oil and Gas Company, Vietnam
Total Contracted Amount (Baht) 3,233,400

Research on the damages on the north east reef of Male, The Maldives

Duration 1-May-06 31-Dec-09
Project Investigator: Kyung-Ho Park/Ulrich Glawe
Sponsor Environment Research Center Male, MV
Total Contracted Amount (Baht) 1,563,109

Volume Change and Smear Zone Characteristics of PVD Improvement with Vacuum Preloading

Duration 1-Aug-08 31-Jul-09
Project Investigator Dennes T. Bergado
Sponsor Maruyama Industry Co. Ltd / RTG
Total Contracted Amount (Baht) 1,400,000

5.5 On-going Grants and Sponsored Research

A G-G Investigation of a Petroleum-Contaminated Soil at the Don

Muang Site by Electric Imaging

Duration 15-Jul-09 15-Jul-10
Project Investigator Pham Huy Giao
Sponsor RTG
Total Contracted Amount (Baht) 990,000

Building Human Resources in the Development of Academic Programs in Sustainable Geosystem Exploration and Engineering

Duration 1-Nov-05 30-June-10
Project Investigator Pham Huy Giao
Sponsor Asia Link / European Commission
Total Contracted Amount (Baht) 238,706

Development of software tool for frame analysis and design of high strength steel bolted beam column joints

Duration 1-Nov-08 01-Nov-10
Project Investigator Kyung Ho Park
Sponsor RTG, SYS, D&I ENG
Total Contracted Amount (Baht) 2,000,000

Engineering analysis for flood fences structure management at Pathumthani province

Duration 12-Oct-08 15-June-10
Project Investigator Noppadol Phien-wej
Sponsor RTG
Total Contracted Amount (Baht) 900,000

Global Center of Excellence on Human Security Eng. (Phase 1)

Duration October 08 March -10
Project Investigator Noppadol Phien-wej
Sponsor University of Kyoto, Japan
Total Contracted Amount (Baht) 1,025,000

Global Center of Excellence on Human Security Eng. (Phase 2)

Duration October 08 March -10
Project Investigator Noppadol Phien-wej
Sponsor University of Kyoto, Japan
Total Contracted Amount (Baht) 1,729,662

Human Resource Upgrading Programme (Master's Degree for 6 Engineers) for Ministry of Electric Power No. 1, Union of Myanmar

Duration August 2009 May 2011
Project Principal Noppadol Phien-wej
Sponsor Electricity Generating Authority of Thailand (EGAT)
Total Contracted Amount (Baht) 6,000,000

Instrumentation Interpretation of Nam Ngum 2 CFRD

Duration Jan-10 Jul-11
Project Investigator Noppadol Phien-wej
Sponsor Ch. Karnchang (Lao) Co., Ltd.
Total Contracted Amount (Baht) 1,170,000

Investigation and Analysis of River Bank Retaining Structures in Amphur Pamoke, Ang Thong Province

Duration Feb-10 April-10
Project Investigator Noppadol Phien-wej
Sponsor L.V.C. Development Co., Ltd.
Total Contracted Amount (Baht) 267,500

Modified Limited Life Woven Geotextiles (LLGs) Made of Natural Fibers for Soil Erosion Control and Soil Reinforcement

Duration 3-Jul-09 2-Jul-10
Project Investigator Dennes T. Bergado
Sponsor RTG
Total Contracted Amount (Baht) 948,000

RTG/Seismic Safety of Earth Dam in Northern Thailand

Duration 1-Jul-09 30-Jun-10
Project Investigator Kyung-Ho Park
Sponsor RTG
Total Contracted Amount (Baht) 900,000

Safe and sustainable management of municipal solid waste in Bangladesh through the practical application of WasteSafe proposal – WasteSafe II

Duration 1-Jan-07 31-Dec-10
Project Investigator Kyung-Ho Park/ Ulrich Glawe
Sponsor European Commission
Total Contracted Amount (Baht) 2,996,884

Services on Design of Civil Works of Prototype Underground Unit Substations

Duration Jan-09 Dec-10
Project Investigator Noppadol Phien-wej
Sponsor Metropolitan Electricity Authority
Total Contracted Amount (Baht) 1,850,000

5.6 Publications

Refereed Journals

Abuel-Naga, H.M., **Bergado, D.T.**, Bouazza, A. and Pender, M. (2009), Thermomechanical Model for Saturated Clays, Geotechnique, Vol. 59, No. 3, pp. 273-278.

Abuel-Naga, H.M., **Bergado, D.T.**, Bouazza, A. and Pender, M. (2009), Thermal Conductivity of Soft Bangkok Clay from Laboratory and Field Measurements, Engineering Geology, Vol. 105, pp. 211-219.

Arjnoi, P., Jeong, J.H., Kim., C.Y., **Park, K.H.**, (2009), Effect of Drainage Conditions on Porewater Pressure Distributions and lining Stresses in Drained Tunnels, Tunneling and Underground Space Technology, 24, pp. 376-389.

Jamsawang, P., **Bergado, D.T.**, Bhandari, A. and Voottipruex, P. (2009), Behavior of Stiffened Deep Cement Mixing Pile in Laboratory, Lowland Technology International, Vol. 11, No. 1, pp. 20-28.

Owatsiriwong, A., Phansri, B., Kong, J.S. and **Park, K.H.**, (2009), A Cell-less BEM Formulation for Axisymmetric Elastoplasticity via Particular Integrals, Computational Mechanics, 44, pp. 161-172.

Park, K.H., Tantayopin, K., Tontavanich, B. and Owatsiriwong, A. (2009), Analytical Solution for Seismic-induced Ovaling of Circular Tunnel Lining under no-slip Interface Conditions: a revisit, Tunneling and Underground Space Technology, 24, pp. 231-235.

Quy N. M., P. G. Ranjith, S.K. Choi, **P. H. Giao**, D. Jasinge (2009), Analytical assessment of horizontal well efficiency with reference to improved oil recovery of the South-East Dragon oil field southern offshore of Vietnam, Journal of Petroleum Science and Engineering, 66(2009), 75-82, Elsevier.

Saowapakpiboon, J., **Bergado, D.T.**, Thann, Y.M. and Voottipruex, P. (2009), Assessing the Performance of Prefabricated Vertical Drain (PVD) on Soft Ground using Vacuum and Heat Preloading, Geosynthetics International, Vol. 16, No. 5, pp.384-392.

Saowapakpi boon, J., **Bergado, D.T.**, Youwai, S., Chai, J.C., Wan thong, P. and Voottipruex, P. (2009), Measured and Predicted Performance of Prefabricated Vertical Drains (PVDs) with and without Vacuum Preloading, Geotextiles and Geomembranes, Vol. 28, pp. 1-11.

Tanchaisawat, T., **Bergado, D.T.**, Voottipruex, P. (2009), 2D and 3D Simulations of Geogrid Reinforced Lightweight Embankment on Soft Clay, Geosynthetics International, Vol. 16, No. 6, pp. 420-432.

Tarefder, R.A., Zaman, M.M., Lin, D.G. and **Bergado, D.T.** (2009), Finite Element Modeling of Soft Ground with PVD under Vacuum and Embankment Preloading, Journal of Geotechnical Engineering, Vol. 3, pp. 233-249.

Wiwattanachang N., **P. H. Giao**, P. Nimityongskul (2009), Monitoring crack development on fiber concrete beam by using electrical resistivity imaging, paper revised for publication in Journal of Applied Geophysics, Elsevier.

Conference Proceedings

Bergado, D.T. and Tin, N. (2009), Kinked Steel Grids Reinforcement and Modification of K-Stiffness Method in MSE Structures on Soft Ground, Invited Lecture, Seminar on New Methods of Controlling Settlement on Soft Ground, Kwazulu-Natal University, Durban, South Africa.

Bergado, D.T., and Voottipruex, P. (2009), Environmental Sustainability and Behavior of Lightweight Geomaterials using Recycled Tire Chips-Sand Mixtures Reinforced with Geogrids, Guest Lecture, GSI-Taiwan, International Conference NPUST, Pingtung, Taiwan.

Bergado, D.T., Jamsawang, P. and Voottipruex, P. (2009), Laboratory and Full Scale Behavior of DCM and

SDCM Piles, Keynote Lecture, International Conference on Infrastructure Development on Expansive Soils (INDEX09), Hosur, India.

Bergado, D.T., Jamsawang, P., Voottipruex, P. and Cheang. W. (2009), Behavior of DCM and SDCM Piles under Full Scale Tests and Embankment Loading with numerical Simulations, Keynote Lecture, International Symposium on Ground Improvement and Case Histories (ISGI09), Singapore.

Bergado, D.T., Phien-wej, N., Jamsawang, J., Ramana, G.V., Lin, S.S. and Abuel-Naga, H.M. (2009), Settlement Characteristics of Full Scale Test Embankment on Soft Bangkok Clay Improvement with Thermo-PVD and Stiffened Deep Cement Mixing Piles, Proc. of the 17th International Conference on Soil Mechanics and Geotechnical Engineering, Alexandria, Egypt, pp. 2581-2584.

Bergado, D.T., Phienweij, N., Ramana, G.V., Jamsawang, P., Voottipruex, P. and Abuel-Naga, H. (2009), Settlement Characteristics of Full Scale Test Embankment on Soft Bangkok Clay Improved with Thermo-PVD and Stiffened Deep Cement Mixing Piles, Proc. 17th Int'l. Conf. for Soil Mechanics and Geotechnical Engineering, Alexandria, Egypt.

Bergado, D.T., Saowapakpi boon, J., Chai, J.C. and Voottipruex, P. (2009), Comparison between PVDs with Surcharge and Vacuum Preloading, Proc. GeoAfrica 2009 Conference, Cape Town, South Africa.

Bergado, D.T., Saowapakpi boon, J., Wan thong, P. and Voottipruex, P. (2009), Performance of Using PVD with and without Vacuum Preloading, Proc. Geosynthetics 2009, Salt Lake City, Utah, U.S.A.

Bergado, D.T., Suksawat, T., and Jamsawang, P. (2009), Simulations

and Back-Analyses of SDCM Pile, Proc. Short Course on Geosynthetic Applications and Numerical Simulations by PLAXIS, Bangkok, Thailand.

Chanarop V., **Giao P. H.** and Avirut P. (2009), Integrated analysis of high resolution seismic and geotechnical data using open source software for an offshore drilling rig site, The 9th SEGJ Intl' Symp. on Imaging and Interpretation, Society of Exploration Geophysics of Japan, 12-14 October, 2009, Hokkaido, Sapporo, Japan.

Charoenwongmit, S., Phansri, B., Warnitchai, P., Shin, D.H., **Park, K.H.** (2009), Numerical simulation of shaking table test on concrete gravity dam, CODE 2009: International Conference on Computational Design in Engineering, November 3-6, Seoul, Korea.

Giao P. H. & N. Q. Cuong (2009), An Experimental Study on Applicability of Electrical Resistivity Tomography (ERT) to Monitor the Chemical Grouting in Sandy Soil, The 9th SEGJ Intl' Symp. on Imaging and Interpretation, Society of Exploration Geophysics of Japan, 12-14 October, 2009, Hokkaido, Sapporo, Japan.

Giao P. H. (2009), Geophysical check of the PVD-improved ground at the Suvarnabhumi International Airport (SBIA) regarding a possible upward groundwater leakage, Proc. of the International Symp. on Geotechnical Engineering, Ground Improvement and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change including Global Warming, 3 to 4 December 2009, Bangkok, Thailand.

Giao P. H., T. Suwanishwong and N. Phien-wej (2009), Applicability of Aquifer Storage Transfer and Recovery (ASTR) to Restore Groundwater in a Depleted Fractured Sandstone Aquifer, Northeastern Thailand, Proc. of Int'l Symp. on Efficient Groundwater

Resources Management, the Challenge of Quality and Quantity for Sustainable Future, IGS-TH 2009, Bangkok, Thailand.

Liu, M.D., Abuel-Naga, H.M., Carter, J.P. and **Bergado, D.T.** (2009), Predicting the Thermo-mechanica Behavior of Natural Clays, Invited Lecture, International Symposium on Ground Improvement and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change, Bangkok, Thailand.

Owatsiriwong, A., Udomworarat, P., **Park, K.H.** (2009), Development of software tool for integrated frame analysis and design of structural steel connections via open API, CODE 2009: International Conference on Computational Design in Engineering, November 3-6, Seoul, Korea.

Phien-wej, N. (2009), Rock Engineering Experiences in Recent Hydropower Projects in Khorat Rock Groups, Proc. 2nd Thailand Rock Mechanics Symposium, Pattaya, Thailand, pp. 1-12

Phien-wej, N. (2009), The Problem of Severe Coastal Erosion of Bangkok and Mitigation Measures Adopted, Proc. GCOE AIT-KU Joint Symposium on Human Security Engineering, Bangkok, Thailand, pp. 217-223.

Phienwej, N. (2009), Thirty Five Year of Tunnelling Experience in Bangkok, Proc. of International Tunnelling Association (ITA)—TUTG Seminar on Tunnel and Underground Construction for Infrastructure Development, April, Vientiane, Lao PDR.

Phien-wej, N. and Suksawat, T. (2009), Engineering Aspects on Application of Geotube Breakwater to Mitigate Coastal Erosion Problem of Bangkok Metropolis, Proc. of Symposium on Foundation Engineering 2009, Engineering Institute of Thailand, November, Bangkok.

Phien-wej, N., Kitpayuck, P. and Amornfa, K. (2009), Potential Application of Piled-Raft Foundation for Tall Buildings in Bangkok Subsoil, Proc. of Symposium on Foundation Engineering 2009, Engineering Institute of Thailand, November, Bangkok.

Phien-wej, N., Sawatparnich, A. and Sunitsakul, J. (2009), Potential Damage of Highway Bridge Foundation due to Tunnelling in Soft Bangkok Clays, Proc. of ITA World Tunnel Congress 2009, May, Budapest, Hungary

Phien-wej, N., Surarak, C., Cai, H., Suwansawat, S., Guan, H. and Balasubramaniam, A.S. (2009), Combined Cut and Cover and New Austrian Tunnelling Methods for MRT Station in Bangkok Sub-soils, Proc. of 17th International Conference on Soil Mechanics and Geotechnical Engineering, Alexandria, Egypt, pp. 2068-2071.

Riyaz, M., **Park, K.H.** (2009), Tsunami risk assessment of Maldives based on geomorphological characteristics of reefs and islands, SCSTW3: South China Sea Tsunami Workshop 3, November 3-5, Penang, Malaysia.

Saowapakpiboon, J., **Bergado, D.T.**, Voottipruex, P., and Artidteang, S. (2009), PVD Enhanced with Vacuum Pressure for Soft Bangkok Clay Improvement, Proc. Int'l. Symp. on Ground Improvement Tech. and Case Histories, Singapore.

Tanchaisawat, T. and **Bergado, D.T.** (2009), Environmental Sustainability by using recycled Tire Chips-Sand Lightweight Geomaterials Reinforced by Geogrids, Proc. Int'l. Symp. Ground Improvement and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change, Bangkok, Thailand.

Tanchaisawat, T., **Bergado, D.T.** and Shehzad, K. (2009), Large Scale Pullout and Direct Shear Tests of Tire Derived Lightweight Geomaterials

Reinforced with Geogrids, Proc. Int'l. Symp. on Ground Improvement Tech. and Case Histories, Singapore.

Tanchaisawat, T., **Bergado, D.T.**, Hirun, Y. and Nontananandh, S. (2009), Geogrid Reinforced Lightweight Tire-Chips Sand Geomaterials for Embankment on Soft Ground, Proc. GeoAfrica 2009 Conference, Cape Town, South Africa.

Tanchaisawat, T., **Bergado, D.T.**, Shehzad, K., and Voottipruex, P. (2009), Interaction between Geogrid and Lightweight Tire Chips-Sand Mixture: Laboratory and Numerical Simulation, Proc. Geosynthetics 2009, Salt Lake City, Utah, U.S.A.

Tin, N. **Bergado, D.T.** and Mai, L.X. (2009), Factors Affecting the Kinked Steel Grid Reinforcement in MSE Structures, Proc. Int'l. Symp. Ground Improvement and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change, Bangkok, Thailand.

Zin, M.H., Suweero, K., Tran, V.D., Glawe, U., **Park, K.H.**, Visvanathan C. (2009), Construction and monitoring of landfill test cells under tropical climate condition, Proc. of International Conference on Solid Waste Management, November 9-10, Khulna, Bangladesh, 525-531.

5.7 Doctoral Students' Dissertation

Behavior of Stiffened Deep Cement Mixed Pile under Full Scale Embankment Loading on Soft Bangkok Clay
By Pitthaya Jamsawang
Supervisor: Prof. Dennes T. Bergado

Performance and Behavior of Full Scale Reinforced Soil Embankment Wall on DMM Improved Foundation
By Lai Yip Poon
Supervisor: Prof. Dennes T. Bergado

5.8 Masters Students' Theses and Research Studies

Analysis on the Effect of Tunneling and Underground Excavation on Stability of Adjacent Structures

By Chandana J. Medagoda
Supervisor: Dr. Noppadol Phien-wej

An Analysis of Behavior of Piled-Raft Foundation in Bangkok Subsoils

By Phongpat Kitpayuck
Supervisor: Dr. Noppadol Phien-wej

An Investigation on Geopressure Profile in Khorat Basin

By Adithep Jucksriporn
Supervisor: Dr. Pham Huy Giao

Application of Geophysical Measurements in Evaluation of Oil Cement Hardening Process

By Wipoo Sriiamsaard
Supervisor: Dr. Pham Huy Giao

Application of Geostatistics in Assessment of Rock Mass Condition for a Design of a Long Mountain Tunnel in Northern Thailand

By Damrongsak Kham-Ai
Supervisor: Dr. Noppadol Phien-wej

A Study on Characterization of Mechanical Properties of the Near-wellbore Formation using Acoustic Logging Data Analysis

By Raweewan Maneejan
Supervisor: Dr. Pham Huy Giao

Close Cell Landfill Operation under Tropical Conditions

By Myo Htut Zin
Supervisor: Dr. Kyung-Ho Park

Diaphragm Walls Support Deep Excavation in Bangkok-Comparison between Subgrade Reaction and FEM Models, Use WALLAP and PLAXIS Comparison

By Muhammad Humza
Supervisor: Dr. Noppadol Phien-wej

Effect of Fines Content on Engineering Properties of Rockfill as Construction Material for Dams

By Thet Lwin
Supervisor: Dr. Noppadol Phien-wej

Factors Affecting the Reinforcement Stresses and Strains in Mechanically Stabilized Earth (MSE) Structures

By Nguyen Tin
Supervisor: Prof. Dennes T. Bergado

Formation Evaluation using Integrated Well Logging Data for a Gas Field in the Gulf of Thailand

By Thoedpong Witthayapradit
Supervisor: Dr. Pham Huy Giao

Interpretation of Seismic Data using Open Source Environment (OpendTect)

By Avirut Puttiwongrak
Supervisor: Dr. Pham Huy Giao

Large Scale Consolidation of PVD with Vacuum and Heat in the Laboratory

By Suthasinee Artidteng
Supervisor: Prof. Dennes T. Bergado

Numerical Modeling of PVD Consolidation with Surcharge, Vacuum Pressure and Heat in the Laboratory

By Le Gia Lam
Supervisor: Prof. Dennes T. Bergado

Numerical Modeling of SDCM and DCM Piles under Axial and Lateral Loads and under Embankment load: A Parametric Study

By Ponlawich Arjnoi
Supervisor: Prof. Dennes T. Bergado

Numerical Simulation for Bangkok Subway Twin-Tunnels Construction

By Amal Shrestha
Supervisor: Dr. Kyung-Ho Park

Open Cell Landfill Operation under Tropical Conditions

By Kittipong Suweero
Supervisor: Dr. Kyung-Ho Park

Seismic Analysis of Concrete Dam by Numerical Simulation

By Nguyen Trong Nghia
Supervisor: Dr. Kyung-Ho Park

Shear Strength and Flexural Strength Characteristics of Stiffened Cement-Admixed Clay in Laboratory

By Jare Chiaolian
Supervisor: Prof. Dennes T. Bergado

Slope Stability Analysis of Embankment on DCM Piles by Limit Equilibrium and Strength Reduction Method

By Arsit Iyaruk
Supervisor: Dr. Kyung-Ho Park

Chapter 6: SET – INDUSTRIAL AND MANUFACTURING ENGINEERING FIELD OF STUDY

6.1 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.

6.2 Research Facilities and Laboratories

IME field shares all the laboratory facilities with Mechatronics and Microelectronics 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 production and training CNC machines including EMCO TURN242 industrial production CNC lathe, EMCO VMC200 CNC vertical machining center for universal production, MAHO MH600E2 5-axis universal milling and boring machine, an EMCO compact 5 CNC, an EMCO F1 CNC, a LVD CNC press brake, a LVD water-jet cutting CNC, ZOLLER tool presetting system, and a Mondiale Gallic G-420 Industrial CNC lathe, EMCO CNC training system. The 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.

6.3 Faculty and Research Staff

Full-time Faculty

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

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

ERIK L J BOHEZ, Burgerlijk WerktuigKundig Electro- Technisch Ingenieur, Rijks Universiteit Gent (State University Ghent, Belgium); Kandidatuur Burgerlijk Ingenieur, Rijks Universiteit Gent (State University Ghent, Belgium); Technisch Ingenieur Electro-Mechanica, Hoger Technisch Instituut Sint Antonius Gent, (High Technical Institute Saint Antonius Ghent; Belgium).

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

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]

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

Associate 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

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

Visiting Faculty

DAH-CHUAN GONG, B.E. (1979), Chung Yuan Christian University, Taiwan; M.S. (1983), Nebraska-Lincoln; M.S. (1988), and Ph.D. (1991), Georgia Institute of Technology, USA. Professor, Department of Industrial Engineering, Chung Yuan Christian University, Chung-Li, Taiwan.

Visiting Professor [*Global logistic Management; e-Supply Chain and Collaborative Management; Manufacturing Planning and Control System;*

Linear Programming; Location Theory]

R. VENKATA RAO, B.Tech. (1988), Nagarjuna University, A.P.; M.Tech. (1991), Banaras Hindu Univ.; and Ph.D. (2002), B.I.T.S., Pilani, Rajasthan, India. Professor and Head, Dept. of Mechanical Engineering, S.V. National Institute of Technology, Gujarat State, India.

Visiting Professor [*Production and Operations Management, Advanced Manufacturing Technology, Design of Manufacturing Systems, CAD/CAM/CIMS, Fuzzy Multiple Attribute Decision Making Methods, Non-Traditional Optimization Methods*].

AKASPU NEELAKANTESWARA RAO, B.Tech. (1985), S.V. University, Tipupathi; M.Tech. (1989); Ph.D. (1998), IIT Kharagpur, India. Assistant Professor, Department of Mechanical Engineering, NIT Warangal, AP, India.

Visiting Assistant Professor [*Operations Management; Supply Chain Management; Quality Engineering; Theory of Constraints*].

SHYAM SREENIVASA KAMATH, B.Sc. (1984); M.Sc. (1986), P.G. Diploma (1987); and Ph.D. (1991), Karnatak University, Dharwad, India. Assistant Professor, Dept of Mathematical and Computational Sciences, NIT Karnataka, Mangalore, India.

Visiting Assistant Professor [*Graph Theory & Optimization Models*].

AMRIT LAL GHOSH, B.Com., M.Com., and Ph.D., Gauhati University, India.

Visiting Assistant Professor [*Accounting and Finance including Cost Accounting. Presently do a research on microfinance and work for the development of sustainable eco-friendly product through entrepreneurship*]

SIBA SANKAR MAHAPATRA, B.Sc., M.Sc., Sambalpur University; Ph.D.(1999), IIT Kharagpur, India. Professor, Dept. of Mechanical Engineering, National Institute of Technology, Rourkela, India

Visiting Professor [*Application of Soft Computing Techniques in Operations Management; Optimization Techniques in Engineering Design*]

6.4 Grants and Sponsored Research Completed in 2009

Decision Support System for Beverage Industry

Duration 1-Jul-07 - 31-Jul-09
Project Investigator Voratas Kachivichyanukul
Sponsor RTG and Green Spot Company Ltd.
Total Contracted Amount (THB) 900,000

Design and Construction of Online Biochemical Oxygen Demand Sensors as Rapid BOD Assay Devices for Monitoring the Quality of Natural Waters and Wastewater Effluents

Duration 1-May-07 - 30-Apr-09
Project Investigator Pisut Koomsap
Sponsor RTG
Total Contracted Amount (THB) 900,000

Development of Rapid Prototyping System for Sanitary Ware Product

Duration 1-Jun-07 - 31-Dec-09
Project Investigator Pisut Koomsap
Sponsor RTG and Siam Sanitary Ware Industry
Total Contracted Amount (THB) 2,500,000

Professional Masters degree Program in IE&M

Duration 1-Jan-09 - 31-Dec-09
Project Investigator Huynh Trung Luong, Voratas Kachivichyanukul, Eric Bohez, Pisut Koomsap
Sponsor Multi donors
Total Contracted Amount (THB) 6,181,200

Professional Masters degree Program in IE&M HoChiMinh City

Duration 1-Jan-09 - 31-Dec-09
Project Investigator Voratas Kachivichyanukul, Huynh Trung Luong, Eric Bohez, Pisut Koomsap
Sponsor Multi donors
Total Contracted Amount (THB) 4,506,700

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

Duration 1-Feb-07 - 30-Apr-09
Project Investigator Erik Bohez
Sponsor EGAT Public Company, Thailand
Total Contracted Amount (THB) 750,000

The 4th International Congress on Logistic and SCM Systems

Duration 1-Jul-08 - 31-Dec-09
Project Investigator Voratas Kachivichyanukul
Sponsor Participants
Total Contracted Amount (THB) 3,000,000

6.5 On-going Grants and Sponsored Research

Carbon footprint of Double A Paper and Development of Life Cycle Management System

Duration 1-Nov-09 - 01-May-11
Project Investigator Erik Bohez
Sponsor RTG/Advanced Agro
Total Contracted Amount (THB) 2,000,000

Life Cycle Assessment Fine Paper

Duration 1-Jun-08 - 31-May-10
Project Investigator Erik Bohez, Esa Viljakainen
Sponsor Double A
Total Contracted Amount (THB) 1,475,000

Multi objectives multi echelon location routing problem: A case study in Bagasses Ethanol plant in Northeastern Thailand

Duration 1-Aug-09 - 31-Dec-10
Project Investigator Voratas Kachivichyanukul
Sponsor RTG
Total Contracted Amount (THB) 1,000,000

Product and Design Development for Nawaplastic Industries

Duration 15-Nov-09 - 31-May-10
Project Investigator Pisut Koomsap
Sponsor Nawaplastic Industries (Saraburi) Co. Ltd
Total Contracted Amount (THB) 135,890

Product Design & development for SCG Building Material 2009

Duration 1-Aug-09 - 31-Mar-10
Project Investigator Pisut Koomsap
Sponsor SCG Building Materials Co Ltd
Total Contracted Amount (THB) 101,650

The development of Automatic Flat screen Printing Machine

Duration 1-Aug-09 - 30-Jun-10
Project Investigator Pisut Koomsap
Sponsor RTG
Total Contracted Amount (THB) 950,000

The Third International Conference on Management Science and Engineering Management

Duration 1-Sep-09 - 30-Apr-10
Project Investigator Voratas Kachivichyanukul
Sponsor Multi donors
Total Contracted Amount (THB) 1,000,000

6.6 Publications

Refereed Journals

Ai, T. J., and Kachitvichyanukul, V., "A Particle Swarm Optimization for the Heterogeneous Fleet Vehicle Routing Problem," International Journal of Logistics and SCM Systems, Vol. 3, No. 1, 2009, pp32-39

Ai, T. J., and Kachitvichyanukul, V., "A Particle Swarm Optimization for Vehicle Routing Problem with Time Windows," International Journal of Operational Research, Vol 6, No.4, 2009, pp519-537

Ai, T. J., and Kachitvichyanukul, V., "A particle swarm optimization for the vehicle routing problem with simultaneous pickup and delivery," Computers & Operations Research, 36, 2009, pp1693-1702

Ai, T. J., and Kachitvichyanukul, V., "Particle Swarm Optimization and Two Solution Representations for Solving the Capacitated Vehicle Routing Problem," Computers & Industrial Engineering, Vol. 56, No. 1, 2009, pp 380-387

Astanti, R.D. and Luong, H.T., "A heuristic method for SFI policy with increasing power-form demand pattern," International Journal of Logistics and SCM Systems, Vol 3(1), 2009, pp. 8-14.

Astanti, R.D. and Luong, H.T., "A heuristic technique for inventory replenishment policy with increasing demand pattern and shortage allowance," the International Journal of Advanced Manufacturing Technology, Vol. 41(11-12), 2009, pp. 1199-1207

Kachitvichyanukul, V. and Sitthitham, S., "A Two-Stage Genetic Algorithm for Multi-objective Job Shop Scheduling Problems, Journal of Intelligent Manufacturing, DOI: 10.1007/s10845-009-0294-6, July 2009

Kasemset, C. and Kachitvichyanukul, V., "Bi-level multi-objective mathematical model for job-shop scheduling: the application of Theory of Constraints," International Journal of Production Research, DOI: 10.1080/00207540903176705, November 2009

Lin, T, Lee,J,W., and Bohez, E.L.J., "A new accurate curvature matching and optimal tool based five-axis machining algorithm," Journal of Mechanical Science and technology, accepted for publication DOI 10.1007/s12206-008-xxxx-9

Naowapadiwat, W., Gong, D.C., and Kachitvichyanukul, V., "Recent Trends in Research on Collaborative, Planning, Forecasting, And Replenishment," International Journal of Logistics and SCM Systems, Vol. 3, No. 1, 2009, pp64-71

Pongchairerks, P. and Kachitvichyanukul, V., "A Particle Swarm Optimization Algorithm on Job-shop Scheduling Problems with Multi-purpose Machines," Asia-Pacific Journal of Operational Research (APJOR), DOI: 10.1142/S0217595909002158, Vol. 26, No. 2, 2009, pp. 161-184

Pongchairerks, P. and Kachitvichyanukul, V., "A Two-level Particle Swarm Optimization Algorithm on Job-shop Scheduling Problems," International Journal of Operational Research, Vol. 4, No. 4, 2009, pp390- 411

Pongchairerks, P. and Kachitvichyanukul, V., "Particle Swarm Optimization Algorithm with Multiple Social Learning Structures," International Journal of Operational

Research, Vol. 6, No. 2, 2009, pp176-194

Rathviboon, S., Tabucanon, M.T., and Sivakumar, M., "Vendor Evaluation System for a Sustainable Supply Chain Management," International Journal of Logistics and Supply Chain Management Systems, Vol. 3, No. 1, May 2009, p 80-86.

Rianmora, S., Koomsap, P., and Van Hai, D.P., "Selective Data Acquisition for Direct Integration of Reverse Engineering and Rapid Prototyping," Virtual and Physical Prototyping, Vol. 4, No. 4, 2009, pp. 227-239

Sonthipermpon, K , Bohez, E.L.J., Hasemann, H, and Rautenberg, M, "The Vibration Behavior of Impeller Blades in the Five-Axis CNC Flank Milling Process," International Journal of Advanced Manufacturing Technology, Accepted for publication

Soonanon, P., and Koomsap, P., "Towards Direct Transformation of Orthographic-View Drawing into a Prototype" Virtual and Physical Prototyping, Vol. 4, No. 2, 2009, pp. 75-90

Sriprateep, K., and Bohez, E.L.J., "A New Computer Geometric Modeling Approach of Yarn Structures for Conventional Ring Spinning Process", The Journal of the Textile Institute, Vol. 100, No. 3, 2009, pp. 223-236.

Suthunyanakit, K., Bohez, E.L.J., and Annanon, K., "A new global accessibility algorithm for a polyhedral model with convex polygonal facets," Computer-Aided Design, Vol. 41, No. 12, 2009, pp. 1020-1033

Tabucanon, M.T., "Asia-Pacific Higher Education Institutions Form Alliance on Sustainability in Postgraduate Education and Research," Journal of Education for Sustainable Development, Vol. 3, No.1, 2009, Sage Publication, p 23-25.

Ullah, H., and Bohez, E.L.J., "Mathematical Modeling of Feature Conversion", International Journal of Industrial and Systems Engineering, Vol.4, No. 1, 2009, pp 94-110

Ullah, H., Bohez, E.L.J., and Irfan, M.A., "Assembly Features: Definition, Classification, and Usefulness in Sequence Planning", International Journal of Industrial and Systems Engineering, Vol.4, No. 2, 2009, pp 111-132

Waiyagan, K., and Bohez, E.L.J., "Intelligent Feature Based Process Planning for Mill-Turn Parts", Computers in Industry, Vol. 60, No. 5, 2009, pp. 296-316

Conference Proceedings

Bach Su, N. P., and Kachitvichyanukul, V., "Decision Support Framework for Order Review/Release based on Workload," the 20th International Conference on Production Research, Shanghai, China, August 2009

Bohez, E.L.J., "Recent Innovations in Food Packaging," the 4th International Conference on Innovations in Food Processing Technology and Engineering (ICFPTE), Bangkok, Thailand, January 2009

Chansri, N., and Koomsap, P., "Dual Lines Extraction for Identifying Single Line Drawing from Paper-Based Overtraced Freehand Sketch," 16th ISPE International Conference on Concurrent Engineering, Taipei, Taiwan, July 2009

Chung N. V., Beforte, G., and Bohez, E.L.J., "Minimal Worst Case Optimal Sampling for Systematic Angular Error Identification in Multi-Axis CNC Machine Tools," the 20th International Conference on Production Research, Shanghai, China, August 2009

Kachitvichyanukul, V., and Ai, T. J., "Particle Swarm Optimization with Self-Adapt Parameters," the Asia Conference on Intelligent Manufacturing & Logistics Systems (IML 2009), Kitakyushu, Japan, February 2009

Kachitvichyanukul, V., and Cuong, D.D., "A Mixed Particle Swarm Optimization Algorithm for Continuous-flow-shop Scheduling Problem," the 20th International Conference on Production Research, Shanghai, China, August 2009

Kasemset, C. and Kachitvichyanukul, V., "A Two-step Approach for Job-shop Scheduling Based on TOC Policy," ASOR 20th National Conference and the 5th International Intelligent Logistics Systems Conference 2009, Gold Coast, Australia, September 2009

Luong, H.T., and Yuvasavee, P., "A Hybrid Backlog – Lost Sales Inventory Control Policy for Poisson Demand Process," Proceedings of the Third International Conference on Management Science and Engineering Management (ICMSEM), Thailand. 2009

Phattanaphibul, T., and Koomsap, P., "Improving Flowability of PLA Powder for Rapid Prototyping Process," the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan December 2009

Rianmora, S., and Koomsap, P., "The application of fringe projection concept for selective data acquisition," 2009 International Conference on Computer and Automation Engineering, Bangkok, Thailand March 2009

Risdiyono, and Koomsap, P., "A Study of Design by Customers: Areas of Application," 16th ISPE International Conference on

Concurrent Engineering, Taipei, Taiwan, July 2009

Risdiyono, and Koomsap, P., "Crowdscreening: A Natural Selection for Mass Customization," The 5th World Conference on Mass Customization & Personalization, Helsinki, Finland, October 2009

Sangthammatone, N., Pisutpaisal, N., Koomsap, P., and Vongthanasunthorn, N., "Production of Bioelectricity from Artificial Wastewater Using Microbial Fuel Cell" Pure and Applied Chemistry International Conference, Phisanulok, Thailand, January 2009.

Sooksaksun, N., and Kachitvichyanukul, V., "Performance Evaluation of Warehouse with One-block Class-based Storage Strategy," the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan December 2009

Sooksaksun, N., Kachitvichyanukul, V., and Gong, D.C., "Performance Comparison of Different Warehouse Layouts under a Class-based Storage Policy," the 5th International Congress on Logistics and SCM Systems, Seoul, Korea, June 2009

Soonanon, P., and Koomsap, P., "Establishing Contours for Layer-Based Geometrical Reconstruction," the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan December 2009

Tangpaisannukul, S., and Koomsap, P., "Development of a User-Friendly Process Modeling Tool for Operator Training Simulator," the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan December 2009

Trinh, T. H., and Kachitvichyanukul, V., "Tourism Cluster Development of Central Vietnam: A Global Chain

Perspective," the 3rd International Conference on Management Science and Engineering Management (ICMSEM), Bangkok Thailand, November 2009

Udomsakdigool, A., and Kachitvichyanukul, V., "Solving Multi-objective Job Shop Scheduling Problem using Ant Colony Optimization," the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan December 2009

Ut, N. V., Koomsap, P., and Tangwarodomnukun, V., "Simplifying Abrasive Waterjet Cutting Process for Rapid Manufacturing," 16th ISPE International Conference on Concurrent Engineering, Taipei, Taiwan, July 2009

Wongwiwat, A., and Bohez, E.L.J., "Petri Net To Schedule Flexible Job Shop, Case of Mold Making Shop," the 20th International Conference on Production Research, Shanghai, China, August 2009

Books and Book Chapters

Xu, Jiuping, Kachitvichyanukul, V., and Jiang, Yong., Proceedings of the Third International Conference on Management Science and Engineering Management, Bangkok, Thailand, November 2-4, 2009 (ISBN:978-1-84626-003-2), World Academic Press, UK.

[Ullah, H., Bohez, E.L.J., Irfan, M.A.](#), Assembly Features: Definition, classification, and usefulness in sequence planning, **International Journal of Industrial and Systems Engineering** Volume 4, Issue 2, 2009, Pages 111-132

Conference Papers

Assawin Wongwiwat, Erik L.J. Bohez, Petri Net To Schedule Flexible Job Shop, Case Of Mold Making Shop, Proceeding of the 20th International

Conference of Production Research (ICPR20), 2–6 August 2009, Shanghai, China

Erik L.J. Bohez, Recent Innovations In Food Packaging, ICFPTE'09 4th International Conference on Innovations in Food Processing Technology and Engineering, January 19-20, 2009, AIT, Bangkok, Thailand

Kasemset, C. and Kachitvichyanukul, V., A Two-step Approach for Job-shop Scheduling Based on TOC Policy, ASOR 20th National Conference and the 5th International Intelligent Logistics Systems Conference 2009, Gold Coast, Australia, September 2009

Nguyen Phan Bach Su and Kachitvichyanukul, V., Decision Support Framework for Order Review/Release based on Workload, the 20th International Conference on Production Research, Shanghai, China, August 2009

Nguyen Van Chung, G. Belforte, Erik L.J. Bohez, Minimal Worst Case Optimal Sampling For Systematic Angular Error Identification In Multi-Axis CNC Machine Tools, Proceeding of the 20th International Conference of Production Research (ICPR20), 2–6 August 2009, Shanghai, China

Sooksaksun, N. and Kachitvichyanukul, V., Performance Evaluation of Warehouse with One-block Class-based Storage Strategy, Proceedings of the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan, December 2009.

Sooksaksun, N., Kachitvichyanukul, V., and Gong, D.C., Performance Comparison of Different Warehouse Layouts under a Class-based Storage Policy, Proceedings of the 5th International Congress on Logistics and SCM Systems, Seoul, Korea, June 2009

Trinh, T. H., and Kachitvichyanukul, V., Tourism Cluster Development of Central Vietnam: A Global Chain Perspective, Proceedings of the Third International Conference on Management Science and Engineering Management (ICMSEM), Bangkok, Thailand, November, 2009

Udomsakdigool, A., and Kachitvichyanukul, V., Solving Multi-objective Job Shop Scheduling Problem using Ant Colony Optimization, Proceedings of the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan, December 2009.

Voratas Kachitvichyanukul and Dao Duc Cuong, A Mixed Particle Swarm Optimization Algorithm for Continuous-flow-shop Scheduling Problem, the 20th International Conference on Production Research, Shanghai, China, August 2009

Book Edited

Xu, Jiuping, Kachitvichyanukul, V., and Jiang, Yong., Proceedings of the Third International Conference on Management Science and Engineering Management, Bangkok, Thailand, November 2-4, 2009 (ISBN:978-1-84626-003-2), World Academic Press, UK.

Reports

Dr. Esa Viljakainen, Ir. Erik L.J. Bohez, Narath Bhusiri, M.Eng., Anne Elizabeth Djajasaputra, M.Eng., Carbon Footprint and Life Cycle Assessment of Fine Paper at Advance Agro PCL, September 2009

Patents

A Carton With Two Layers Wherein The Inner Layer Is Collapsible And A Blank Therefore (In Vietnamese) November 2009, Inventors: Le Thanh Trung, Erik L.J. Bohez

Procedimento per l'identificazione e la compensazione degli errori

sistematici in macchine utensili multi-asse a controllo numerico e relativo sistema. Application number TO2009A001052 (Italy) December 2009. Patent holder: Politecnico di Torino. Inventors: Gustavo Belforte, Erik L. J. Bohez. (Procedure for systematic error identification in multi-axis CNC machine tools)

International Recognition

Kachitvichyanukul, V., Program Chair of the IASTED International Conference on Advances in Computer Science and Engineering (ACSE 2009), March 2009, Phuket, Thailand. Organized by the International Association of Science and Technology for Development (IASTED), Calgary, Canada

Kachitvichyanukul, V., Program Chair of the Third International Conference on Management Science and Engineering Management Conference, November 2009, Bangkok, Thailand. Organized by the International Association for Management Science and Engineering Management.

Presentations at International Conference

Kachitvichyanukul, V., and Ai, T. J., Particle Swarm Optimization with Self-Adapt Parameters, Proceedings of the Asia Conference on Intelligent Manufacturing & Logistics Systems (IML 2009), Kitakyushu, Japan, February 2009

Kachitvichyanukul, V., and Ai, T. J., PSO with Self-Adapt Parameters, ASOR 20th National Conference and the 5th International Intelligent Logistics Systems Conference 2009, Gold Coast, Australia, September 2009

Kachitvichyanukul, V., and Sae-Heure, S., An Adaptive PSO Algorithm for Distribution Network Design of Supply Chain, Special Conference on Methods and Applications of Metaheuristics

(SCMAM 2009), Guangzhou, China, December 2009.

Kachitvichyanukul, V., Particle Swarm Optimization for Large-Scale Industrial Applications, Plenary talk at the 10th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS 2009), Kitakyushu, Japan, December 2009.

International Seminars

Kachitvichyanukul, V., Adaptive Particle Swarm Optimization Technique and its Engineering Applications, Workshop at the School of Business, Sichuan University, Chengdu, China, April 2009

6.7 Doctoral Students' Dissertation

Design and Manufacturing Engineering

Intelligent Feature- Based Process Planning for a Five-Axis Mill-Turn Parts

By Kriangkrai Waiyagan
Supervisor: Assoc. Prof. Erik L. J. Bohez

New Accessibility Computation for a Polyhedral Model and a NURBS Model in Tool-Based Manufacturing

By Kittichai Suthunyanakit
Supervisor: Assoc. Prof. Erik L J Bohez

The Orthographic Reconstruction Algorithm for Adaptive Layered Manufacturing

By Paphakorn Soonanon
Supervisor: Dr. Pisut Koomsap

Industrial Engineering and Management

TOC Based Procedure for Job-Shop Scheduling

By Chompoonoot Kasemset
Supervisor: Prof. Voratas Kachitvichyanukul

Industrial and Manufacturing Engineering

Optimal Energy Subscription Policy for Multiple Plants with Uncertain Demand

By Puvarin Nilrangsee
Supervisor: Assoc. Prof. Erik L.J. Bohez

6.8 Masters Students Theses

Industrial and Manufacturing Engineering

An Adaptive Hybrid Algorithm for Multi-Mode Resource-Constrained Project Scheduling Problems

By Dao Duc Cuong
Supervisor: Dr. Voratas Kachitvichyanukul

An Adaptive Particle Swarm Optimization Algorithm for a Multicommodity Distribution Network Design

By Suntaree Sae-Huere
Supervisor: Dr. Voratas Kachitvichyanukul

An Adaptive Particle Swarm Optimization Algorithm for Multiobjective Job Shop Scheduling Problems

By Suparat Wongnen
Supervisor: Dr. Voratas Kachitvichyanukul

Analyzing Supply Chain Performance Under Different Collaborative Replenishment Strategies

By Wijitra Naowapadiwat
Supervisors: Prof. Dah-Chuan Gong/Dr. Voratas Kachitvichyanukul

A Study of Environmental Impacts of "Double A Paper" Using The Cradle-to-Gate Life Cycle Assessment Method

By Narath Bhusiri
Supervisor: Assoc. Prof. Erik L. J. Bohez

Coordinated Production - Inventory Decision in a Multi-Stage Supply Chain

By Nguyen Ngoc An Dien
Supervisor: Dr. Huynh Trung Luong

Design and Development of a Cutting Unit for Adaptive Profile Cutting

By Kiattisak Sakulphan
Supervisor: Dr. Pisut Koomsap

Development of a Hybrid Backlog-Lost Sales Inventory Control Policy

By Nattapong Akkhanit
Supervisor: Dr. Huynh Trung Luong

Development of a User-Friendly Process Modeling Tool for an Operator Training Simulator

By Surachai Tangpaisannukul
Supervisor: Dr. Pisut Koomsap

Effects of Stochastic Leadtime on Bullwhip Effect in a Supply Chain

By Hoang Kim Cuc
Supervisor: Dr. Huynh Trung Luong

Feasibility of Using Pulsed Ultra Violet Sterilization for Milk Packaging Containers

By Vanarin Suvattipunth
Supervisor: Assoc. Prof. Erik L. J. Bohez

Improving a Sheet-Based Rapid Prototyping Process

By Sitthichai Sitthisangumphai
Supervisor: Dr. Pisut Koomsap

LCA of Catfish Processing Factory in Cantho City, Vietnam

By Lai Thanh Tung
Supervisor: Assoc. Prof. Erik L. J. Bohez

Measuring the Bullwhip Effect in a Supply Chain: A Time-Based Approach

By Norraron Treecheewannath
Supervisor: Dr. Huynh Trung Luong

New Design of Cosmetic Facial Powder Godet

By Jintana Tresuwan
Supervisor: Assoc. Prof. Erik L. J. Bohez

Productivity Improvement via Lean Manufacturing Technique: A Case Study

By Jaruwan Saichompoo
Supervisor: Dr. Voratas Kachitvichyanukul

Selective Maintenance Policy

By Tran Trong Viet
Supervisor: Dr. Huynh Trung Luong

Toward a Design by Customer for Multi-Color Nested Pattern Products

By Pornnalin Kuagoolkijgarn
Supervisor: Dr. Pisut Koomsap

Virtual Reality Environment for Driving a Simulator

By Wijak Suksaengrat
Supervisor: Dr. Pisut Koomsap

Research Study: New Model of an FMS Using FTPN with Demand Variability and Machine Breakdown

By Muhammad Haris Aziz
Supervisor: Assoc. Prof. Erik L. J. Bohez

Chapter 7: SET – MECHATRONICS and MICROELECTRONICS FIELDS OF STUDY

7.1 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

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.

7.2 Research Facilities and Laboratories

Mechatronics and Microelectronics 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.

7.3 Faculty and Research Staff

Full-time Faculty

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

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

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

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

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

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

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

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

Visiting Faculty

TARAPRASAD CHATTOPADHYAY, B.Sc. (1977); M.Sc. (1979); and Ph.D. (1988), Burdwan University, W.B., India. Currently, Professor, Department of Physics, Visva-Bharati, Santiniketan, W. Bengal, India.

Visiting Professor [*Microwave/Milimeterwave/Sub mm Wave / Optical Communication Systems*]

DEVENDRA SONA CHAUDHARI, B.Eng. (1987); M.Eng. (1990), SGGS College of Engineering & Technology, Nanded, Marathwada University, Aurangabad, India; Ph.D. (2000), IIT Bombay, India. Currently, Assistant Professor, Head, Dept. of Electronics and Telecommunication Engineering, Government College of Engineering, Jalgaon, India.

Visiting Assistant Professor [*Linear (Analog) Integrated Circuits; Biomedical Engineering, Signal Processing*]

PERUMAL DANANJAYAN, B.Sc., University of Madras; B.Tech., M.E., Ph.D.(1998), Anna U, India. Professor and Head/ECE dept. Pondicherry Engineering college, Pondicherry, India.

Visiting Professor [*Wireless Communication System – Mobile - MC-CDMA, Sensor Network*]

AKE FALDT, Ph.D. (Physics) (1980), Chalmers University of Technology/University of Gothenburg. **Professor of Chalmers University of Technology.**

Visiting Professor [*General Physics courses, Covering Mechanics, Thermodynamics, Electric and Magnetic fields, Wave Physics, Quantum Physics and Introductory Solid State Physics*]

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

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

LERTSAK LEKAWAT, BE KMIT Ladkrabang, Thailand; MSc., George Washington University USA; PhD Carnegie Mellon Univeristy, USA.

Visiting Lecturer [*Data Storage System, Analog design, digital design, mixed signal design*]

DENIS SWEATMAN, Ph.D. (Physical Chemistry) (1982), University of Queensland. Faculty in Griffith University

Visiting Professor [*Optical Communication Systems, Practical Electronics, Integrated Electronics, Network Theory and Analysis and Introduction to MEMS Design*]

PRAN HARI TALUKDAR, B.Sc., M.Sc., Ph.D.(1982), Gauhati University, India. Professor, Dept.Instrumentation & USIC, Gauhai University. India.

Visiting Professor [*Computer Networking and Signal Processing*]

7.4 Grants and Sponsored Research Completed in 2009

Automated Pick and Place of Concrete Roof Tile at the Pressing Machine Operation

Duration 1-Jun-06 - 31-Dec-09
Project Investigator Nitin Afzulpurkar
Sponsor CPAC Roof Tile Co. Ltd, Thailand
Total Contracted Amount (THB) 1,350,000

Development of an Exoskeleton Robot for Handicapped People Project

Duration 1-Jul-06 - 31-Dec-09
Project Investigator Manukid Parnichkun
Sponsor National Electronics and Computer Technology Center, Thailand
Total Contracted Amount (THB) 2,043,100

Development of Force Feedback Exoskeleton system for Virtual Reality

Duration 1-Nov-08 - 31-Oct-09
Project Investigator Manukid Parnichkun
Sponsor RTG
Total Contracted Amount (THB) 952,000

Master Degree in HDD Engineering Technology

Duration 1-Jul-07 - 31-Dec-09
Project Investigator Nitin Afzulpurkar, Worsak K, Huynh Troung Luong, Joydeep Dutta, Lertsak Lekawat, Manukid P
Sponsor Western Digital Co. Ltd.
Total Contracted Amount (THB) 10,528,000

New Raw Material Development for Filters in Hard Disk Drives

Duration 16-Jun-08 - 30-Jun-09
Project Investigator Joydeep Dutta
Sponsor RTG-AIT/Donaldson
Total Contracted Amount (THB) 3,000,000

Photocatalytic thin film coating technology

Duration 16-Jun-08 - 30-Jun-09
Project Investigator Joydeep Dutta
Sponsor National Electronic and Computer Technology Center, National Science and Technology Development Agency, Thailand
Total Contracted Amount (THB) 1,870,940

7.5 On-going Grants and Sponsored Research

Automated Inline Foam Sheet Placement and Adhesion

Duration 1-Jun-07 - 31-Dec-10
Project Investigator Nitin Afzulpurkar
Sponsor RTG-CPAC Roof Tile Co. Ltd
Total Contracted Amount (THB) 1,500,000

Brain computer interface based mental detection for accident prevention and Machine control: Applications in Fatigue alarming and Robot control

Duration 1-Jul-09 - 31-Dec-10
Project Investigator Manukid Parnichkun
Sponsor RTG
Total Contracted Amount (THB) 1,000,000

Development of an Automatic Steering Cruise Control System for Passenger Cars

Duration 1-Nov-07 - 31-Oct-10
Project Investigator Manukid Parnichkun
Sponsor National Electronics and Computer Technology Center, Thailand
Total Contracted Amount (THB) 1,988,000

Development of Robot Controller

Duration 1-Nov-08 - 31-Oct-11
Project Investigator Manukid Parnichkun
Sponsor Aerofluid Co Ltd/RTG
Total Contracted Amount (THB) 2,000,000

Disk Drive Automated Test Operation Modelling for Throughput Predicting Controlling and Monitoring

Duration 15-Sep-08 - 15-Sep-10
Project Investigator Nitin Afzulpurkar
Sponsor Seagate Technology Th Ltd/RTG
Total Contracted Amount (THB) 900,000

Flow Modeling in Hard disc Drives

Duration 15-Dec-09 - 15-Dec-10
Project Investigator Joydeep Dutta, Huynh Trung Luong, Pisut Koomsap
Sponsor Donaldson Company Thailand
Total Contracted Amount (THB) 1,000,000

Lab to large scale dye sensitized solar cells

Duration 15-Apr-09 - 15-Apr-10
Project Investigator Joydeep Dutta
Sponsor RTG/SVI Public Co. Ltd
Total Contracted Amount (THB) 2,000,000

Master Degree in HDD Engineering Technology #3

Duration 1-Jul-09 - 01-Jul-11
Project Investigator Nitin Afzulpurkar
Sponsor Western Digital Co. Ltd.
Total Contracted Amount (THB) 10,528,000

Master Degree in HDD Engineering Technology-Batch 2

Duration 1-Jul-08 - 01-Jul-10
Project Investigator Nitin Afzulpurkar
Sponsor Western Digital Co. Ltd.
Total Contracted Amount (THB) 10,528,000

Printed Electronics using Direct Writing Technology

Duration 8-Mar-05 - 31-May-10
Project Investigator Joydeep Dutta
Sponsor NSTDA
Total Contracted Amount (THB) 2,498,776

Simulation Model for reducing Spring Constant in HDD Suspension

Duration 1-Dec-08 - 30-Nov-10
Project Investigator Nitin Afzulpurkar
Sponsor I/U CRC Advanced Manufacturing
Total Contracted Amount (THB) 500,000

Zinc Oxide nanorods as filtration Media for multifunctional applications

Duration 15-Dec-09 - 15-Dec-10
Project Investigator Joydeep Dutta
Sponsor Donaldson Company Thailand
Total Contracted Amount (THB) 1,000,000

7.6 Publications

Refereed Journals:

- A. R. Abbasi, M. N. Dailey, N. V. Afzulpurkar, T. Uno, "Student mental state inference from unintentional body gestures using dynamic Bayesian networks", Journal on Multimodal User Interfaces, Springer, DOI 10.1007/s12193-009-0023-7, 2009.
- B. Saengchandr, N. V Afzulpurkar, "A Novel Approach for Cooling Electronics Using a Combined Heat Pipe and Thermoelectric Module", American J. of Engineering and Applied Sciences 2 (4): 603-610, 2009
- D. Tongsomporn, N. Afzulpurkar, O. Sitthisak, "A study of head instabilities in TMR sensors using in high density perpendicular magnetic recoding systems", International Journal of Applied Electromagnetics and Mechanics, vol. 31, number 4/2009, pp. 257-265, 2009, **Impact Factor: 0.255.**
- D. W. Bodhale, A. Nisar, N. Afzulpurkar, (2009), Structural and microfluidic analysis of hollow side-open polymeric microneedles for transdermal drug delivery applications, Journal of Microfluidics and Nanofluidics, Springer, 07.07.2009, vol. 0, no. 0, pp. 1-20 DOI 10.1007/s10404-009-0467-9, **Impact Factor: 3.314**
- E. Dumsong, N. Afzulpurkar, A. Tuantranont, "Design, Analytical Modeling, and Simulation of Wire-free Walking Scratch-drive Microrobot," IEEE Transaction of Industrial Electronics, Vol. 56, No. 4, pp. 1109-1120, Apr. 2009, **Impact factor 5.468**
- K. Kiatpanichagij and N. Afzulpurkar (2009), Use of supervised discretization with PCA in wavelet packet transformation-based surface electromyogram classification, International Journal of Biomedical Signal Processing and Control, (Elsevier), Volume 8, Number 4, December, 2008, pp 203-218, ISSN: 1746-8094, **Impact Factor: 0.442** 7th of the 25 hottest articles from April to June 2009, 20th of the 25 hottest articles from July to September 2009. <http://top25.sciencedirect.com/subject/engineering/12/journal/biomedical-signal-processing-and-control/17468094/archive/22/>
- Kessarat Ugsornrat, N. Afzulpurkar, "Design, Simulation, and Experimental Study of a Droplet based PCR by EWOD", Sensors and Materials, Accepted for publication, December, 2009, **Impact Factor: 0.395**
- Narong Aphiratsakun and **Manukid Parnichkun**. "Balancing Control of AIT Leg Exoskeleton Using ZMP based FLC," International Journal of Advanced Robotic Systems. Vol. 6, No. 4, pp. 319-328 (2009)
- R. Kitsomboonloha, S. Baruah, Myo T. Z. Myint, V. Subramanian and J. Dutta, Selective growth of zinc oxide nanorods on ink-jet printed seed patterns, Journal of Crystal Growth 311 (2009) 2352-2358, [**JCR 2007 Impact Factor ~ 1.950**]
- S. Baruah and J. Dutta, Effect of seeded substrates on hydrothermally grown ZnO nanorods, J. Sol-Gel Science and Technology 50 (2009) 456-464, [**JCR 2007 Impact Factor ~ 1.300**]
- S. Baruah and J. Dutta, Hydrothermal growth of ZnO nanostructures, Science & Technology of Advanced Materials 10 (2009) 013001, [**JCR 2007 Impact Factor ~ 1.270**]
- S. Baruah and J. Dutta, Nanotechnology applications in Sensing and Pollution Degradation in Agriculture, Environmental Chemistry Letters 7 (2009), 191-205, [**JCR 2007 Impact Factor ~ 1.008**]
- S. Baruah and J. Dutta, pH dependent growth of ZnO nanorods, Journal of Crystal Growth 311 (2009) 2549-2554, [**JCR 2007 Impact Factor ~ 1.950**]
- S. Baruah, S. S. Sinha, S. K. Pal, B. Ghosh, A. K. Raychaudhuri and J. Dutta, Photo-reactivity of ZnO nanoparticles in visible light: Effect of surface states on electron transfer reaction, Journal of Applied Physics 105 (2009), 074308, **TOP25 Journal in Nanotechnology-ISI**, [**JCR 2007 Impact Factor ~ 2.171**]
- V. T. Minh, N. Afzulpurkar, and W.M. Wan Muhamad. "Fault Detection Model-Based Controller for Process Systems". Asian Journal of Control, Accepted in Dec 2009, **Impact Factor: 0.562**
- Viroch Sukontanakarn and **Manukid Parnichkun**. "Real Time Optimal Control for Rotary Inverted Pendulum," American Journal of Applied Sciences. Vol. 6 (6) pp.1106-1115 (2009)

Conference Proceedings

- A. M. N Dammika, B. Seneviratne, and Nitin V. Afzulpurkar, "Development of a vision inspection system for automated inspection of a gear box assembly", In Proc. IFoTMM Int. Symp. Robotics and Mechatronics (ISRM, 21-23 September, 2009) Hanoi Vietnam.
- Aarthy Sivapunniam, Myo Tay Zar Myint, Niti Wiromrat and Joydeep Dutta, Detection of Liquefied petroleum gas with one dimensional nanostructured zinc oxide, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment,

December 21-22, 2009, Bangkok, Thailand, Pages 106-107.

Abdul Rehamn Abbasi, Nitin V. Afzulpurkar, and Takeaki Uno, "Towards Emotionally-Personalized Computing: Dynamic Prediction of Student Mental States from Self-Manipulatory Hand Movements", 5th IEEE International Conference on Emerging Technologies (ICET), 2009, Islamabad.

Abdul Rehamn Abbasi, Akhtar Hussain, and Nitin V. Afzulpurkar "Towards Development of Student Affect Sensitive Classroom Barometer" In Proc. IFoTMM Int. Symp. Robotics and Mechatronics (ISRM, 20-23 September, 2009) Hanoi Vietnam.

Ajaya Sapkota, Sunandan Baruah, Oleg Shippin and Joydeep Dutta, Photocatalytic inactivation of bacteria with ZnO nanorods, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 104-105.

Alfredo J. Anceno, Patrick Dabert, Oleg V. SHipin and Joydeep Dutta, Impact of size and shape of metallic nanoparticles on polymerase chain reaction, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 9-10.

Bui Trung Thanh, **Manukid Parnichkun**, Le Chi Hieu "Structure Specified H_∞ Loop Shaping Control for Balancing of Bicycle Robot: A Particle Swarm Optimization Approach," Proceedings of the 2009 Virtual International Conference on Innovative Production Machines and Systems, IPROMS 2009, (2009)

Chairit Wuthishuwong, Chaiyaporn Silawatchananai, **Manukid Parnichkun**. "Navigation of an

Intelligent Vehicle by Using Stand-Alone GPS, Compass and Laser Range Finder," Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics, Bangkok, 2009. (Conference CD ROM)

Chamaiporn Teerasetopon, Sivanappan Kumar and Joydeep Dutta, Ultrasonic spray pyrolysis growth of ZNO nanorods for dye sensitized solar cells, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 65-66.

Dhananjay Bodhale, Asim Nisar, and Nitin Afzulpurkar, "Coupled Multifield Analysis of Microneedle Based Piezoelectrically Actuated Microfluidic Device for Transdermal Drug Delivery Applications", Multibody Dynamics, 29 Jun to 2nd July, 2009, Warsaw, Poland

Dhananjay Bodhale, Nitin Afzulpurkar, and Nguyen Truong Thanh, "Path Planning for a Mobile Robot in a Dynamic Environment", Proceedings of the IEEE International Conference on Robotics and Biomimetics, Bangkok, Thailand, February 21 - 26, 2009.

Dhananjay Bodhale, Nitin Afzulpurkar, and Nguyen Truongthanh, "Path planing for a mobile robote in a dynamic inviorment", In Proc. IFoTMM Int. Symp. Robotics and Mechatronics(ISRM, 21- 23 September, 2009) Hanoi Vietnam.

Dumsong, E. , Afzulpurkar, N., Tuantranont, A. and Punyasai, C. "A finite state machine for controlling untethered scratch-drive micro-robot", Proceedings of the IEEE International Conference on Robotics and Biomimetics, Bangkok, Thailand, February 21 - 26, 2009.

Dwijendra Kumar Das, Myo Tay Zar Myint, Tanujjal Bora, Niti Wiromrat and Joydeep Dutta, Environmental Safety Application: Integration of solid state gas sensors with GIS based monitoring system, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Page 78.

Ekkasit Dumsong, Nitin Afzulpurkar, Anurat Wisitsora and Adisorn Tuantranont, 'Wire free, waking scratch drive microrobote", In Proc. IFoTMM Int. Symp. Robotics and Mechatronics(ISRM, 21- 23 September, 2009) Hanoi Vietnam.

Htet Htet Kyaw, Tanujjal Bora and Joydeep Dutta, Zinc oxide nanorods dye sensitized solar cell: Effect of annealing temperature, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 52-53.

M. W. Ashraf, Shahzadi Tayyaba, Asim Nisar, Nitin Afzulpurkar, and adisorn Tuantranont, "Coupledfield microfluidic analysis of integrated MEMS based device for transdermal drug delivery applications", 13th IEEE International Multitopic Confere, INMIC, 14-15 December. 2009, Islamabad.

Myo Tay Zar Myint, Rungrot Kitsomboonloha, Sunandan Baruah and Joydeep Dutta, Fakir Effect: Zinc oxide microrods patterned array surface, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 108-109.

Narong Aphiratsakun, **Manukid Parnichkun**. “Fuzzy Based Gains Tuning PD Controller for Joint Position Control of AIT Leg Exoskeleton-I (ALEX-I),” Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics, Bangkok, 2009. (Conference CD ROM)

Nassaree Benalie, Worrawut Pananurak, Somphong Thanok, **Manukid Parnichkun**. “Improvement of Adaptive Cruise Control System based on Speed Characteristics and Time Headway,” Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2009), St.Louis, USA, 2009. (Conference CD ROM)

Panussa Sitthiphol, Nitin Afzulpurkar, Nattawut Thepayasuwan, and John Rindle, “Modeling of Manufacturing Process Affecting on SA (static attitude),” The 2nd Int. Data storage Conf. (DST-CON), 13- 15 May, 2009, Thailand.

Rungrot Kitsomboonloha, Mayuree Jaisai and Joydeep Dutta, Antimicrobial property of an indoor paint containing silver nanoparticles on escherichia coli, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 16-17.

Sanngeon, W., Afzulpurkar, N., Bhuripanyo, J., and Bodhale, D., “Adaptive geometry track design and implementation for an all terrain mobile robot”, Proceedings of the IEEE International Conference on Robotics and Biomimetics, Bangkok, Thailand, February 21 - 26, 2009.

Sarawuth Inthiruk, Nitin Afzulpurkar, Nattawut Thepayasuwan, and Taweesak Mansumrod Karn, “ Design And Development of Automation

Line of Suspension Assembly Process”, The 2nd Int. Data storage Conf. (DST-CON), 13- 15 May, 2009, Thailand.

Somphop Limsoontharakul, Matthew N. Dailey, **Manukid Parnichkun**. “Intelligent Vehicle Localization Using GPS, Compass and Machine Vision,” Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2009), St.Louis, USA, 2009. (Conference CD ROM)

Somphop Limsoontharakul, Matthew N. Dailey, Suwan Tongphu, Methee Srisupundit, **Manukid Parnichkun**. “A Modular System Architecture for Autonomous Robots Based on Blackboard and Publish-Subscribe Mechanisms,” Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics, Bangkok, 2009. (Conference CD ROM)

Somsak Khramthong, Nitin Afzulpurkar, Nattawut Thepayasuwan, and Somporn Kornwong, “Automated Inspection Of Micro Weld Spots On Suspension”, The 2nd Int. Data storage Conf. (DST-CON), 13- 15 May, 2009, Thailand.

Sujin Wanchat, Nitin Afzulpurkar, Nattawut Thepayasuwan, and John Rindle, “Influence of Cutting Parameters to Surface Roughness for Q-Switched Nd: YAG Laser”, The 2nd Int. Data storage Conf. (DST-CON), 13- 15 May, 2009, Thailand. **BEST PAPER AWARD**

Sunandan Baruah and Joydeep Dutta, Visible light photocatalysis for water decontamination using engineered zinc oxide nanoparticles and nanowires, International Workshop on Advanced Materials (IWAM 2009), 22-24 February, 2009, Ras Al Khaimah, UAE

Sunandan Baruah, Mohammad Abbas Mahmood and Joydeep

Dutta, Defect engineering of zinc oxide nanorods for visible light, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 110-111.

Supaporn Leungsuree and Joydeep Dutta, Synthesis of anisotropic zinc oxide nanoparticles, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 112-113.

Tanujjal Bora, Htet Htet Kyaw, Mana Poyai and Joydeep Dutta, Highly efficient zinc oxide nanorod dye sensitized solar cell: Plasmonic interaction, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 42-43.

Tongsomporn, D., Vongsarath, K., Sivaratana, R., Afzulpurkar, N., Bargmann, B., and Siritaratiwat, A., “An experimental study of head-disk clearance sensitivity and instabilities in magnetic recording heads with adaptive flying height”, Magnetic Recording Conference, APMRC, Asia-Pacific, 14-17 January, 2009.

Trung, P., Afzulpurkar, N., and Bodhale, D., “Development of vision service in Robotics Studio for road signs recognition and control of LEGO MINDSTORMS ROBOT”, Proceedings of the IEEE International Conference on Robotics and Biomimetics, Bangkok, Thailand, February 21 - 26, 2009.

Vo Duc My, and Nitin Afzulpurkar, “The Integration of support vector machine and 2D wavelet decomposition for face detection”, In Proc. IFoTMM Int. Symp. Robotics and Mechatronics (ISR/M, 21- 23 September, 2009) Hanoi Vietnam.

Worrawut Pananurak, Somphong Thanok, **Manukid Parnichkun**. "Adaptive Cruise Control for an Intelligent Vehicle," Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics, Bangkok, 2009. (Conference CD ROM)

Zaheer Abbas Khan, Rachana Kumar and Joydeep Dutta, Self Assembly of citrate stabilized gold with chitosan/PDDA capped silica colloidal nanoparticles, Proceedings of the 3rd Thailand Nanotechnology Conference 2009 – Health, Energy and Environment, December 21-22, 2009, Bangkok, Thailand, Pages 68-69.

Other Publications

Nanoscience and Nanotechnology Textbooks

Introduction to NanoScience, (CRC Press of Taylor and Francis Group LLC), 856pp, ISBN-13: 9781420048056, G. Louis Hornyak, Joydeep Dutta, Harry F. Tibbals and Anil K. Rao

Fundamentals of Nanotechnology, (CRC Press of Taylor and Francis Group LLC), December 832pp, ISBN-13: 9781420048032, G. Louis Hornyak, John J. Moore, Harry F. Tibbals and Joydeep Dutta

Introduction to Nanoscience and NanoTechnology, (CRC Press of Taylor and Francis Group LLC), 1200pp, ISBN-13: 9781420047790, G. Louis Hornyak, Harry F. Tibbals, Joydeep Dutta and John J. Moore

7.7 Doctoral Students' Dissertation

Mechatronics

A Probabilistic Framework Modeling Relationships Between Student Mental States and Body Gestures

By Abdul Rehman Abbasi
Supervisors: Dr. Nitin V. Afzulpurkar/Dr. Matthew Dailey

Fusion of Local and Global Information for the Localization of an Intelligent Vehicle

By Chirdpong Deelertpaiboon
Supervisor: Dr. Manukid Parnichkun

Use of Supervised Discretization with PCA in Wavelet Packet

Transformation-Based Surface Electromyogram Classification

By Kirkpong Kiatpanichagij
Supervisor: Dr. Nitin V. Afzulpurkar

Microelectronics

The Design, Analytical Modeling, Simulation and Fabrication of a Wire-Free, Walking Scratch-Drive Microrobot

By Eakkasit Dumsong
Supervisor: Dr. Nitin Afzulpurkar

7.8 Masters Students' Theses

Mechatronics

A Comparative Study of Single and Dual PZT for Suspension-Based Milli-Actuators

By Gunphai Prateepphaisan
Supervisor: Dr. Nitin V. Afzulpurkar

A Solar Powered NXT Mobile Robot

By Pham Tan Khoa
Supervisor: Dr. Nitin V. Afzulpurkar

A Study of Low MRR Failure Due to ESD and Scratch Damage Using QST Parameter

By Sinchai Cheryklin
Supervisor: Dr. Manukid Parnichkun

A Weld Spot Visual Inspection System for HDD Suspension

By Somsak Khramthong
Supervisor: Dr. Nitin V. Afzulpurkar

Design and Simulation of the Suspension Assembly Process

By Sarawuth Inthiruk
Supervisor: Dr. Nitin V. Afzulpurkar

Development of Adaptive Cruise Control System Based on Speed Characteristics and Laser Scanner

By Nassaree Benalie
Supervisor: Dr. Manukid Parnichkun

Development of a Force Feedback Arm Exoskeleton for Virtual Reality

By Nguyen Cao Thang
Supervisor: Dr. Manukid Parnichkun

Development of a Localization System for an Intelligent Vehicle

By Methee Srisupundit
Supervisor: Dr. Manukid Parnichkun

Development of an Automatic Parking System

By Chollatis Anekwanana
Supervisor: Dr. Manukid Parnichkun

Development of a Rehabilitation Device for Paralyzed Children

By Thieu Quang Tri
Supervisor: Dr. Manukid Parnichkun

Development of a Vision Inspection System for Automated Inspection of a Gear Box Assembly

By A.M.N.D.B. Seneviratne
Supervisor: Dr. Nitin V. Afzulpurkar

Implementation of X-Y Planar Position Control of a Ball on Touch Screen Using PMD Motion Card

By Tayawat Sukkhaphat
Supervisor: Dr. Manukid Parnichkun

Modeling of Manufacturing Process Affecting SA Suspension

By Panussa Sitthiphol
Supervisor: Dr. Nitin V. Afzulpurkar

Optimization of Altic Etching Process Using Fluorinated Gases

By Ekawit Hensirisak
Supervisor: Prof. Joydeep Dutta

Parameters Analysis for Low Power Q-switched Laser Cutting in Singulation Process of HDD Manufacturing

By Sujin Wachat
Supervisor: Dr. Nitin V. Afzulpurkar

Performance and Robustness Analysis of Balancing Control of a Bicycle Robot Using Fuzzy Sliding Mode Control

By Wongsakorn Pornnutvuttikul
Supervisor: Dr. Manukid Parnichkun

Resonance Specification for HDD's Actuator Components

By Pitiphong Atibodhi
Supervisor: Dr. Nitin V. Afzulpurkar

Studies to Reducing Contribution of Static Attitude (SA) of HGA in HGA Process Assembly

By Pongsakorn Panyoyai
Supervisor: Dr. Nitin V. Afzulpurkar

Study of Magnetic Spacing Impact Due to PSA, RSA & GRAM Load Using Dynamic Electrical Test

By Kittit Tangtrakoon
Supervisor: Mr. Brent Bargmann

Study of Process Optimization for DLC Overcoat by Filter Cathodic ARC Deposition

By Phuwanai Bunnak
Supervisor: Dr. Nitin V. Afzulpurkar

The Intelligent Five-Axis Postprocessing and Benchmarking of the Small Open Architecture Five-Axis CNC Machine

By Bui Huy Hoang
Supervisor: Assoc. Prof. Erik L. J. Bohez

The Intergration of Wavelet Analysis and Supply Vector Machine for Face Detection

By Vo Duc My
Supervisor: Dr. Nitin V. Afzulpurkar

Webcam Stereo Vision-Based 3D Object Localization and its Performance

By Wiput Tuvayanond
Supervisor: Dr. Nitin V. Afzulpurkar

MICROELECTRONICS

A Study of Airborne Particle Count Using Light Scattering Technique

By Jeerasak Potham
Supervisor: Dr. Lertsak Lekawat

Hydrophobic Surface by Growing ZnO Nanorods on Zinc Electroplated Steel

By Konakom Buayai
Supervisor: Prof. Joydeep Dutta

Integrated Signal Processing Chips for Silicon Microphones

By Kritsada Borisuttirattana
Supervisor: Dr. Lertsak Lekawat

Simulation Model to Study the Effect of HGA Processes to Mechanical Changing in Suspension

By Peeranut Phuttal
Supervisor: Dr. Nitin V. Afzulpurkar

Simulation of the Optical Properties of Polyelectrolyte Assisted Colloidal Thin Films

By Anjeena Shrestha
Supervisor: Prof. Joydeep Dutta

Studies on Zinc Oxide Nanorod Dye Sensitized Solar Cell

By Tanujjal Bora
Supervisor: Prof. Joydeep Dutta

Studies on Zinc Oxide Nanorods for Photocatalytic Degradation of Methylene Blue in Aqueous Solution

By Mohammad Abbas Mahmood
Supervisor: Prof. Joydeep Dutta

Study of Anisotropic Particles for Chemical Mechanical Polishing

By Supaporn Leungsuree
Supervisor: Prof. Joydeep Dutta

Study of Instability in TuMR Head

By Thanachai Siriudomlert
Supervisor: Dr. Lertsak Lekawat

Research Study: Characterization of Discrete Electronics Devices Using Thin Layer Fabrication with Nano Particles

By Zaheer Abbas Khan
Supervisor: Prof. Joydeep Dutta

Chapter 8: SET – REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS FIELD OF STUDY

8.1 Introduction

Geoinformatics comprising Remote Sensing (RS), Geographic Information System (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.

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 Geoinformatics Center laboratory. The RS&GIS field of study has a policy of maintaining the best working environment for students, staff and faculty.

The RS&GIS LAN Network can also be monitored in real time. Besides, it has a very good archive of satellite imagery of SPOT, Landsat-TM, MODIS, NOAA, ADEOS, ERSSAR, and JERS-SAR to serve the students in their research and thesis studies. Other data, such as topographic,

landuse, soil, geology maps of Thailand and some aerial photographs, ALOS data, are also available. The RS&GIS library also provides students with more specialized books, journals, and computer manuals. Some of the technical magazines regularly available are GIM International, GIS@Development, and International Journal of Geoinformatics.

Some equipment in its laboratory available for academic activities include: Arc GIS 9.4, 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 and others.

8.3 Faculty and Research Staff

Full-time Faculty

KIYOSHI HONDA, BAgr, DEng,
University of Tokyo, Japan
Associate Professor (*Image Processing, Erosion control, Terrain modeling, Sensor Web GIS*)

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*)

XIAOYONG CHEN, BS, MS, PhD,
Wuhan Technical Univ of Survey and
Mapping, People’s Republic of China.

Associate Professor (*Automated
Mapping, GIS,
Photogrammetry, Remote
Sensing, Mathematical
Morphology and Database
Management System*)

Visiting Faculty

MARC SOURIS, PhD, Université de La
Rochelle, France

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

MICHIRO KUSANAGI, BS, MS, Univ of
Tokyo, Japan; MS, Ph.D, Univ of
California, USA.

Visiting Professor (*Aerospace
System Engineering, Space
System Engineering*)

SEISHIRO KIBE, BEng, MEng, DEng,
University of Tokyo, Japan

Visiting Professor (*Aerospace
System Engineering, GPS,
Microwave Remote Sensing*)

I.V. MURALI KRISHNA, MTECH, Indian
Institute of Technology, India; Ph.D.,
Indian Institute of Science, India.

Adjunct Professor (*Remote
Sensing Applications in
Environment, Climate Change,
Sustainable Development*)

WATARU TAKEUCHI, Doctor of
Engineering, University of Tokyo,
Japan

Visiting Faculty (*Remote Sensing
of Environment and Disaster,
Data and Information
Processing*)

YOSHIKAZU KAMIYA, BEng,
Yokohyama 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*)

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*)

VENKATESH RAGHAVAN, BS, MS,
Univ of Poona, India; Ph.D., Univ. of
Osaka City, Japan

Adjunct Faculty (*Spatial
Information Science and
Geoinformatics*)

Affiliated Faculty and Research Staff

LAL SAMARAKOON, PhD
**Visiting Senior Scientist;
Director, GIC** (*GIS, RS, Digital
Image Processing, Surveying,
Mapping*)

MANZUL KUMAR HAZARIKA, PhD,
University of Tokyo, Japan; MEng,
Asian Institute of Technology,
Bangkok, Thailand; MTech, Indian
Institute of Technology, Kharagpur;
BTech, J N Krishi Vishwa Vidyalya (J.
N. Agriculture University), India
**Senior Research and Training
Specialist** (*RS and GIS
Applications to Global
Environment, Terrestrial Carbon
Cycle and NPP*)

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

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

VIVARAD PHONEKEO, MSc, DTechSc,
Asian Institute of Technology,
Thailand

Project Researcher (*Remote
Sensing and GIS, [NOAA AVHRR &
Terra/Aqua MODIS receiving
and processing](#) system, Digital
Image Processing, Computer
Graphics, Spatial Data
Visualization, MODIS Fire
Product Development*)

**8.4 Grants and Sponsored
Research Completed in
2009**

**Application of Remote Sensing
(Professional Development Training
Program)**

Duration 1-Aug-08 - 30-Sep-09
Project Investigator Lal Samarakoon
Sponsor Surveyor Association of Malaysia
Total Contracted Amount (THB) 879,872

**Capacity Building in Poverty Mapping in
ASEAN**

Duration 1-Jan-07 - 30-Apr-09
Project Investigator Lal Samarakoon
Sponsor ASEAN Foundation
Total Contracted Amount (THB) 9,519,545

Digital Asian Network 2006-2009

Duration 1-Mar-06 - 31-Mar-09
Project Investigator Lal Samarakoon
Sponsor Keio Research Institute at SFC, Keio
University, Japan
Total Contracted Amount (THB) 362,835

JAXA Capacity Building 2008-2009

Duration 12-Sep-08 - 31-Mar-09
Project Investigator Lal Samarakoon
Sponsor Japan Aerospace Exploration Agency
Total Contracted Amount (THB) 9,793,039

**Poverty Mapping and Reduction
Strategies**

Duration 1-Aug-08 - 31-Aug-09
Project Investigator Lal Samarakoon
Sponsor Government of India
Total Contracted Amount (THB) 2,438,818

TMD Earthquake Damage Assessment

Duration: 1 August 2007 – 31 December 2009
 Investigator: Dr. Pennung W. and Dr. Honda Kiyoshi
 Sponsor: Chula Unisearch, Chulalongkorn University
 Total Contracted Amount (Baht): 2,411,667.00

8.5 On-going Grants and Sponsored Research

Business and Logistics Management using Integrated RFID and InternetGIS

Duration 1-Aug-07 – 30-Nov-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor RTG/CARACAD
 Total Contracted Amount (THB) 1,800,000

Data generation for Tsunami modeling and Risk assessment

Duration 1-Oct-09 - 31-Mar-11
 Project Investigator Kiyoshi Honda
 Sponsor Asian Disaster Preparedness Center (ADPC)
 Total Contracted Amount (THB) 4,947,360

Developing Land cover Data Products in Monsoon Asia over the Period 2004-07 through Integration of Landsat and Multi-Temporal ALOS/PALSAR Imagery

Duration 1-Apr-09 - 31-Mar-11
 Project Investigator Manzul Hazarika
 Sponsor University of Oklahoma, USA
 Total Contracted Amount (THB) 1,020,000

Development Planning, Management & Governance

Duration 1-Nov-09 - 31-Aug-10
 Project Investigator Lal Samarakoon
 Sponsor Government of India
 Total Contracted Amount (THB) 2,400,000

Disaster and Project Management

Duration: 9 Jan 08 – 28 Feb 10
 Investigator: Dr. Nitin K. Tripathi
 Sponsor: Self Paid
 Total Contracted Amount (Baht): 115,500.00

Integrated Coastal Zone Planning and Management using Geoinformation Technology

Duration 1-Nov-09 - 01-Dec-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Multi donors
 Total Contracted Amount (THB) 544,000

Integrated Coastal Zone Planning and Management Using RS and GIS

Duration 15-Sep-08 – 30-Apr-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Self-paid
 Total Contracted Amount (THB) 1,257,450

International Conference on Health GIS

Duration 1-Oct-07 – 30-Apr-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Self-paid
 Total Contracted Amount (THB) 360,000

JAXA Capacity Building 2009 - 2010

Duration 28-Aug-09 - 31-Oct-10
 Project Investigator Lal Samarakoon
 Sponsor Japan Aerospace Exploration Agency
 Total Contracted Amount (THB) 9,862,668

Models and Simulations for Natural Disasters Provision of Galileo

Duration: 1 Apr 07 – 1 Apr 09
 Investigator: Dr. Xiaoyong Chen
 Sponsor: The French Ministry of Foreign Affairs
 Total Contracted Amount (Baht): 209,317.50

NOAA AVHRR and Terra/ Aqua MODIS

Duration 1-Apr-07 - 31-Mar-11
 Project Investigator Lal Samarakoon
 Sponsor Vision Tech/Japan
 Total Contracted Amount (THB) 783,000

Orthorectification of High Resolution Satellite Data

Duration 24-Nov-08 - 30-Apr-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Multi donors
 Total Contracted Amount (THB) 284,458

Provision of Galileo expertise Networking and Support for International Initiatives

Duration 1-Nov-08 – 30- Apr-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Instituto Superiore Mario Boella, Italy
 Total Contracted Amount (THB) 687,000

Satellite Data utilization for disaster Risk reduction and response Training Seminar and Workshop for Capacity Building in ASEAN

Duration 1-Feb-09 - 31-Mar-11
 Project Investigator Lal Samarakoon
 Sponsor ADRC
 Total Contracted Amount (THB) 14,185,344

Sensor Net Visualization 2007

Duration: 13 Aug 07 – 31 May 10
 Investigator: Dr. Honda Kiyoshi
 Sponsor: Elab Experience Co., Ltd.
 Total Contracted Amount (Baht): 3,042,000.00

South East Asia Center on European GNSS for International cooperation and Local development.

Duration 15-Mar-09 - 15-Dec-10
 Project Investigator Nitin Tripathi
 Sponsor The European GNSS Supervisory Authority
 Total Contracted Amount (THB) 1,996,000

Thailand GIS Development for Research on Ontology

Duration 1-Jan-08 - 30-Jun-10
 Project Investigator Lal Samarakoon
 Sponsor Center for Spatial Information Science, University of Tokyo
 Total Contracted Amount (THB) 1,050,000

The Application of GPU Computing technology to accelerate Geoinformatics Applications

Duration 31-Jul-09 - 31-Jul-10
 Project Investigator Kiyoshi Honda
 Sponsor RTG
 Total Contracted Amount (THB) 990,000

Training cum Study visit Program on Project Management for Hygiene Sanitation and water Supply

Duration 1-Apr-09 - 31-Mar-10
 Project Investigator Lal Samarakoon
 Sponsor DANIDA Bangladesh
 Total Contracted Amount (THB) 828,750

Training Programs in Poverty Mapping

Duration 1-Oct-08 - 31-Oct-11
 Project Investigator Lal Samarakoon
 Sponsor Multi-donors
 Total Contracted Amount (THB) 576,000

UNIGIS Online Masters and Professional Program

Duration 1-Aug-07 - 31-Jul-10
 Project Investigator Nitin Kumar Tripathi
 Sponsor Self-paid
 Total Contracted Amount (THB) 1,089,000

World Health Organisation

Duration 1-Dec-08 – 31-Jan-11
 Project Investigator Lal Samarakoon
 Sponsor WHO
 Total Contracted Amount (THB) 612,000

8.6 Publications

Refereed Journals:

Dang Quang Tinh, Nitin Kumar Tripathi and Marshall L. Silver, 2009. Coping with Extreme Floods using Karst Caves in Limestone Areas in the Red Basin, Viet Nam, *Journal of Disaster Advances*, October, Vol. 2, No. 4, 5-14.

Diallo, M.B.C., A. J. Anceno, B. Tawatsupa, Tripathi, N.K. and Shipin, O.V., 2009. A GIS-based analysis of the fate of waster-related pathogens, Giardia lamblia, Cryptosporidium parvum and E. coli

in a tropical canal network. *Journal of Water and Health*, 7, 1, 133-143 (Published by International Water Association Publishing in collaboration with the World Health Organization (Impact Factor 1.164)).

Francis CANISIUS, **HONDA Kiyoshi** and Mitsuharu TOKUNAGA, 2009. Updating geomorphic features of watersheds and their boundaries in hazardous areas using satellite synthetic aperture radar, *International Journal of Remote Sensing*, Vol 30, Issue 22, pages 5919 – 5933 (doi: 10.1080/01431160902791879)

HONDA Kiyoshi, Aadit Shrestha, Apichon Witayangkurn, Rassarin Chinnachodteeranun and Hiroshi Shimamura, 2009. Field servers and Sensor Service Grid as Real-time Monitoring Infrastructure for Ubiquitous Sensor Networks, *Sensors* (ISSN 1424-8220), 9, no. 4: 2363-2370, (doi:10.3390/s90402363)

Hossain, M. Z. and **Nitin K. Tripathi**, 2009. Monitoring Near-shore and Insular Marine Protected Area Network using Landsat, ASTER and IKONOS Images, *Int J of Imaging*, (In Press)

Jeefo, Phisarn, **Tripathi, N.K.**, Souris, M. and Phonekeo, V., 2009. Exploring Geospatial Factors Contributing to Malaria Prevalence in Kanchanaburi, Thailand. *International Journal of Geoinformatics*, Vol. 5, No. 1, 21-28.

Mahasandana Suwisa, Tripathi Nitin and **HONDA Kiyoshi**, 2009. Sea surface multispectral index model for estimating chlorophyll a concentration of productive coastal waters in Thailand, *Canadian Journal of Remote Sensing*, Vol.35, No.3, pp.287-296.

Nakarin Chaikaew, **Nitin K. Tripathi** and Marc Souris, 2009. Exploring spatial patterns and hotspots of diarrhea in Chiang Mai, Thailand.

International Journal of Health Geographics. Vol. 8, No. 36, 1-10.

Pirasteh, S., Sirous, R., **Tripathi, N.K.**, Pradhan, b., Mansour, S. and Ramli, M.F., 2009. Landscape rendition in Zagros Mountain, Iran using Geoinformation Technology, *Journal of Geomatics*, Vol. 3, No 1, 71-76.

Ramli, F., M., **Tripathi, Nitin**, Yosof, Nurhakim, Shafri, Helmi and Ali Rahman Zufahmi, 2009. Lineament mapping in tropical environment utilizing Landsat Imagery, *International Journal of Remote Sensing*, pp 1-41.

Suchart Podchong, Dietrich Schmidt-Vogt and **Kiyoshi HONDA**, 2009, An improved approach for identifying suitable habitat of Sambar Deer (*Cervus Unicolor Kerr*) using ecological niche analysis and environmental categorization: case study at Phu-Khieo Wildlife Sanctuary, Thailand, *Ecological Modelling*, Vol. 220, Issue 17, pp.2103-2114 (doi:10.1016/j.ecolmodel.2009.04.045)

Sujittra Charoenhirunyings, **Kiyoshi HONDA**, Daroonwan Kamthonkiat and Amor Ines, 2009. Soil Moisture Estimation from Data Assimilation Using Multiple Criteria Functions, *Agricultural Water Management*, submitted 2009.

Sujittra Charoenhirunyings, **Kiyoshi HONDA**, Daroonwan Kamthonkiat and Amor V.M. Ines, 2009. Soil Hydraulic Parameters Estimated By Satellite Information Through Data Assimilation, *International Journal of Remote Sensing*, Accepted 2009.

Suwisa, M., **Tripathi, N.K.** and Honda K., 2009. Sea surface multispectral index model for estimating chlorophyll-a of productive coastal waters in Thailand, *Canadian Journal of Remote Sensing*.

Veerachai Tanpipat, **Kiyoshi HONDA** and Prayoonyong Nuchaiya, 2009. MODIS Hotspots Validation over Thailand, *Remote Sensing*, 1(4), 1043-1054 (doi:10.3390/rs1041043)

Wataru OHIRA, Kenji HARADA and **Kiyoshi HONDA**, 2009. Journal of Japan Association for Earthquake Engineering, submitted 2009.

Books / Chapters

Mehmood, H. and **Tripathi, N.K.**, 2009. Real Time Self Mapping Hybrid Positioning System. Ed. Dr. J. Strobs and Dr. A. Kar., Pulished by Herbert Wichmann Verlag, Heidelberg. Austria.

Conference Proceedings:

Anujit Vansarochana, **Nitin K. Tripathi**, and Roberto Clemente, 2009. "Investigating Mudslide Phenomenon in Mae Cham Basin, Thailand". Proc. Of 2nd Int. Conference on Geoinformation Technology for Natural Disaster Management (GIT4NDM), Bangkok, Thailand, p. 206-209.

HONDA Kiyoshi, Aadit Shrestha, Apichon Witayangkurn, Rassarin Chinnachodteeranun, Hiroshi SHIMAMURA, 2009. Field servers and Sensor Service Grid as Real-time Monitoring Infrastructure for Ubiquitous Sensor Networks: Pre-Workshop, Sensor Network Technology and Applications for Agriculture and Environment, GEOSS (The Global Earth Observation System of Systems) Sensor Web Workshop, Tsukuba, Japan, 20 May, 2009

Masahiko Nagai, Apichon Witayangkurn, Aadit Shrestha, Rassarin Chinnachodteeranun, **Kiyoshi HONDA** and Ryosuke Shibasaki, 2009. UAV-Based Sensor Web Monitoring System: Proc. of Asian Conference on Remote Sensing (ACRS).

Nakaran, C., **Tripathi, N.K.** and Souris, M., 2009. A space time permutation scan statistics for diarrhea outbreak detection in Chiangmai, Thailand. *Volume of 3rd Int. Conf on HealthGIS 2009*, Hyderabad, India, 216-219.

Pimple, U., **Tripathi, N.K.** Kibe, S. and S. Hossain, Z., 2009. Mapping Green House Gases to alleviate the impact on human health., *Volume of 3rd Int. Conf on HealthGIS 2009*. Hyderabad, India, 225-230.

Siriwan, H. and **Tripathi, N.K.**, 2009. Geospatial Overview of Swine Flu Outbreak in Mid 2009. *Volume of 3rd Int. Conf on HealthGIS 2009*, Hyderabad, India, 231-236.

Wataru Ohira, Naoki Mitsuzuka, **HONDA Kiyoshi** and Kenji Harada, 2009. Estimation of reduction in tsunami inundation flux by coastal forest in case of Hambantota District, Sri Lanka, Proceedings of the 11th IIS Forum, -Earth Environment Monitoring from Space-, pp.39-46.

Development Project Reports /Non-referred Publications

Daroonwan KAMTHONKIAT, **HONDA Kiyoshi** et. al., 2009. Draught Monitoring and Impact Assessment on Rice in a Lower Part of Northeastern Thailand for a Basis of Decision Support System, Report Submitted to Thai Research Fund.

Invited Lectures and Keynote Addresses

HONDA Kiyoshi, 2009. Sensor Service Grid as Real-Time Monitoring Infrastructure and its application to Soil Moisture Observation in Thailand, Present and Future of Soil Sensor, AGRI-COCOON, University of Tokyo, Japan, 11 July, 2009

HONDA Kiyoshi, Aadit Shrestha, Apichon Witayangkurn, Rassarin Chinnachodteeranun and Hiroshi SHIMAMURA, 2009. Fieldservers and Sensor Service Grid as Real-time Monitoring Infrastructure for

Ubiquitous Sensor Networks: GEOSS Sensor Web Workshop (Task DA 07-04, Sensor Web Enablement for In-Situ Observing Network Facilitation), Tsukuba, Japan, 21 May, 2009

HONDA Kiyoshi, Aadit Shrestha, Apichon Witayangkurn, Rassarin Chinnachodteeranun and Hiroshi SHIMAMURA, 2009. Fieldservers and Sensor Service Grid as Real-time Monitoring Infrastructure for Ubiquitous Sensor Networks, The 2nd u-Agriculture International Workshop, Sunchon National University, Korea, 11 May, 2009.

Tripathi, N.K., 2009. Invited Lecture on Geoinformatics Research in AIT, Faculty of Geography, Burapha University, Chonburi, Thailand, August 2009.

Tripathi, N.K., 2009. Invited Lecture on HealthGIS, ITC Netherlands, Enschede, The Netherlands, March 2009.

Tripathi, N.K., 2009. Key Note, International Conf. 8th Int. Symposium and Ex. On Geoinformation ISG 2009, 10-11 August 2009, Int. Soc. Of Photogrammetry and Remote Sensing WG, Kuala Lumpur, Malaysia.

8.7 Doctoral Students' Dissertation

Anopheles Mosquito Density Predictive Model Based on Remotely Sensed Data
By Arisara Charoenpanyanet
Supervisor: Dr. Xiaoyong Chen

Disease Patterns, Hotspots and Diffusion in Chiang Mai Province, Thailand
By Nakarin Chaikaew
Supervisor: Dr. Nitin K. Tripathi

Estimation of Soil Hydraulic Properties Through Data Assimilation in the Agro-Hydrological Model and its Application to Impact Assessment of Dry Spell on Rice Yields
By Sujittra Charoenhirunyngyos
Supervisor: Dr. Kiyoshi Honda

Near Real Time Burn Scars Detection in Dry Dipterocarp and Mixed Deciduous Forest of Thailand using Terra MODIS Data

By Veerachai Tanpipat
Supervisor: Dr. Kiyoshi Honda

Spectral Modelling for Marine Water Quality Estimation in Bangpakong Estuary, Thailand

By Suwisa Mahasandana
Supervisor: Dr. Nitin Kumar Tripathi

Use of Remote Sensing and Geographic Information Systems for Management and Protection against Extreme Floods in the Red River Basin of Vietnam

By Dang Quang Tinh
Supervisor: Dr. Nitin Kumar Tripathi

Wavelet Transform Application to C/A Code Multipath Mitigation at GPS Reference Stations for Accuracy Improved Differential GPS Corrections

By Thilantha Lakmal Dammalage
Supervisor: Prof. Seishiro Kibe

8.8 Masters Students' Theses

Afforestation Land Suitability Modeling: The Case of Kratie, Cambodia

By Leng Chivin
Supervisor: Dr. Nitin K. Tripathi

A Resettlement Approach Based on Physical Constraints of a Mangrove Forest: The Case of Nargis-Hit Area, Myanmar

By Tun Aung Kyaw
Supervisor: Dr. Xiaoyong Chen

Assessment of DEM Accuracy Generated from ALOS Prism High Resolution Stereo-Optical Imagery Using LPS

By Samarasuriya Patabendige Chaminda
Supervisor: Dr. Xiaoyong Chen

Crops Suitability Modeling Using Remote Sensing and GIS in Semi-Arid Zone of Kyaukpadaung, Myanmar

By Nu Kyang
Supervisors: Prof. Seishiro Kibe/Dr. Nitin K. Tripathi

Development of Location Based Application for Local Search Feature on iPhone

By Prateek Srivastava
Supervisor: Dr. Nitin K. Tripathi

Estimation of Building Stories for HAZUS Using Light Detection and Ranging (LiDAR)

By Chomchanok Liangwannaphorn
Supervisor: Dr. Kiyoshi Honda

Extraction of Mangrove Forest Parameters Using Airborne Lidar for a Tsunami Run-up Model

By Wasinee Cheunban
Supervisor: Dr. Kiyoshi Honda

Extraction of Paddy Fields Damaged by Nargis Storm (May 2008), Myanmar

By Kyaw Soe Linn
Supervisor: Dr. Kiyoshi Honda

Geocoding of the Thai Address System: Algorithm Development for a Continuous Address System

By Phutcharad Vicharnakorn
Supervisor: Dr. Kiyoshi Honda

Implementation of a Remote Sensing Cloud Removal Algorithm (LMF) for a Graphic Processing Unit

By Sarn Aksarannugraha
Supervisor: Dr. Kiyoshi Honda

Improvement of Local Maximum Fitting (LMF) for High Temporal Remote Sensing Data Using Meteorological Data

By Salinthip Kungvalchokechai
Dr. Kiyoshi Honda

Opium Poppy Cultivation Detection Using Moderate Resolution Satellite Imagery: A Case Study in Myanmar

By Kyaw Naing Win
Supervisor: Dr. Nitin K. Tripathi

Real Time Air Pollution (NO₂) Monitoring in Urban Microclimate Using Portable Sensor Node Under Sensor Service GRID

By Mir Mustafizur Rahman
Supervisor: Dr. Kiyoshi Honda

Shape Spectrum Analysis for Spatial Objects in 2D GIS

By Song Zhang
Supervisor: Dr. Xiaoyong Chen

Spatio-Dynamic Analysis of Influenza Epidemiology Using Geographic Information System

By Kittiphong Phongsapan
Supervisor: Dr. Nitin K. Tripathi

Supply Chain Management Using RFID and GPS-Assisted Tracking System

By Sanit Arunpold
Supervisor: Dr. Nitin K. Tripathi

The Application of Texture Analysis for Tree Species Identification Using Super High Resolution Image

By Witchawat Sinchai
Supervisor: Prof. Seishiro Kibe

The Reconstruction of a 3D Building Model from Uncalibrated Images

By Kumpee Teeravech
Supervisor: Dr. Xiaoyong Chen

Water Quality Parameters in the Caspian Sea

By Gulbibi Khamid
Supervisor: Prof. Seishiro Kibe

Research Study: Characterization of Dengue Risk on Urban Environment Using Geoinformation Technology

By Muhammad Shahzad Sarfraz
Supervisor: Dr. Nitin K. Tripathi

Research Study: Hybrid Positioning Systems & Development of Open Source Wardriving Tools

By Hamid Mehmood
Supervisor: Dr. Nitin K. Tripathi

Chapter 9: SET – STRUCTURAL ENGINEERING FIELD OF STUDY

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.

9.2 Research Facilities and Laboratories

One of principal elements of STE Lab is a strong floor system. The strong



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.

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.

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

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.

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

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

Emeritus Professor

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

Adjunct/Affiliated Faculty

JUNJI KIYONO, D.Eng. and M.Eng. Kyoto University, Japan

Adjunct Professor [*Analysis of Large Ground Deformation; Investigation of near field ground motions and development of methods and tools for simulation of ground motion, taking into account multi-layered media and extent of faulting*]

AKIRA IGARASHI, D.Eng. and M.Eng. Kyoto University, Japan

Adjunct Associate Professor [*Structural Dynamics; Seismic Isolation; Active & Passive Control of Structures; Pseudo dynamic Test and Hybrid Experimental Simulation of Dynamic Structural Response*]

GUNNESWARA RAO TIPPABHOTLA, D. Eng. and M. Tech., National Institute of Technology (Formerly known as Regional Engineering College) Warangal

Adjunct Assistant Professor [*Sustainable Cementing Materials and Technologies; Fiber Reinforced Concrete and Ferrocement; Fracture mechanics of concrete Structures; Soft computing tools for Structural Engineering*]

THANAKORN PHEERAPHAN, Ph.D. and M.Sc., Massachusetts Institute



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.

9.3 Faculty and Research Staff

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*]

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

of Technology, USA., B.Sc., Virginia Military Institute, USA.

Adjunct Assistant Professor
[Concrete Technology; Structural Analysis; Engineering Materials; Composite Materials; Advanced Concrete Technology; Mechanics of Materials]

YUSUKE ONO, D.Eng. and M.Eng.
Kyoto University, Japan

Adjunct Assistant Professor
[Dynamic soil-structure interaction; Seismic behavior of under ground structure; Seismic behavior of earth structure; Multi-Agent simulation; Development of Virtual Clearinghouse for earthquake disaster reconnaissance]

RAKTIKONG 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]

SONGKIAT MATUPAYONT, Ph.D., Saitama University, Japan; M.Eng., AIT, Thailand; B.Eng., Chulalongkorn Univ, Thailand.

Adjunct Faculty [Bridge Engineering; Prestressed Concrete; Structural Analysis and Design]

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

Affiliated Faculty and Research Engineer [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 [Structural Analysis and Design; Computational Mechanics; Computer Application; Bridge Engineering; Tall Buildings; Software Development]

SUN SAYAMIPUK, D.Eng., M.Eng., AIT, Thailand; B.Eng., Kasetsart Univ., Thailand.

Affiliated Faculty and Senior Laboratory Supervisor [Low cost housing materials, Construction materials and its durability, Supplementary cementitious materials, Experimental behavior of structural systems, Field testing of structures]

9.4 Grants and Sponsored Research Completed in 2009

Adjustment to the Building Energy Code

Project Description: Development of Energy Development and Promotion (DEDP) is implementing a project entitled "Adjustment to the Building Energy Code" with assistance from the Danish Cooperation for Environment and Development (DANCED). The main purpose of the project is to update the Building Codes relate to energy. The existing codes and standards relates to energy will be adjusted or updated according to the latest available knowledge. Comprehensive and valuable knowledge on energy issues related to building already exists in Thailand. To emphasize the sustainability of the project it is obvious to utilize this national resource.

Duration: 1 Jan 2001 – 30 Jun 2009
Project Investigator: Prof. Worsak Kanok-Nukulchai
Sponsor: Dansk Energi Management A/S
Total Contracted Amount (Baht): 14,040,000

Creep and Shrinkage of High Strength Concrete of Asia Center Project

Duration: 1 Mar 2008 – 30 May 2009
Project Investigator: Dr. Sun Sayamipuk
Sponsor: PBL Group Company Limited
Total Contracted Amount (Baht): 240,000

Development of Precast Concrete Frame Buildings for Seismic Regions

Project Description: An innovative precast concrete building system for seismic regions will be studied. Four types of standard buildings for construction in seismic risk zone of Thailand

will be designed using the precast concrete system. Their seismic performance will be evaluated through both experimental testing and numerical analysis.

Duration: 20 Aug 2007 - 31 May 2009
Project Investigator: Dr. Pennung Warnitchai
Sponsor: National Housing Authority, Thailand
Total Contracted Amount (Baht): 3,090,000

Independent Inspection and Testing Agency for Concrete Sleeper Manufacturing

Duration: 4 Jan 2009 - 30 Dec 2009
Project Investigator: Dr. Sun Sayamipuk
Sponsor: Singhasila Concrete Co., Ltd. and Ajikawa & SCI Metal tech Co., Ltd.
Total Contracted Amount (Baht): 400,000

Investigation Design and Construction Supervision for Rehabilitation of Wat Borvornives Chedi

Project Description: Conduct geotechnical and structural investigation and design for rehabilitation of the run-down Chedi of Wat Borvorniveswiharn, Bangkok. FEM analysis is to be used to evaluate the stress and strain condition in the Chedi structure.

Duration: 1 Jan 2007 - 30 Dec 2009
Project Investigator: Prof. Worsak Kanok-Nukulchai and Dr. Noppadol Phienwej
Subcontractors: Stonehenge Co., Ltd. and Kudakarn Co., Ltd.
Sponsor: Wat Borvorniveswiharn, Bangkok
Total Contracted Amount (Baht): 2,550,000

Nigeria Crossing Bridge

Duration: 25 Aug 2008 - 31 Dec 2009
Project Investigator: Dr. Naveed Anwar
Sponsor: Advance Engineering Consultants, Lagos, Nigeria
Total Contracted Amount (Baht): 1,020,000

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

Duration: 29 Dec 2007 – 01 Jul 2009
Project Investigator: Prof. Worsak Kanok-Nukulchai and Dr. Joko Widjaja
Sponsor: Department of Mineral Fuel, Thailand
Total Contracted Amount (Baht): 3,774,000

Seismic Evaluation of Precast Wall System

Project Description: Seismic performance evaluation of Preuksa Precast Bearing Wall Building System
Duration: 15 May 2008 - 15 Dec 2009
Project Investigator: Dr. Pennung Warnitchai
Sponsor: Preuksa Real Estate (Public) Company Ltd.
Total Contracted Amount (Baht): 950,000

ToyoThai

Project Description: ToyoThai Project I
Duration: 1 Jun 2009 - 31 Dec 2010
Project Investigator: Dr. Naveed Anwar and Dr. Pennung Warnitchai
Sponsor: ToyoThai

Total Contracted Amount (Baht): 65,000

9.5 On-going Grants and Sponsored Research

Application of the State-of-the Art Seismic Design and Modeling to Major Dams in Southeast Asia

Project Description: This research attempts to study the state-of-the-art design consideration and modeling i.e. the shaking model test, centrifuge model test and advanced numerical simulation using strong earthquake to aid the safe design and construction of dams in Southeast Asia.

Duration: 1 Apr 2007 - 1 Jan 2010

Project Investigator: Dr. Pennung Warnitchai/ Dr. Noppadol Phienweij/ Dr. Kyung-Ho Park
Sponsor: Royal Thai Government (RTG), K-Water, Dodam E&C

Total Contracted Amount (Baht): 2,000,000

Collapse Modelling of Soft-Storey Buildings

Project Description: The aim of the proposed research project is to investigate the seismic displacement demand and drift capacity of soft storey buildings such that the gravity load carrying capacity of the individual ground floor columns is not compromised. The proposed research involves a quasi-static testing and analytical modeling of soft story columns.

Duration: 15 Nov 2008 - 30 Apr 2010

Project Investigator: Dr. Pennung Warnitchai/ Dr. Kittipoom Rodsin
Sponsor: Royal Thai Government (RTG)
Total Contracted Amount (Baht): 957,500

Development of Seismic Design Code for Buildings and Structures in Thailand

Project Description: Department of Public works and Town & Country Planning of Thailand (DPT) has entrusted a consultant team comprised of experts from Sirindhorn Institute of technology (SIIT), King Mongkut's University of technology Thonburi (KMUTT), and Asian Institute of Technology (AIT) to develop a national building design code of Thailand. As the leading party, SIIT has signed the contract agreement with DPT to execute the work. Based on the agreement between SIIT and AIT, AIT will be responsible for the development of new seismic design code for Buildings and Structures in Thailand, and SIIT will provide a supporting fund to AIT for the code development.

Duration: 19 Sep 2007 - 30 Apr 2010

Project Investigator: Dr. Pennung Warnitchai
Sponsor: Sirinthon Institute of Technology (SIIT)
Total Contracted Amount (Baht): 2,380,000

Master Plan for Earthquake Disaster Mitigation in Thailand

Project Description: The department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior, Thailand has engaged an

International consulting team consisting of two parties, Panya Consultants Ltd. and AIT, to develop a national Master Plan of Earthquake Disaster Mitigation (phase 1). As the leading party, Panya consultants Co., Ltd. has already signed a contract agreement with DDPM, and is now ready to provide supporting funds to its partner (AIT) to execute the project works. The scope of works for AIT includes: (a) developing new probabilistic seismic hazard maps of Thailand, (b) developing seismic microzonation maps of Bangkok, Chiang Mai and Kanchanaburi and (c) developing comprehensive GIS databases of buildings and lifeline systems in the 3 cities for seismic risk assessment.

Duration: 29 Jul 2008 - 30 Apr 2010

Project Investigator: Dr. Pennung Warnitchai/ Dr. Kawin Worakanchana
Sponsor: Panya Consultants Co.,Ltd.
Total Contracted Amount (Baht): 1,600,000

Master Plan for Earthquake Disaster Mitigation in Thailand (Phase -2)

Project Description: The Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior, Thailand has engaged an international consulting team consisting of two parties, Panya Consultants Co.,Ltd and AIT, to develop a National Master Plan for Earthquake Disaster Mitigation (Phase 2). As the leading party, Panya Consultants Co.,Ltd. has already signed a contract agreement with DDPM, and is now ready to provide supporting funds to its partner (AIT) to execute the project works. The scope of works for AIT includes: (a) determining appropriate earthquake scenarios for Bangkok, Chiangmai, and Kanchanaburi to be used in the seismic loss estimation fo these provinces, (b) developing seismic fragility functions for buildings in Thailand, (c) conducting seismic loss estimation for Bangkok, Chiangmai, and Kanchanaburi and (d) Co-operating with Panya Consultants Co.,Ltd. in developing the National Master Plan for Earthquake Disaster Mitigation of Thailand

Duration: 15 Nov 2009 - 31 Dec 2010

Project Investigator: Dr. Pennung Warnitchai
Sponsor: Panya Consultants Co., Ltd.
Total Contracted Amount (Baht): 1,568,000

Mix Design of Roller Compacted Concrete for Nam Ngum 3 Dam

Duration: 1 Sep 2009 - 31 Jan 2011

Project Investigator: Dr. Sun Sayamipuk
Sponsor: Upper Pandas Hydropower Consultants
Total Contracted Amount (Baht): 2,006,400

Seismic Evaluation and Retrofitting of Existing Buildings in Thailand

Project Description: Many existing buildings were designed before the introduction of modern seismic code and are thus vulnerable to collapse in the event of an earthquake. The Thailand Research Fund (TRF), hence has granted the research fund led by AIT to

evaluate and study the retrofitting method for these buildings.

Duration: 1 Apr 2008 - 1 Apr 2010

Project Investigator: Dr. Pennung Warnitchai
Sponsor: Thailand Research Fund (TRF)
Total Contracted Amount (Baht): 3,850,000

Seismic Vulnerability and Risk Assessment of Dhaka, Chittagong and Sylhet City Corporation Areas

Project Description: This project is a part of the Comprehensive Disaster Management Program (CDMP) of the Government of Bangladesh, supported by UNDP, DFID-B, and the European commission (EC). CDMP has engaged an international consulting team to conduct seismic hazard and vulnerability assessment of 3 major cities in Bangladesh - Dhaka, Chittagong, and Sylhet. The international team is comprised of ADPC, Oyo International Corporation (OIC), AIT, National Society for Earthquake Tech. (NSET) - Nepal, University of Dhaka, Chittagong University of Eng. & tech. (CUET). Shahjalal University of Eng. & Tech. (SUST). While ADPC is playing the leading role, OIC is responsible for the seismic hazard assessment of three cities, and AIT is responsible for the seismic vulnerability and risk assessment of the three cities. The scope of work for AIT includes: supervising field survey of more than 20,000 buildings, identify dynamic characteristics of more than 100 representative buildings, assessing the seismic vulnerability of typical buildings and lifelines by numerical analyses, and estimating potential losses (casualties, economic losses, etc.) from possible earthquake scenarios using a GIS based software package named "HAZUS".

Duration: 6 Jan 2008 - 30 Apr 2010

Project Investigator: Dr. Pennung Warnitchai / Dr. Kawin Worakanchana
Sponsor: Asian Disaster Preparedness Centre (ADPC)
Total Contracted Amount (Baht): 4,299,700

TMD Earthquake Damage Assessment

Project Description: To develop building inventory database for Estimating Potential Earthquake Losses in Thailand. The database will be input to HAZUS-MH MR1 to estimate potential damages by earthquakes in Thailand.

Duration: 1 Aug 2007 - 1 Jan 2010

Project Investigator: Dr. Pennung Warnitchai/ Dr. Kiyoshi Honda
Sponsor: Chula Unisearch, Chulalongkorn University
Total Contracted Amount (Baht): 2,411,667

Wind Tunnel Testing

Project Description: Wind Tunnel testing of 70 Story Gramercy Residence and Knightbrigde Buildings

Duration: 19 Nov 2008 – 28 Feb 2010

Project Investigator: Dr. Pennung Warnitchai /Dr. Naveed Anwar
Sponsor: Century Properties, Inc., Manila, Philippines
Total Contracted Amount (Baht): 1,530,000

9.6 Publications

Refereed Journals

Kanok-Nukulchai, W. and Vimuktayon, V., “Suvarnabhumi Airport”, *J. Structural Engineering International*, IABSE, SEI 1 (2009), pp. 1-6.

Nguyen, D.V., Kim, K.D., and **Warnitchai, P.**, “Dynamic Analysis of Three-dimensional Bridge High-speed Train Interactions using a Wheel Rail Contact Model”, *Engineering Structures*, Vol. 31 (2009), pp. 3090-3106.

Nguyen, D.V., Kim, K.D., and **Warnitchai, P.**, “Simulation Procedure for Vehicle-Substructure Dynamic Interactions and Wheel Movements using Linearized Wheel-Rail Interfaces”, *Finite Elements in Analysis and Design*, Vol. 45, No. 5 (2009), pp. 341-356.

Sommanawat, W. and **Kanok-Nukulchai, W.**, “Multiscale Simulation Based on Kriging Based Finite Element Method”, *Interaction and Multiscale Mechanics*, 2, 4 (2009), pp. 353-374.

Warnitchai, P., Sinthuwong, S., and Poemsantitham, K., “Wind Tunnel Model Tests for Large Billboards”, *Advanced in Structural Engineering*, Vol. 12, No. 1 (2009), pp. 103-114.
Wong, F.T. and **Kanok-Nukulchai, W.**, “On the Convergence of the Kriging-Based Finite Element Method”, *International Journal of Computational Mechanics*, 6, 1 (2009), pp. 1-27.

Conference Proceedings

Warnitchai, P., Suthasit, M., Suesutajit, C., and Worakanjana, K., “A Seismic Loss Assessment of Bangladesh”, GCOE AIT-KU Joint Symposium on Human Security Engineering, November 19-20, 2009, Bangkok, Thailand,

Warnitchai, P., Yooprasert, E., Suthasit, M., and Matupayont, S., “Development of Precast Hybrid Moment Resisting Frame Buildings for Seismic Resistance”, Keynote Paper in Proc. of 14th National Convention on Civil Engineering, May 13-15, 2009, Nakhon Ratchasima, Thailand

9.7 Doctoral Students’ Dissertation

Kriging Based Finite Element Method for Analyses of Plates and Shells

By: Wong Foek Tjong
Supervisor: Prof. Worsak Kanok-Nukulchai/Dr. Kyung-Ho Park/Dr. Naveed Anwar

Dynamic Analysis of Bridge-Train Interaction through Wheel-Rail Interfaces

By: Dinh Van Nguyen
Supervisor: Prof. Worsak Kanok-Nukulchai/Dr. Pennung Warnitchai/Prof. Ki-Du Kim

Rapid Evaluation of Pozzolanic Activity of Pozzolans

By: Suppachai Sinthaworn
Supervisor: Prof. Worsak Kanok-Nukulchai/Prof. Dennes T. Bergado/Dr. Sun Sayamipuk

9.8 Masters Students’ Theses

Aerodynamic Interference Effects between Two Tall Buildings

By: Nguyen Van Son
Supervisor: Dr. Pennung Warnitchai/ Dr. Naveed Anwar/ Dr. Noppadol Phien-wej

Development in Manufacture and Use of Portland Limestone Cement

By: Ritthichai Doncharee
Dr. Sun Sayamipuk/Dr. Pennung Warnitchai/ Dr. Naveed Anwar/Dr. Thanakorn Pheeraphan

Development of a New Corrosion Protection System for Marine Concrete Structures

By: Remunthupillai Angelito
Supervisor: Dr. Sun Sayamipuk/ Dr. Pennung Warnitchai/ Dr. Thanakorn Pheeraphan/ Dr. Raktipong Sahamitmongkol

Development of Hybrid Precast Wall in Moderate to High Seismic Area

By: Irma Hadiwijaya

Supervisor: Dr. Pennung Warnitchai/ Dr. Naveed Anwar/ Dr. Kyung-Ho Park

Effects of Typical Configuration Irregularities on 3D Nonlinear Response of Reinforced Concrete Frame Buildings

By: Deepak Rayamajhi
Supervisor: Dr. Pennung Warnitchai/ Dr. Naveed Anwar/ Dr. Kyung-Ho Park

Extraction of Strut and Tie Model from 3D Solid Element Mesh Analysis

By: Abeykoon Jalath Dammika
Supervisor: Dr. Pennung Warnitchai/ Dr. Naveed Anwar/ Dr. Kyung-Ho Park

Optimization for Mixture Proportioning of Tile Adhesive Using Design of Experiments

By: Jeerapat Techakunchaiyanunt
Supervisor: Dr. Thanakorn Pheeraphan/ Dr. Pennung Warnitchai/ Dr. Sun Sayamipuk/ Dr. Raktipong Sahamitmongkol

Performance of Mortar Containing Alkali-activated Metakaolin Based Binders

By: Steve Wiben Macquarie Supit
Supervisor: Dr. Sun Sayamipuk/ Dr. Pennung Warnitchai/ Dr. Thanakorn Pheeraphan/ Raktipong Sahamitmongkol

Seismic Retrofitting of Low- to Mid Rise Reinforced Concrete Frame Buildings with Soft/Weak First Story using Buckling Restrained Braces

By: Jimmy Chandra
Supervisor: Dr. Pennung Warnitchai/ Dr. Naveed Anwar/ Dr. Kyung-Ho Park

Shaking Table Test and Numerical Simulation of A Concrete Gravity Dam

By: Sumetee Charoenwongmit
Supervisor: Dr. Kyung-Ho Park/ Dr. Pennung Warnitchai/ Dr. Sun Sayamipuk/ Dr. Thanakorn Pheeraphan

Chapter 10: SET – TELECOMMUNICATIONS FIELD OF STUDY

10.1 Introduction

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

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

10.2 Research Facilities and Laboratories

Today's fast-booming world of Telecommunications and Computer networking plays a significant leadership role. To support this achievement the Telecommunications field of study puts the effort to continue the development

of telecommunications technologies and systems. It covers a wide variety of research in telecommunications ranging from modeling, analysis wire line and wireless systems to application and protocol development. Its research subjects are in coherent optical communications; congestion control, ATM, and B-ISDN networks; error correction and detection methods; mobile and Internet traffic studies; multiple access strategies for cellular mobile, satellite systems, and cabled networks; network performance analysis, planning and design; and speech processing. Its research specializations are in broadband networks; network planning; Switching systems; telecommunications management in collaboration with the School of Management; telematics; and transmission systems.

Transmission and Switching Lab (TSL)

The Transmission and Switching lab is equipped with Nokia Digital Switching Exchange DX200 (DX220, DX210) that supports PSTN and ISDN. There are also several telephone switches, traffic simulators, protocol analyzer, PDH/SDH (STM1 & STM4) transmission systems, fiber optic line equipment, transmission line analyzer, error rate meter which are available for experiment in switching, transmission and internetworking. The switching and transmission systems are integrated as real telecommunications network. Among the applications whose study has been made possible by these systems are Operation and Maintenance, performance measurements of real narrowband and broadband telecommunication networks, as well as new services.

Network Planning Lab (NPL)

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

Wireless Lab (WL)

The main purpose of the Wireless laboratory is for measurement and performance analysis. It is equipped with Modulation and Error rate measurement meters, Simulation software like SATSIM, which was developed by the students, is a simulation package to calculate the sub-satellite points of a LEO/MEO/GEO and its orbital parameters. It also displays graphically on a two-dimensional earth map the instantaneous position and path traced by the satellite (Multi orbit and Multi satellite). Another is NMS/X, is a measurement system for GSM, DCS and NMT networks tracing, capable of measuring up to four networks simultaneously. The results are used for benchmarking service quality of operational cellular networks. These results can be analyzed and can be used for tuning the network parameters in NPS/X.

Communications Labs (CL)

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

workstations which have simulation applications like MATLAB.

Computer Laboratory (PCL)

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

TC Library

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

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*]

10.4 Grants and Sponsored Research Completed in 200

AIT Nokia Workshop on Mobile Internet and Applications

Duration 7-Dec-07 - 31-Dec-09
Project Investigator R.M.A.P. Rajatheva
Sponsor Nokia Corporation, Finland
Total Contracted Amount (THB) 500,000

10.5 On-going Grants and Sponsored Research

Creating Smart Environments through Indoor Optical Wireless Data Transmissions using White light LED's

Duration 1-Sep-09 - 31-Aug-10
Project Investigator Poompat Saengudomlert
Sponsor RTG
Total Contracted Amount (THB) 920,000

Cross Layer Design for Video Transmission in Multi Hop wireless Networks

Duration 1-Jan-09 - 30-Jun-10
Project Investigator Poompat Saengudomlert
Sponsor RTG
Total Contracted Amount (THB) 991,200

10.6 Publications

Refereed Journals

Dharmawansa, P.; **Rajatheva, N.**; Minn, H., "An Exact Error Probability analysis of OFDM Systems with Frequency Offset", *Communications, IEEE Transactions on*, Volume 57, Issue 1, January 2009 Page(s): 26-31, Digital object Identifier 10.1109/TCOMM.2009.0901.060454

Dharmawansa, P.; **Rajatheva, N.**; Tellambura, C., "Envelope and Phase Distribution of Two Correlated Gaussian Variables", *Communications, IEEE Transactions on*, Volume 57, Issue 4, April 2009, Page(s): 915-921, Digital Object Identifier 10.1109/TCOMM.2009.04.070065

Dharmawansa, P.; **Rajatheva, N.**; Tellambura, C., "New Series Representation for the Trivariate Non-Central Chi-Squared Distribution", *Communications, IEEE Transactions on*, Volume 57, Issue 3, March 2009 Page(s): 665-675, Digital Object Identifier 10.1109/TCOMM.2009.03.070083

Heuristic Solutions", *IEICE Transactions on Communications*, Vol. E92-B, No. 11, pp. 3401-3409, November 2009.

K. Woradit, M. Guyot, P. Vanichchanunt, **P. Saengudomlert**, and L. Wuttisittikulij, "Multicast Routing and Wavelength Assignment

with Shared Protection in Multi-Fiber WDM Mesh Networks: Optimal and

Sonia Majid and **Kazi Ahmed**, "Cluster-based Communications System for Immediate Post-disaster Scenario", Special Issue on Wireless Communications for Emergency Communications and Rural Wideband Services, Journal of Communications (JCM); Vol. 4, Issue 5; June 2009

Sonia Majid and **Kazi Ahmed**, "Mobile Handsets as Sensing Nodes in an Auto-configured Hierarchical Cognitive Radio Network Scheme for Immediate Post-disaster Communications", Special Issue on Emerging Technologies for Practical Ubiquitous and Sensor Networks, I E ICE Transactions on Communications, Vol. E92-B, No. 07, July 2009.

T. Sanguanwongthong, **P. Saengudomlert**, and A. Tubtiang, Seamless, "Mobility Mechanisms for Micro Mobile MPLS", IEICE Transactions on Communications, Vol. E92-B, No.10, pp. 3143-3155, October 2009.

Teerapat Sanguankotchakorn and Tanwa Korngkriengkrai: *Performance of IP Multicast in MPLS using PIM-SM (Protocol Independent Multicast-Sparse Mode)*, International Journal of Computer Science and Network Security (IJCSNS), Vol.9, No.1, pp.368-378, January 2009.

Weeraddana, P.; **Rajatheva, N.**; Minn, H., "Probability of Error Analysis of BPSK OFDM Systems with Random Residual Frequency Offset", Communications, IEEE Transactions on, Volume 57, Issue 1, January 2009 Page(s): 106-116, Digital Object Identifier 10.1109/TCOMM.2009.0901.060683

Conference Papers/Proceedings

B. Gunawardena and **P. Saengudomlert**, "Dimensioning and

Expansion Algorithm for WDM Networks Under Traffic Growth", Proceedings of ECTI-CON 2009, Thailand, 6-9 May 2009.

C. Kotchasarn and **P. Saengudomlert**, "Fair and Robust Joint Transmitter and Receiver Power Allocation for Multi-User Uplink MIMO Transmissions with Imperfect CSI", Proceedings of ECTI-CON 2009, Thailand, 6-9 May 2009.

Chaudary, M. Hasanain; Khan, Imran; Shah, Raza A.; **Rajatheva, Nandana**, "Performance and Optimal Resource Analysis of MIMO-OFDMA Uplink System with Carrier Frequency Offset", Wireless Communications & Signal Processing, 2009. WCSP 2009. International Conference on, 13-15 Nov. 2009 Page(s): 1-5, Digital Object Identifier 10.1109/WCSP.2009.5371592

Guruacharya, S.; **Rajatheva, R.M.A.P.**, "Power Allocation under Noise Floor Uncertainty", Communications and Networking in China, 2009. CHINACOM 2009. Fourth International Conference on, 26-28 Aug. 2009 Page(s):1-5, Digital Object Identifier 10.1109/CHINACOM.2009.5339959

Herath, S.P.; **Rajatheva, N.**; Tellambura, C., "Unified Approach for Energy Detection of Unknown Deterministic Signal in Cognitive Radio Over Fading Channels", Communications Workshops, 2009. ICC Workshops 2009. IEEE International Conference on, 14-18 June 2009 Page(s): 1-5, Digital Object Identifier 10.1109/ICCW.2009.5208031

M. Shamim Kaiser, I Khan, **K. M. Ahmed**, "Fuzzy logic Based Relay Search Algorithm for Cooperative System", IEEE COMSNETS 2009, Bangalore, India, 2009

M. Shamim Kaiser, **K. M. Ahmed**, R. Ali. Shah, "Fuzzy Logic Based Fair

Spectrum Access And Spectrum Handoff With Power Control In Cognitive Radio Network", WPMC 2009, Sendai, Japan, 2009

Nattiya Khaitiyakun, **Teerapat Sanguankotchakorna** and Kanchana Kanchanasut: *Video Streaming on MANET using Content Distribution Network Technique*, The 2nd Asia Future Internet School on Architecture and Building Blocks Program, Cheju National University, Jeju, Korea, August 24-28, 2009.

P. Vesarach and **P. Saengudomlert**, "Benefits of Optical Bypass in WDM Networks with Hybrid Optical-and-Electronic Switching Node Architecture", Proceedings of AINTEC 2009, Thailand, 18-20 November 2009.

Poonlap Lamsrichan and **Teerapat Sanguankotchakorn**: *Embedded Color Image Coding with Context Adaptive Wavelet Difference Reduction*, International Symposium on Intelligent Signal Processing and Communications System 2009 (ISPACS2009), Kanazawa, Japan, December 7-9, 2009.

S. Bharati and **P. Saengudomlert**, "Packet Delay Analysis for Limited Service Bandwidth Allocation Algorithm in EPONs", Proceedings of AH-ICI 2009, Nepal, 3-5 November 2009.

S. Bharati and **P. Saengudomlert**, "Simple Derivation of Mean Packet Delay for Gated Service in EPONs", Proceedings of ECTI-CON 2009, Thailand, 6-9 May 2009.

S. Supittayapornpong and **P. Saengudomlert**, "Joint Flow Control, Routing and Medium Access Control in Random Access Multi-Hop Wireless Networks with Time Varying Link Capacities", Proceedings of ECTI-CON 2009, Thailand, 6-9 May 2009. **Received the Best Paper Award in the Communication Area.**

S. Supittayapornpong and P. **Saengudomlert**, “Joint Flow Control, Routing and Medium Access Control in Random Access Multi-Hop Wireless Networks”, Proceedings of IEEE ICC 2009, Germany, 14-18 June 2009.

S. Supittayapornpong, P. **Saengudomlert**, and W. Kumwilaisak, “QoS Aware Layered Multi-Cast with Network Coding in Lossy Networks”, Proceedings of IEEE PCM 2009, Thailand, 15-18 December 2009; also appearing in *Lecture Notes in Computer Science*, vol. 5876, pp. 428-439, 2009.

S.M. Sher and P. **Saengudomlert**, “Code Acquisition in Optical CDMA Systems Using Two-Level Serial Search-and-Verification Algorithm”, Proceedings of ECTI-CON 2009, Thailand, 6-9 May 2009.

Sanguanpuak, T.; **Rajatheva, R.M.A.P.**, “Power Bargaining for Amplify and Forward Relay Channel”, Communications and Networking in China, 2009. ChinaCOM 2009. Fourth International Conference on, 26-28 Aug. 2009 Page(s); 1-5, Digital Object Identifier 10.1109/CHINACOMM.2009.5339958

Tanoli, S.A.K.; Khan, I.; **Rajatheva, N.**; Issariyakul, T.; **Erke, T.**, “Trace-Based Analysis for Compu-Wide Wireless LAN over Advanced Training System”, Future Information Networks, 2009. ICFIN 2009, First International Conference on, 14-17 Oct. 2009 Page(s): 87-91, Digital Object Identifier 10.1109/ICFIN.2009.5339584

Tanoli, S.A.K.L.; Khan, I.; **Rajatheva, N.**, “Asymptotic BER Bounds for BICM-Based Multiple Relay Cooperative Network under AWGN and Rayleigh Fading Channels”, Communications and Networking in China, 2009, ChinaCOM 2009, Fourth International Conference on, 26-28 Aug. 2009, Page(s): 1-5, Digital

Object Identifier
10.1109/CHINACOM.2009.5339945

Teerapat Sanguankotchakorn and Phung Van Luong: *Quality of Service (QoS) Provisioning in Core-Based Tree Multicast*, The 23rd International Conference on Information Networking 2009 (ICOIN2009), Chiang Mai, Thailand, January 21-24, 2009.

Invited Talk

P. Saengudomlert, “Optical Switching in WDM Networks: Architectures and Algorithms,” Invited Tutorial for International Conference on Information Networking (ICOIN) 2009, 21 January 2009, also given at *Chulalongkorn University, Thailand, 3 August 2009*

10.7 Doctoral Students’ Dissertation

A System Protocols for Self-healing Post-Disaster Communications
By Sonia Majid
Supervisor: Prof. Kazi Mohiudin Ahmed

Performance Analysis of OSTBC Based MIMO-OFDM over Uncorrelated Nakagami-m Fading Channels
By Ejaz Ahmad Ansari
Supervisor: Dr. R.M.A.P. Rajatheva

Seamless Mobility Mechanism for Micro Mobile MPLS
By Tubtim Sanguanwongthong
Supervisor: Dr. Poompat Saengudomlert

10.8 Masters Students’ Theses and Research Studies

Adaptive Subchannel and Power Allocation for Multiuser OFDM Systems Using Buffer State Information
By Ho Thi Nhu Ngoc
Supervisor: Dr. Poompat Saengudomlert

A Heuristic Approach to Multi-Constrained Path Selection for MPLS-Based Networks

By Ranju Pant
Supervisors: Dr. Teerapat Sanguankotchakorn/Assoc. Prof. Tapio J. Erke

Applications of Power Line Communications for EVN Telecom
By Pham Manh Toan
Supervisor: Dr. Poompat Saengudomlert

Blocking Probability Analysis of Optical Waveband Switching
By Akhtar Nawaz Khan
Supervisor: Dr. Poompat Saengudomlert

Capacity Expansion of WDM Networks with Budgetary Constraints and Traffic Uncertainty
By Don Simonralalage Buddhika Padma Gunawardena
Supervisor: Dr. Poompat Saengudomlert

Capacity Optimization in CDMA 2000 1X
By Trung Dinh Khoa
Supervisor: Dr. R.M.A.P. Rajatheva

CDMA Network Optimization and Troubleshooting: Some Study Cases of EVN Telecom
By Nguyen Hong Quan
Supervisor: Dr. R.M.A.P. Rajatheva

Cost Comparison for Capacity Expansion in Optical Transmission Backbone Networks with and without WDM: A Case Study for EVN Telecom, Vietnam
By Pham Minh Hoang
Supervisor: Dr. Poompat Saengudomlert

Designing Wimax Networks: A Case Study of EVN Telecom
By Tran Nga
Supervisor: Assoc. Prof. Tapio J. Erke

Dynamic Subcarrier Allocation with Transmit Diversity for OFDMA Based Wireless Multicast Systems
By Natasha Shrestha
Supervisor: Dr. Poompat Saengudomlert

Efficient Location of Dispersion Compensating Fibers for Optical Fiber Communication Systems
By Pham Ngoc Luat
Supervisor: Dr. Poompat Saengudomlert

Fairness in Multi-User, Multi-Compressed Video Environments in Wireless Network
By Vu Viet Anh
Supervisor: Dr. Teerapat Sanguankotchakorn

Interconnection Structure and Traffic Analysis of Interoperator Telecommunications in Vietnam: A View from EVN Telecom

By Tran Hai Nam
Supervisor: Assoc. Prof. Tapio J. Erke

Interference-Aware Dynamic Channel Allocation for TDD-CDMA Systems

By Nguyen Viet Phu
Supervisor: Dr. Poompat Saengudomlert

IP over WDM: Survivable Strategy, Routing and Path Establishment of EVN Telecom

By Nguyen Trong Nguyen
Supervisor: Dr. Teerapat Sanguankotchakorn

Multipath Routing in IEEE 802.16d Mesh Networks

By Vinod Kumar Maheshwari
Supervisor: Dr. Poompat Saengudomlert

Network Performance Monitoring and Optimization in CDMA2000 1X: A Case Study of EVN Telecom

By Doan Duc
Supervisor: Dr. Poompat Saengudomlert

NGN Class4 Plane Planning: A Case Study of EVN Telecom Transit Traffic for CDMA2000-1X Network

By Vu Thanh Binh
Supervisor: Assoc. Prof. Tapio J. Erke

Opportunities, Challenges, and Solutions for FTTH Deployment in EVN Telecom

By Luong Duc Thanh
Supervisor: Dr. Poompat Saengudomlert

Optimal Power Allocation Under an Uncertain Noise Floor for Gaussian Interference Channels

By Sudarshan Guruacharya
Supervisor: Dr. R.M.A.P. Rajatheva

Performance Analysis of BICM-ID Based Cooperative Network Over Different Fading Channels for the Next Generation Wireless Communication Systems

By Shujaat Ali Khan Tanoli
Supervisor: Dr. R.M.A.P. Rajatheva

Performance Analysis of MIMO Based Cooperation Diversity System Using Hybrid FDMA-TDMA Technique

By Zuhaib Ashfaq Khan
Supervisor: Dr. R.M.A.P. Rajatheva

Performance and Optimal Resource Analysis of MIMO-OFDMA Uplink System with Carrier Frequency Offset

By Muhammad Hasanain Chaudary
Supervisor: Dr. R.M.A.P. Rajatheva

Performance Evaluation of TCP Over Broadband Satellite Links

By Nguyen Ngoc Tuan
Supervisor: Prof. Kazi Mohiuddin Ahmed

Power Bargaining for the Amplify and Forward Relay Channel

By Sanguanpuak Tachporn
Supervisor: Dr. R.M.A.P. Rajatheva

RF Network Performance Improvement in Hanoi City

By Phan Huu Thinh
Supervisor: Assoc. Prof. Tapio J. Erke

Spectrum Sensing for Cognitive Radio

By Bui Manh Hung
Supervisor: Dr. R.M.A.P. Rajatheva

Spectrum Sensing in Cognitive Radio-Fading, Diversity and User Cooperation

By H.M.S.P. Herath
Supervisor: Dr. R.M.A.P. Rajatheva

The 3G UMTS Network Planning and Strategy: A Case Study of EVNTELECOM, Vietnam

By Hoang Minh Hai
Supervisor: Dr. Dr. Dr. R.M.A.P. Rajatheva

The Necessity of Expanding the Fiber Transmission Network: A Case Study of EVNTELECOM Metro Network in Hanoi City

By Nguyen Lan Huong
Supervisor: Assoc. Prof. Tapio J. Erke

Traffic Analysis of Media Gateway in 3G Networks

By Suveksha Thapa
Supervisor: Assoc. Prof. Tapio J. Erke

Wimax Networks and Services: A Case Study of EVN Telecom

By Tran Ngoc Khanh
Supervisor: Dr. R.M.A.P. Rajatheva

Research Study: An Analysis of Internet Traffic Behaviour for Capacity Dimensioning and Planning

By Sombulrat Nunrata
Supervisor: Assoc. Prof. Tapio J. Erke

Research Study: A Performance Study of Path Selection Algorithms with Signal Quality Constraints in SDH Networks

By Phithak Thiengphuk
Supervisor: Dr. Poompat Saengudomlert

Research Study: Application of Selected Mapping Technique to Reduce Average Transmit Power in Multicarrier Wireless Optical Communications

By Muhammad Zubair Farooqui
Supervisor: Dr. Poompat Saengudomlert

Research Study: Design of the Cross-Layer Congestion Control, Routing and Scheduling Algorithm in Ad hoc Networks

By Aijaz Akhtar
Supervisor: Dr. Teerapat Sanguankotchakorn

Research Study: Link Protection in All-Optical Multicast Capable Networks Using P-Cycles

By Pannawit Ekkapat
Supervisor: Dr. Poompat Saengudomlert

Research Study: Noise Margin Improvement for Dynamic Power Allocation in DMT-Based Digital Subscriber Systems

By Arkom Srivaranon
Supervisor: Dr. Poompat Saengudomlert

Research Study: Performance Analysis of Amplify Forward Protocol Based Cooperative Spectrum Sensing Under Log Normal Fading Channel

By Haroon Rasheed
Supervisor: Dr. R.M.A.P. Rajatheva

Research Study: Performance Analysis of Integrated Terrestrial-Satellite Broadband LMSS

By Arif Iqbal
Supervisor: Prof. Kazi Mohiuddin Ahmed

Research Study: Two-Layer Inter-Session Network Coding Based on Poison-Remedy

By Mickael Layeux
Supervisor: Dr. Poompat Saengudomlert

Research Study: Waveband Switching in WDM Mesh Networks with Static Traffic

By Wiwat Matphon
Supervisor: Dr. Poompat Saengudomlert

Chapter 11: SET – TRANSPORTATION ENGINEERING FIELD OF STUDY

11.1 Introduction

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

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

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

HYUNMYUNG KIM, PhD, University of California, Irvine, USA; MSc, BEng, Seoul National University, Korea.

Assistant Professor

[Transportation demand modeling, transportation network analysis, dynamic traffic simulation, activity-based travel analysis, dynamic OD estimation problem, public transportation planning, sustainable transportation planning problem]

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

Assistant Professor [*Highway pavements with emphasis on several major aspects including: highway materials and construction, pavement design and analysis, pavement management system, asphalt rheology, and asphalt concrete mixture design*]

Visiting Faculty

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

Visiting Associate Professor

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

SHINYA HANAOKA, Dr.Info.Sc., M.Info.Sc., B.Eng., Tohoku University, Japan.

Visiting Associate Professor

[*Transport planning and logistics; air transport, which includes evaluation of the air traffic distribution policies in multiple-airport region and the activity of low-cost carriers in*

Asia; transport logistics, which includes city logistics, intermodal logistics, maritime transport, air cargo and so on; Public transport market and the environmental impact of transport, such as air pollution and noise]

SHINJI TANAKA, D.Eng., M.Eng., B.Eng. University of Tokyo, Japan

Visiting Assistant Professor

(*Traffic Engineering; Traffic Control and Management; Intelligent Transport Systems*)

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

Visiting Professor

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

Adjunct Faculty

KERATI KIJMANAWAT, Ph.D., M.Eng., The University of Tokyo, Japan; B.Eng., (First Class Honors), Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand.

(*Logistic network, transportation infrastructure, urban and regional transportation*)

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

(*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)

PONLATHEP LERTWORAWANICH, Ph.D., M.Sc., The Pennsylvania State University, USA; B.Eng. Civil Engineering (First Class Honor), Chulalongkorn University, Thailand.

(Traffic engineering, operations research, and intelligent transportation systems)

Research Staff

OLIVER BERSET, B.A. (Faculty of Law), University of Neuchatel, Switzerland.

Project Coordinator (Thai-EC Project)

SUMETHEE SONTIKUL, M. Eng. (Transportation Engineering), Asian Institute of Technology; B. Eng. (Civil Engineering), King Mongkut's Institute of Technology Ladkrabang, Thailand.

Research Associate (TARC Project)

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

Research Associate (TARC Project)

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

Research Associate (TARC Project)

11.3 Grants and Sponsored Research Completed in 2009

Dual Degree Master Program in Transportation Engineering in Indonesia (First Batch)

Duration: 1-Dec-07 30-Jun-09
Project Investigator: Kunawee Kanitpong
Sponsor: MPW Indonesia
Total Contracted Amount: (Baht) 3,809,396

Evaluation of Performance of Porous Asphalt Pavement

Project Description: To evaluate the performance of porous asphalt pavement in laboratory
Duration: 1-May-07 31-May-09
Project Investigator: Kunawee Kanitpong
Sponsor: RTG Visiting Scholar
Total Contracted Amount: (Baht) 765,000

Road Safety Engineering Training in AIT Bangkok

Project Description: To conduct the road safety training for Vietnamese delegates
Duration: 1-Apr-09 30-Jun-09
Project Investigator: Kunawee Kanitpong
Sponsor: Viet Land Intellectual Consultant Joint Stock Company
Total Contracted Amount: (Baht) 75,560

Safety Driving Speed

Project Description: To conduct research related to speed management to reduce road traffic accidents
Duration : 15-Feb-08 31-Mar-09
Project Investigator: Kunawee Kanitpong
Sponsor: National Health Foundation
Total Contracted Amount: (Baht) 973,980

Study on Analysis of DOH Pavement Defects

Project Description: To provide service of consultancy for the DOH pavement analysis project
Duration : 1-Jan-08 31-Mar-09
Project Investigator: Kunawee Kanitpong
Sponsor: Prince Songkla University
Total Contracted Amount: (Baht) 300,000

11.4 On-going Grants and Sponsored Research

An agent-based dynamic simulation model for tour area evaluation

Project Description: The aim of this study is to develop a pedestrian simulation model or evacuation in emergency. The developed model is helpful for assessing the safety level of famous tour areas
Duration : 1-Jun-09 30-Jun-10
Project Investigator: Dr. Hyunmyung KIM
Sponsor: RTG
Total Contracted Amount (Baht) 1,000,000

Dual Degree Master Program in Transportation Engineering in Indonesia (Second Batch)

Duration : 1-Feb-09 30-Jun-10
Project Investigator: Kunawee Kanitpong
Sponsor: MPW Indonesia
Total Contracted Amount: (Baht) 2,920,000

Evaluation of Drivers' Attitudes on Speed Management Strategies

Project Description: To develop an understanding of the factors that influence drivers' attitudes
Duration: 26-Jan-09 28-Feb-10
Project Investigator: Kunawee Kanitpong
Sponsor: Mitsui Sumitomo Insurance Welfare Foundation
Total Contracted Amount: (Baht) 150,000

Improving Road Traffic Safety in Thailand: A Common Challenge for European and Thai Universities

Project Description: To improve road safety in Thailand through knowledge transfer from European Universities
Duration : 24-Dec-08 23-Jun-10
Project Investigator: Kunawee Kanitpong
Sponsor: Commission of the European Communities
Total Contracted Amount: (Baht) 8,317,938

Knowledge Dissemination to Improve Road Safety for Rural Community

Project Description: To disseminate road safety knowledge to improve road safety in rural communities
Duration : 1-Sep-08 30-Jun-10
Project Investigator: Kunawee Kanitpong
Sponsor: Toyota Motor Thailand Co., Ltd.
Total Contracted Amount: (Baht) 1,605,000

Promoting Cool Pavements to Mitigate the Urban Heat Island Effect in Bangkok

Project Description: This project is to reduce the urban heat island effect in Bangkok by promoting the use of cool pavements.
Duration: 15-Oct-08 30-Jun-10
Project Investigator: Kunawee Kanitpong
Sponsor: RTG
Total Contracted Amount: (Baht) 980,000

Road Safety Engineering Training in AIT for HDC Dong Nai Team

Project Description: To conduct the road safety training for Vietnamese delegates
 Duration: 13-Nov-09 31-Mar-10
 Project Investigator: Kunnawee Kanitpong
 Sponsor: Handicap International Vietnam
 Total Contracted Amount (Baht) 280,335

Road Safety Knowledge Development and Dissemination

Project Description: To conduct research related to development and dissemination of road safety knowledge
 Duration: 1-Jun-08 30-Jun-10
 Project Investigator: Kunnawee Kanitpong
 Sponsor: Department of Highways, Thailand
 Total Contracted Amount (Baht) 7,756,000

11.5 Publications

Refereed Journals

Aniwattakulchai, P., Islam, M.B., and **Kanitpong, K.**, "Injury Mechanism Analysis of Occupants in Rear-End Pickup Collision: Case Study for Thailand," the International Association of Traffic and Safety Sciences (IATSS) Research, 2009. (under re-review)

C. Yang, Y. Son, I. Yang, **H. Kim** (2009) Developing algorithms for providing evacuation and detour route guidance under emergency conditions, *Korean Society of Road Engineers* Vol 11 No. 3. **Refereed Korean Journal**

Choi K., R. Jayakrishnan, Kim H., Yang I., J. Lee (2009) Dynamic OD estimation using dynamic traffic simulation model in an urban arterial corridor, *Transportation Research Record* (Will be published Oct. 2009) (SCI, impact factor: 0.259)

H. Kim (2009) Dynamic traffic assignment based on arrival time-based OD flows, *Journal of Korean society of transportation* Vol 27 No. 1, pp. 1-13. **Refereed Korean Journal**

Jiwattanakulpaisarn, P., **Kanitpong, K.**, and Suriyawongpaisal, P., "On the Effectiveness of Speed Enforcement

in Thailand: Current Issues and need for Changes and new Approaches," Submitted to the Transport and Communication Bulletin for Asia and the Pacific, 2009.

Kanitpong, K. and Pummarin, K., "Investigation of Using Industrial Wastes in Moisture Damage Resistance of Hot Mix Asphalt Pavement," *Journal of Solid Waste Technology and Management*, 2009. (in press)

Kim H. (2009) Effects of user equilibrium assumptions on network traffic pattern, *KSCE Journal of Civil Engineering*, Vol 13 (2). (SCI-E)

Ponboon, S., Islam, M.B., Boontob, N., **Kanitpong, K.**, and Tanaboriboon, Y., "Contributing Factors of Road Crashes in Thailand: Evidence from the Accident In-Depth Study," the *Journal of Eastern Asia Society for Transportation Studies*, Vol.7, 2009.

Rungruangvirojn, P. and **Kanitpong, K.**, "Measurement of Visibility Loss due to Splash and Spray: the Comparison between Porous Asphalt, SMA, and Conventional Asphalt Pavements," the *International Journal of Pavement Engineering*, 2009. (in press) and *Catalog of 2009 TRB Practice-Ready Papers*

Y. Lim, **H. Kim**, I. Yang (2009) A goal-based transportation planning model, *Journal of Korean society of transportation* Vol 27 No. 5.

Refereed Korean Journal

Conference Proceedings

H. Kim, T. R. Maribojoc (2009) "Hierarchical shortest path algorithm with probabilistic travel time", 2nd *Joint Student Seminar on Civil Infrastructure*, July 6th 2009, Bangkok, Thailand.

H. Kim, T. Tiratanapakhom (2009) "The application of stochastic assignment technique to network design problems", 2nd *Joint Student*

Seminar on Civil Infrastructure, July 6th 2009, Bangkok, Thailand

Kanitpong, K., "Modeling Injury Mechanism and Accident Reconstruction," the 10th ITS Asia Pacific Forum, Bangkok, Thailand, 2009

Rungruangvirojn, P. and **Kanitpong, K.**, "Measurement of Visibility Loss due to Splash and Spray: the Comparison between Porous Asphalt, SMA, and Conventional Asphalt Pavements," the 88th Annual Meeting of the Transportation Research Board, Washington, D.C., 2009

Wootichai, Y. and **Kanitpong, K.**, "Drivers' Attitudes towards Speed Management," the 88th Annual Meeting of the Transportation Research Board, Washington, D.C., 2009

11.6 Masters Students' Theses and Research Studies

Analysis of Traffic Loading Characteristics for Mechanistic-Empirical Pavement Design

By Surasak Kaewdee
 Supervisor: Dr. Kunnawee Kanitpong

Assessment of Current Status and Future Trends of Public Transportation in Ulaanbaatar, Mongolia

By Batsukh Rentsenkhand
 Supervisor: Dr. Hyunmyung Kim

Behavioral Analysis for the Mode Choice of Commuters in Dhaka City, Bangladesh for Introducing Bus Rapid Transit System (BRTS)

By Noor -E- Alam
 Supervisor: Dr. Hyunmyung Kim

Determination of Proper Mixing and Compaction Temperature in Asphalt Concrete Production

By Chaiwat Nakpradit
 Supervisor: Dr. Kunnawee Kanitpong

Evaluation of Walking Environment on Pedestrian Paths in Bangkok

By Sawitree Chongrakchit
Supervisor: Dr. Hyunmyung Kim

Laboratory Evaluation of Using Reclaimed Asphalt Pavement (RAP) in Superpave Mix Design

By Poonsak Sriudorn
Supervisor: Dr. Kunnawee Kanitpong

Network Design Problem with a Stochastic Traffic Assignment Technique

By Tawin Tiratanapakhom
Supervisor: Dr. Hyunmyung Kim

Probabilistic Travel Time-Based Route Choice Problem with Hierarchical Path Enumeration Algorithm

By Theonette Ruba Maribojoc
Supervisor: Dr. Hyunmyung Kim

Public Opinion Survey on the Air Quality Due to Vehicular Emission and Vehicle Emission Control Strategies: A Case Study of Thimphu City in Bhutan

By Sherub Phuntsho
Supervisor: Dr. Kunnawee Kanitpong

Speeding Drivers' Attitudes Towards a Speed Enforcement Program

By Sumethee Sontikul
Supervisor: Dr. Kunnawee Kanitpong

Research Study: Cycle Network Planning for Yogyakarta

By Muchamad Rizal
Supervisor: Prof. Siti Malkhamah (UGM)

Research Study: Developing Road Information System in Indonesia (Case Study of Balikpapan)

By Ellenlies
Supervisor: Prof. A. Munawar (UGM)

Research Study: Evaluation of the Use of Natural Asphalt Asbuton as Modifier of Crude Oil Asphalt

By Yusuf Edi Nugroho
Supervisor: Ir. Djoko Murwono (UGM)

Research Study: Flexible Pavement Thickness Design Analysis Using Austroads 1992 and AASHTO 1993 Methods (Case Study: Cipularang Toll Road)

By Resi Masita
Supervisor: Ir. H. Wardhani Sartono (UGM)

Research Study: Identifying Benefit Indicator in Road Network Development (Case Study of Batu Southern Ring Road Project)

By Puriyani
Supervisor: Dr. Heru Sutomo (UGM)

Research Study: Laboratory Study in Designing Dense Graded Hot Mixture Utilizing Bantak & Clereng Aggregate with Cooper's Method (Using Marshall and Indirect Tensile Strength Methods)

By Yusuf Adinegoro
Supervisor: Dr. Latif Budi Supama (UGM)

Research Study: Laboratory Study on the Durability Characteristics (Moisture Damage Evaluation) of Asphalt Concrete Wearing Course (AC-WC) Utilizing Bantak and Clereng as Aggregate (Using Marshall and Indirect Tensile Strength Methods)

By Ajeng Miranti Putri
Supervisor: Dr. Latif Budi Supama (UGM)

Research Study: Modeling of Trip Generation for Public Transport Passenger in Yogyakarta

By Elsa Putra Friandi
Supervisor: Prof. Sigit Priyanto (UGM)

Research Study: Modeling Speed-Density, Flow-Speed, and Flow-Density Relationships at Jakarta Freeways (Case Study of WiyotoWijono Corridors)

By Yusrizal Kurniawan
Supervisor: Prof. Siti Malkhamah (UGM)

Research Study: Modeling Traffic Demand (Case Study at Jakarta Inter Urban Toll Road)

By Vidi Ferdian
Supervisor: Prof. Siti Malkhamah (UGM)

Research Study: Pavement Management System for District Road Network (Case Study: Sleman District in Yogyakarta Special Region, Indonesia)

By Novandaya Didi Awang
Supervisor: Ir. H. Wardhani Sartono (UGM)

Research Study: Planning and Design of Motorcycle Lanes in Yogyakarta (Case Study of Janti Road, Yogyakarta)

By Sukamto
Supervisor: Prof. Sigit Priyanto (UGM)

Research Study: Potential Counter Measure for Traffic Accidents in the Jakarta Cikampek Toll Road

By Ibni Achiruddin
Supervisor: Prof. Siti Malkhamah (UGM)

Research Study: Rigid Pavement Thickness Design Analysis Using Austroads 1992 and AASHTO 1993 Methods (Case Study: Cipularang Toll Road)

By Tony D
Supervisor: Ir. H. Wardhani Sartono (UGM)

Research Study: School Bus Planning at Cimahi West Java

By Isni Rosyadi
Supervisor: Prof. A. Munawar (UGM)

Research Study: The Analysis of Sudirman Bus Station in Sukabumi West Java

By Asep Mohamad Ilyas
Supervisor: Ir. Djoko Murwono (UGM)

Research Study: The Coordination of Traffic Control System: Formulation Strategies and Its Possibilities for Yogyakarta

By Murry Menako
Supervisor: Prof. Sigit Priyanto (UGM)

Research Study: The Origin and Destination of Public Transport Passengers in Yogyakarta

By Aidil Busyra
Supervisor: Dr. Kunnawee Kanitpong

Research Study: The Study of Safety in Motorcycle Traffic

By Rianto Rili Prihatmantyo
Supervisor: Prof. Sigit Priyanto (UGM)

Research Study: Transport Cost at Jakarta Intra Urban Toll Road and Non-Toll Road

By Dwi Saponingrum Junaedi
Supervisor: Prof. Siti Malkhamah (UGM)

Research Study: Trip Assignment Model with Consideration of Vehicle Emission (CO): Case of Cimahi City

By Herawati Basir Puly
Supervisor: Prof. Sigit Priyanto (UGM)

Research Study: Trip Generation and the Evaluation of Public Transport Facilities in Cimahi, West Java

By Theresia Endah Dwi Astuti Anantisari
Supervisor: Prof. A. Munawar (UGM)

Research Study: Utilization of Toray Fly Ash in Asphaltic Concrete-Wearing Course (AC- WC) Mixture

By Heppy Eka Prasetya

Supervisor: Dr. Latif Budi Supama (UGM)

Research Study: Utilizing Toray Fly Ash as a Filler Substitution in Hot Rolled Sheet Wearing Course (HRS-WC) Mixture

By Fedi Candra

Supervisor: Dr. Latif Budi Supama (UGM)

Research Study: Utilizing Toray Fly Ash as Additive in Hot Rolled Sheet Wearing Course (HRS-WC) Mixture

By Sumantri Widya Praja

Supervisor: Dr. Latif Budi Supama (UGM)

Research Study: Vehicle Damage Factor (VFD) Analysis on Freight Transport Vehicles (Case Study of Jogja -Prambanan Highway)

By Shaiful Jihad

Supervisor: Ir. Djoko Murwono (UGM)

Chapter 12: SET – WATER ENGINEERING AND MANAGEMENT FIELD OF STUDY

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) 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 courses are 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. 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 river flow analysis, and flood control and mitigation, flood modeling and forecasting, flood plain development and management.

12.2 Faculty and Research Staff

Full-time Faculty

MUKAND S BABEL, BEng, Rajasthan Agr Univ, India; MEng, DEng, AIT.
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; and climate change impact and adaptation; groundwater resources management; and drought analysis, forecasting and management*]

ROBERTO CLEMENTE, BSAE, Univ of the Philippines at Los Baños; MEng, AIT, Thailand; PhD, McGill Univ, Canada.
Associate Professor [*Focal areas related to irrigation/drainage, and land and water resource assessment and management; Studies on the impacts of fertigation on water quality, modeling surface/subsurface transport of water and solutes, performance evaluation of irrigation and drainage systems, and assessment of soil erosion hazard and soil quality dynamics in agricultural watersheds; Joint research on water harvesting and management and soil*

hydraulic characterization in sloping agricultural lands; Future research focuses on evaluation and optimization of soil, water, chemical and crop management schemes to enhance agricultural productivity without jeopardizing environmental quality]

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

Assistant Professor [*Climate Change and Adaptation, Integrated Water Resources Management, Hydrology and Water Quality Modeling, Groundwater Development and Management, Sustainable Water Management Policy*]

Visiting Faculty

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

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

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

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

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

Visiting Associate Professor [*Water economics and governance, with special interest onto valuation approaches of rural and environmental water uses, irrigation systems'*

performances and evaluation, environmental assessment of production systems, governance in irrigation systems, integrated water resource management and governance at the river basin level, social participation in the water sector]

MOHAMMED SHARIF, B.Tech., Jamil Milia Islamia, India; M.E., Indian Institute of Technology, India; Ph.D., University of Edinburgh, England.

Visiting Faculty [*Flood Modeling and Management, Optimization of Water Resource Systems, Climate Change Impact*]

K.N. LOKESH, M.Sc., Bangalore University, India; Ph.D., Gulbarga University, India.

Visiting Professor [*Groundwater Hydrology*]

Affiliated Faculty

SUTAT WEESAKUL, DEng, MEng, 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]*

12.3 Grants and Sponsored Research Completed in 2009

AIT Regional Network Office for Center of Excellence of University of Yamanashi

Duration 15-Jun-05 30-Sep-08
Project Investigators Tawatchai Tingsanchali and Dr. Mukand S. Babel
Sponsor University of Yamanashi, Japan
Total Contracted Amount (Baht) 347,500

Development of Flood Forecasting and Management System in Chao Phraya Tachin River Basins

Duration 1-Oct-07 31-Jul-09
Project Investigator Sutat Weesakul
Sponsor Royal Irrigation Department (RID)
Total Contracted Amount (Baht) 17,769,706

Development of Operational Flood Forecasting System Case Study: Chao Phraya River Basin

Duration 1-Jul-04 31-Jul-09
Project Investigator Sutat Weesakul
Sponsor National Electronic and Computer Technology Center
Total Contracted Amount (Baht) 5,027,400

Development of River Basin Flood Management System by Optimal Reservoir Operation and Real Time Flood Forecasting and Warning: A Case Study of Pasak River Basin

Duration 1-Aug-06 31-Mar-08
Project Investigator Tawatchai Tingsanchali
Sponsor National Research Council of Thailand
Total Contracted Amount (Baht) 2,000,000

E-learning Program on IWRM

Duration 6-Sep-06 30-Aug-08
Project Investigator Mukand S. Babel
Sponsor Self Pay Students
Total Contracted Amount (Baht) 190,000

E-learning Program on IWRM for UCC-Water

Duration 1-Sep-06 30-Jun-09
Project Investigator Mukand S. Babel
Sponsor UCC-Water, Denmark
Total Contracted Amount (Baht) 1,242,500

Hydraulic Concept Model Tests - La Confluencia Hydroelectric Power Plant Project

Duration: 1-Jan-08 30-June-08
Project Investigator: Mr. Arturo G. Roa
Sponsor: Pöyry Energy Ltd (Zurich, Switzerland)
Total Contracted Amount (Baht): 1,033,200.00

Spillway Hydraulic Model Tests Nam Ngum 3 Hydropower Project

Duration 1-Dec-07 31-Jan-09
 Project Investigator Sutat Weesakul
 Sponsor GMS Lao Company Ltd
 Total Contracted Amount (Baht) 4,800,000

Tha Chin River Basin Development Project: The King of Thailand's Initiative

Duration 1-Aug-07 31-Jul-09
 Project Investigator Sutat Weesakul
 Sponsor Royal Irrigation Department (RID)
 Total Contracted Amount (Baht) 17,388,570

Verification of ATTA System with Laboratory Tsunami Waves

Duration 1-Apr-07 30-Apr-09
 Project Investigator Sutat Weesakul
 Sponsor RTG
 Total Contracted Amount (Baht) 1,000,000

12.4 On-going Grants and Sponsored Research

3rd Batch of E-learning Program on Integrated Water Resource Management

Duration 1-Mar-08 31-Dec-10
 Project Investigator Mukand S. Babel
 Sponsor UNU-INWEH and participants
 Total Contracted Amount (Baht) 936,000

4th Batch of E-learning Program on Integrated Water Resource Management

Duration 1-Sep-09 31-Dec-11
 Project Investigator Mukand S. Babel
 Sponsor UNU-INWEH and participants
 Total Contracted Amount (Baht) 878,000

Asian Infrastructure Research Center (AIRC) Phase I

Duration 1-Jan-07 1-Dec-09
 Project Investigator Mukand S. Babel, Noppadol Phienwej, Kyung-Ho Park, BHW Hadikusumo, Kunawee Kanitpong
 Sponsor Konkuk University, South Korea
 Total Contracted Amount (Baht) 4,472,153

Case study on Urban Water, Waste Water and Storm Water Management in Bangkok

Duration 1-Jun-09 31-May-10
 Project Investigator Mukand S. Babel
 Sponsor IWP, NUS
 Total Contracted Amount (USD) 10,000

Climate Change impact and Adaptation Study for Bangkok Metropolitan region

Duration 1-Dec-08 30-Nov-09
 Project Investigator Mukand S. Babel
 Sponsor Panya Consultants Co., Ltd.
 Total Contracted Amount (Baht) 686,940

Climate Change Impacts on Seasonally and Intermittently Open Tidal Inlets

Duration 1-Jan-10 31-Dec-13
 Project Investigator Sutat Weesakul
 Sponsor UNESCO-IHE
 Total Contracted Amount (EURO) 19,460

Development of Operational Flood Forecasting System (Phase2)

Duration 1-Sep-09 31-Aug-10
 Project Investigator Sutat Weesakul
 Sponsor NECTEC 2
 Total Contracted Amount (Baht) 1,104,600

EWRI -AIT An International Perspective on environmental and Water Resources Conference 2009 (Promotion and Participants)

Duration 1-Dec-08 30-Nov-09
 Project Investigator Mukand S. Babel
 Sponsor Participants
 Total Contracted Amount (Baht) 1,943,350

EWRI -AIT An International Perspective on Environmental and Water Resources Conference 2009 (UNESCO Side Event)

Duration 1-Dec-08 30-Nov-09
 Project Investigator Mukand S. Babel
 Sponsor UNESCO
 Total Contracted Amount (Baht) 735,200

Groundwater Quality Management Research in Bangkok

Duration 1-Aug-07 31-Mar-09
 Project Investigator Mukand S. Babel
 Sponsor Institute for Global Environmental Strategies (IGES), Japan
 Total Contracted Amount (Baht) 1,094,931

Investigation of Flow Dynamics in Mahachai Sanamchai Canal Network by Physical and Mathematical Models

Duration 1-Nov-08 30-Apr-10
 Project Investigator Sutat Weesakul
 Sponsor RTG
 Total Contracted Amount (Baht) 930,000

Optimization of Water Allocation between Off-stream and In-stream Competing Demands

Duration 1-Sep-09 31-Aug-10
 Project Investigator Mukand S. Babel
 Sponsor UNESCO-IHE
 Total Contracted Amount (Euro) 30,440

Participatory Irrigation Management and Development in Cambodia

Duration 1-Feb-08 31-Dec-09
 Project Investigator Roberto S. Clemente/ Mukand S. Babel
 Sponsor Food and Agriculture Organization (FAO)
 Total Contracted Amount (Baht) 496,952

PhD Course cum Workshop on Agricultural Water productivity and Improvement in Irrigation Schemes

Duration 1-Sep-09 31-Aug-10
 Project Investigator Mukand S. Babel
 Sponsor FIVA, DWF, GEUS, FAO and the Faculty of Life Sciences of the University of Copenhagen
 Total Contracted Amount (DKK) 206,000

Physical Hydraulic Model Study of Xayaburi Hydroelectric Power Project LAO PDR

Duration 1-May-09 31-Mar-10
 Project Investigator Sutat Weesakul
 Sponsor Ch Karnchang Public Company Ltd.
 Total Contracted Amount (Baht) 7,450,000

Physical Model for Monkey Cheeks in the Mahachai-Sanamchai Canals Project: The King of Thailand's Initiative

Duration 1-Jul-08 30-Mar-10
 Project Investigator Sutat Weesakul
 Sponsor Hydro and Agro Informatic Institute (HAI)
 Total Contracted Amount (Baht) 2,164,182

Regional Center of the UN Water Virtual Learning Center (WVLC) Project

Duration 1-Nov-04 31-Dec-09
 Project Investigator Mukand S. Babel, A. Das Gupta
 Sponsor UNU-INWEH, Canada
 Total Contracted Amount (Baht) 2,346,000

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

Duration 1-Oct-09 31-Dec-10
 Project Investigator Mukand S. Babel
 Sponsor UNESCO-IHE
 Total Contracted Amount (Euro) 28,600

Study of Exploration Drilling in Concession Block B6/27, Gulf of Thailand

Duration 1-Apr-09 31-Mar-10
 Project Investigator Sutat Weesakul
 Sponsor ERM Siam Company Limited
 Total Contracted Amount (Baht) 1,200,000

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

Duration 1-Sep-01 31-Aug-10
 Project Investigator Mukand S. Babel, Ashim Das Gupta
 Sponsor Danish International Development Assistance (Danida)
 Total Contracted Amount (Baht) 3,801,000

Training Course on IWRM: Principle and Practices

Duration 1-Oct-08 30-Sep-10
 Project Investigator Mukand S. Babel
 Sponsor DWI, BAPPENAS (State Ministry of National Development Planning/National Development Planning Agency), Indonesia
 Total Contracted Amount (Baht) 6,232,347

UNEP Water Vulnerability Assessment in South and South East Asia

Duration 1-Jan-06 30-Jun-09
 Project Investigator Mukand S. Babel
 Sponsor UNEP
 Total Contracted Amount (Baht) 3,600,000

UNEP Water Vulnerability Assessment in South and South East Asia: Sub-regional synthesis for Africa-Asia Report Phase II

Duration 1-Sep-07 30-Jun-09
 Project Investigator Mukand S. Babel
 Sponsor UNEP
 Total Contracted Amount (Baht) 1,650,000

Water Supply Study and Flood Study for Nong Saeng, Saraburi Province and Samet Tai Project, Chachoengsao Province

Duration 1-Mar-08 31-Dec-09
 Project Investigator Mukand S. Babel
 Sponsor Gulf JP Company Limited
 Total Contracted Amount (Baht) 806,452

12.5 Publications

Refereed Journals

Babel, M. S., Rivas, A. and S. Kallidaikurichi (2009). Municipal Water Supply Management in Bangkok: Achievements and Lessons, Submitted to *International Journal of Water Resources Development*, Publisher: Taylor & Francis, Impact factor: 0.738 (2008). Citation: -

Das Gupta, A., **Babel, M. S.** and S. Ashrafi (2009). Effect of Soil Texture on the Emission Characteristics of Porous Clay Pipe Used in Subsurface Irrigation, *Irrigation Science Journal*, Vol. 27, 201-208. Publisher: Springer, Impact factor: 1.737 (2007). Citation: -

Desalegn, Ch. E., **Babel, M. S.**, and A. Das Gupta (2009). Drought Analysis in the Awash River Basin, Ethiopia,

Water Resources Management. DOI 10.1007/s11269-009-9508-0, Publisher: Springer, Impact factor: 1.35 (2008). Citation: -

G. Wang, J. Yu, **S. Shrestha**, H. Ishidaira, and K. Takeuchi, 2009. Application of a distributed erosion model for the assessment of spatial erosion patterns in the Lushi catchment, China. *Environmental Earth Sciences*, Springer Berlin / Heidelberg, DOI 10.1007/s12665-009-0391-z

Kaewrueng, S., **Babel, M. S.**, Das Gupta, A. and S. Md. Wahid (2009). Assessment of Groundwater Potential in the Lower Chao Phraya River Basin, Thailand, *Asia Pacific Journal of Rural Development*. Vol. XIX, No. 1, 23-42. Publisher: Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP), Impact factor: -. Citation: -

Khaledian, M.R., Mailhol, J.C., Ruelle, P., Mubarak, I. & **Perret, S.R.** (2010) The impact of direct seedling into mulch on the energy balance of crop production system in the SE of France. *Soil & Tillage Research*, 106 (2010): 218–226

Pandey, V. P., **Babel, M. S.** and F. Kazama (2009). Analysis of a Nepalese Water Resources System: Stress, Adaptive Capacity and Vulnerability, *Water Science & Technology/Water Supply*. 9 (2): 213-222. Publisher: IWA Publishing, Impact factor: 1.005 (2008). Citation: -

Pinthong, P., Das Gupta, A., **Babel, M. S.** and S. Weesakul (2009). Improved Reservoir Operation Using Hybrid Genetic Algorithm and Neurofuzzy Computing, *Water Resources Management*, Vol. 23, 697-720. Publisher: Springer, Impact factor: 1.35 (2008). Citation: -

S. K. Chapagain, **S. Shrestha**, T. Nakamura, V.P. Pandey and F. Kazama, 2009. Arsenic occurrence in

groundwater of Kathmandu Valley, Nepal., *Desalination and water Treatment*, 4:248-254.

S. K. Chapagain, V. P. Pandey, **S. Shrestha**, T. Nakamura and F. Kazama, 2009. Assessment of Deep Ground water Quality in Kathmandu Valley Using Multivariate Techniques. *Water Air Soil Pollution*, DOI 10.1007/s11270-009-0249-8. (24 October, 2009)

S.K. Chapagain, **S. Shrestha**, G. Du Laing, M.G. Verloo and F. Kazama, 2009. Spatial distribution of arsenic in the intertidal sediments of River Scheldt, Belgium, *Environment International* 35(3):461-465.

Sharma, D., **Babel, M. S.**, and V. K. Srivastava (2009). An Approach to Efficient Rainwater Management for Agriculture in Arid Region of Rajasthan, India, Accepted in *International Journal of Water Resources and Environmental Management*. Publisher: Serials Publications, India, Impact factor: -. Citation: -

Singhrattna, N., **Babel, M. S.** and S. R. Perret (2009). Hydroclimate Variability and Its Statistical Links to the Large-Scale Climate Indices for the Upper Chao Phraya River Basin, Thailand. *Hydrology and Earth System Sciences Discussions*, 6 (www.hydrol-earth-syst-sci-discuss.net/6/6659/2009): 6659-6690. Publisher: Copernicus Publications, Impact factor: 2.167 (2008). Citation: -

Singhrattna, N., Babel, M.S., Perret, S.R. (2009) Hydroclimate variability and its statistical links to the large-scale climate indices for the Upper Chao Phraya River Basin, Thailand. Hydrology and Earth System Sciences Discussions 6(5):6659-6690

Speelman, S., Frija, A., **Perret, S.R.**, Farolfi, S., D'haese, M. and D'Haese, L. (2009) Variability in smallholders' irrigation water value: study in North-West Province, South Africa.

Irrigation and Drainage (in press, DOI: 10.1002/ird.539)

Tiewtoy, S., Clemente, R. S., Perret, S. R., **Babel, M. S.** and S. Weesakul (2009). Irrigation Sustainability Assessment of Selected Projects in Tha Chin Basin, Thailand, Accepted in *Irrigation and Drainage*. Publisher: Wiley InterScience, Impact factor: 0.480 (2009). Citation: -

Tiewtoy, S., **Clemente, R.S.**, Perret, S., Babel, M.s., and Weesakul, S. 2009. Irrigation sustainability assessment of selected projects in Tha Chin basin, Thailand. Paper accepted for publication in *Irrigation and Drainage Journal*

Ty, T. V., **Babel, M. S.**, Sunada, K., Oishi, S. and A. Kawasaki (2009). Utilization of a GIS-Based Water Infrastructure Inventory for Water Resources at Local Level: A Case Study in Mountainous Area of Vietnam, *Hydrological Research Letters*, 3, 27-31. Publisher: Japan Society of Hydrology and Water Resources, Impact factor: -. Citation: -

V.P. Pandey, M. S. Babel., **S. Shrestha** and F. Kazama, 2009. Vulnerability of freshwater resources in large and medium Nepalese river basins to environmental change, *Water Science and Technology* (in press).

Wongsupap, C., Weesakul, S., **Clemente, R.S.**, and Das Gupta, A. 2009. River basin water quality assessment and management: Case study of Tha Chin Basin, Thailand.. *Water International Journal*, Vol. 34 No. 3 pp 345-36. Sept 2009.

Vongvisessomjai, N., Tingsanchali, T. and **M. S. Babel** (2009). Non-deposition Design Criteria for Sewers with Part-full Flow, Accepted in *Urban Water Journal*. Publisher: Taylor & Francis, Impact factor: -. Citation: -

Refereed Books / Chapters

Caron P., Craufurd P., Martin A., McDonald A., Abedini W., Afiff S., Bakurin N., Bass S., Hilbeck A., Jansen T., Lhaloui S., Lock K., Newman J., Primavesi O., Sengooba T., Ahmed M., Ainsworth E.A., Ali M., Antona M., Avato P., Barker D., Bazile D., Bosc P.M., Bricas N., Burnod P., Cohen J.I., Coudel E., Dulcire M., Dugué P., Faysse N., Farolfi S., Faure G., Goli T., Grzywacz D., Hocdé H., Imbernon J., Ishii-Eiteman M., Leakey A., Leakey C., Lowe A., Marr A., Maxted N., Mears A., Molden D.J., Müller J.P., Padgham J., **Perret S.**, Place F., Raoult-Wack A.L., Reid R., Riches C., Scherr S.J., Sibelet N., Simm G., Temple L., Tonneau J.P., Trébul G., Twomlow S., Voituriez T. (2009) Impacts of AKST on development and sustainability goals. In : McIntyre Beverly D. (ed.), Herren Hans R. (ed.), Wakhungu Judi (ed.), Watson Robert T. (ed.). *Agriculture at a crossroads. International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD): global report*. Washington : Island Press, p. 145-253.

Mullick, M. R. A., Babel, M. S. & **Perret, S. R.** 2009. Managing the competing water demands from offstream & instream users – a conceptual framework. In Blöschl, G., Van De Giesen, N., Muralidharan, D., Ren, L., Seyler, F., Sharma, U., & Vrba, J. (eds.) (2009). *Improving Integrated Surface and Groundwater Resources Management in a Vulnerable and Changing World*. *IAHS publication no. 330*, pp 327 – 333.

Mullick, M. R. A., **Babel, M. S.** and S. R. Perret (2009). Managing the Competing Water Demands from Off-stream and In-stream Users – A Conceptual Framework. In Blöschl, G., Van De Giesen, N., Muralidharan, D., Ren, L., Seyler, F., Sharma, U. and J. Vrba (eds.) (2009). *Improving Integrated Surface and Groundwater*

Resources Management in a Vulnerable and Changing World. IAHS publication no. 330, pp 327 – 333.

S. K. Chapagain, **S. Shrestha**, T. Nakamura and F. Kazama: Chemical characteristics of groundwater quality of Kathmandu Valley, Nepal. In: Satoshi Takizawa, Futoshi Kurisu and Hiroyasu Satoh (Eds.). *Southeast Asian Water Environment 3*, IWA publishing, 87-93, 2009.

Water and Environmental Engineer's Pocket Book, (under discussion with the publisher, Wiley-Blackwell)

Wilson, Z., **Perret, S.** (2009) Participation in Water Resource and Services Governance in South Africa: Caught in the Acts. In: Berry, K. and Mollard, E. (editors), *Social Participation in Water Governance and Management: Critical and Global Perspectives*. EarthScan, London, UK, pp325-353 (ISBN 9781844078851)

Conference Proceedings

Agarwal, A., **Babel, M. S.**, Swain, D. and S. Herath (2009). Forecasting Rice Yield under Climate Change Scenarios for Northeast Thailand. Proceedings of the EWRI-AIT International Conference on “An International Perspective on Environmental and Water Resources,” AIT Conference Center, AIT, Bangkok, Thailand, 5-7 January (CD-ROM).

Babel, M. S. and S. M. Wahid (2009). Climate Change and Thailand: Livelihood, Food Production and Development at Risk. *Proceedings of the GCOE KU-AIT Symposium on Human Security Engineering*, 19-20 November, 2009, Chao Phraya Park Hotel, Thailand. pp 157-161.

Babel, M. S., Trung, L. B., Singhrattana, N. and S. M. Wahid (2009). An Application of Soil and Water Assessment Tool (SWAT) to Assess Water Quality of the Upper

Cong Watershed, Vietnam. Proceedings of the International SWAT Conference in Southeast Asia, Chiang Mai, Thailand, 5-8 Jan 2009.

Mullick, M. R. A. and **M. S. Babel** (2009). Environmental Flow in Water Resources Management: Status in South Asia. *ICUS Report 37, Proceedings of the 2nd Joint Student Seminar on Civil Infrastructure*, AIT, Thailand, July 6, 2009. pp 287 – 296.

Mullick, R.A.M., **Perret, S.R.**, Babel, M.S. (2009) Instream water use – how much value does it carry? 12th International River Symposium, Brisbane, 21-24 September 2009, Australia. Available online: http://www.riversymposium.com/index.php?element=Th_S1_GH1_Reaz+Akteer+Mullick.pdf

Nguyen, M. D. and **M. S. Babel** (2009). Analysis of Historical Data for Projecting Future Flood Frequencies and Sea Level Rise in the Red River Delta, Vietnam. Proceedings of the EWRI-AIT International Conference on “An International Perspective on Environmental and Water Resources,” AIT Conference Center, AIT, Bangkok, Thailand, 5-7 January (CD-ROM).

Pandey, V. P., **Babel, M. S.**, Shrestha, S. and F. Kazama (2009). Vulnerability of Freshwater Resources in Large and Medium Nepalese River Basins to Environmental Change. *Proceedings of the 7th International Symposium on Southeast Asian Water Environment*, 28-30 October, AIT Conference Centre, Thailand. pp 241-250.

S. Shrestha, 2009. For better communication and knowledge sharing system- lesson learned from WEPA experience, In Proceedings of International Conference on Sustainability of Science in Asia (ICSS-Asia), 23-24 November, 2009, Asian Institute of Technology (AIT), Thailand, pp.94.

S.K. Chapagain, T. Nakamura, V.P. Pandey, **S. Shrestha**, and F. Kazama, 2009. Landuse management from the groundwater aspects, In: Proceedings of International Symposium on Environment, Energy and Water in Nepal: Recent Researches and Direction for Future, 31 March – 1 April, 2009, Hotel Himalaya, Kathmandu, Nepal, pp.231.

Shinde, V. R. and **M. S. Babel** (2009). Urban Water Demand Forecasting using Artificial Neural Networks: A Case Study of Bangkok. Proceedings of the World City Water Forum (WCWF) 2009, Incheon, South Korea, 18-21 August, 2009. pp 2388-2396.

Singhrattana, N. and **M. S. Babel** (2009). Developing Statistical Relationships between Rainfall and Large-Scale Climate Variables for the Upper Chao Phraya River Basin, Thailand. Proceedings of the EWRI-AIT International Conference on “An International Perspective on Environmental and Water Resources,” AIT Conference Center, AIT, Bangkok, Thailand, 5-7 January (CD-ROM).

T. Nakamura, F. Kazama, S.K. Chapagain, V.P. Pandey, Y. Osada and **S. Shrestha**, 2009. Isotopic approach of groundwater studies- identification of nitrate contamination process, In: Proceedings of International Symposium on Environment, Energy and Water in Nepal: Recent Researches and Direction for Future, 31 March – 1 April, 2009, Hotel Himalaya, Kathmandu, Nepal, pp.23-30.

Tiewtoy, S. and **Clemente, R.S.** 2009. Irrigation System Assessment and Management of Selected Projects in Thailand. Regional R&D Workshop on Water Saving Irrigation Practices in Rice-based Canal System, AIT Thailand, October 8-9 2009.

V.P. Pandey, M.S. Babel, **S. Shrestha** and F. Kazama, 2009. Vulnerability of

freshwater resources in large and medium Nepalese river basins to environmental change, In: Proceedings of the 7th International Symposium on Southeast Asian Water Environment, 28-30 October, Asian Institute of Technology (AIT), Thailand, pp. 241-250.

Other Publications

Babel, M. S. and A. Rivas (2009). Case Study on Water Supply, Wastewater, and Storm Water Management in Bangkok. A report presented at the Final Workshop on Good Practices for Urban Water Management in Asia, National University of Singapore, Singapore, 11 December 2009.

Babel, M. S. and A. Rivas (2009). Groundwater Quality Management Research in Bangkok, A Final Report submitted to Institute for Global Environmental Strategies (IGES), Japan.

Babel, M. S. and A. Rivas (2009). Research Report on the Case Study on Water Supply, Wastewater, and Storm Water Management in Bangkok, A Final Report Submitted to the Institute of Water Policy, Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore.

Babel, M. S. and S. Md. Wahid (2009). Freshwater under Threat: Vulnerability Assessment of Freshwater Resources in Southeast Asia. United Nations Environment Programme, Nairobi. ISBN: 978-92-807-2950-4.

Climate Change Impact and Adaptation Study for Bangkok Metropolitan Region, Submitted to the World Bank

S. Shrestha (2009), Key note speech on ‘**Groundwater and climate change: No longer the hidden resource**’ in the National Symposium on Challenges and Opportunities for Sustainable Management of

Groundwater Resources of Kathmandu Valley, Nepal' on 28 December, 2009 in Kathmandu, Nepal.

12.6 Doctoral Students' Dissertation

An Intelligent-Based Decision-Making Modeling of Reservoir Operation for Improved Water Management

By Panuwat Pinthong
Supervisor: Dr. Mukand S. Babel

Eutrophication Modeling in the Upper Gulf of Thailand

By Chucheep Wongsupap
Supervisors: Dr. Roberto S. Clemente/Dr. Sutat Weesakul

Hydraulic Performance Analysis of Vetiver Grass System for Soil and Water Conservation on Steep Slope Areas

By Somchai Donjadee
Supervisor: Dr. Roberto S. Clemente

12.7 Masters Students' Theses

A Flood Inundation, Damage and Risk Assessment in Hoang Long Basin, Vietnam

By Vu Thanh Tu
Supervisors: Dr. Mukand S. Babel/Prof. Tawatichai Tingsanchali

Analysis of Rainfall Pattern Change in Bangkok and Jakarta

By Cilcia Kusumastuti
Supervisor: Dr. Mukand S. Babel/Dr. Sutat Weesakul

Analysis of Scour Hole Formation in a Plunge Pool Using a Physical Model

By Heng Sokchhay
Supervisors: Dr. Mukand S. Babel/ Dr. Sutat Weesakul

Application of Artificial Neural Networks for Rainfall Forecasting in Mumbai

By Girish Bhatu Badgajar
Supervisor: Dr. Mukand S. Babel

Application of MIKE 11 for Water Quality Assessment in Can Tho City, Vietnam

By Huynh Vuong Thu Minh
Supervisor: Dr. Roberto S. Clemente

Application of Weather Radar for Rainfall Forecasting in Bangkok

By Supatchaya Chuanpongpanich
Supervisors: Dr. Mukand S. Babel/Dr. Sutat Weesakul

Assessment of Hydrological and Geotechnical Safety of Mae Suai Dam, Thailand

By Sirapop Tanmanee
Supervisors: Dr. Mukand S. Babel/Prof. Tawatichai Tingsanchali

Assessment of Salinity Intrusion in an Aquifer System in the Southwest Region of Bangladesh

By Sajal Kumar Adhikary
Supervisors: Dr. Mukand S. Babel/Prof. Ashim Das Gupta

Assessment of the Burala Canal Irrigation System, Pakistan: An Application of the MASSCOTE Approach

By Abdul Nabi
Supervisors: Dr. Mukand S. Babel/Dr. Sylvain Roger Perret

Assessment of Water Supply and Demand Under Future Climatic Change Conditions in the Mae Klong River Basin, Thailand

By Chollada Rojrungtaevee
Supervisor: Dr. Mukand S. Babel

Evaluation of Municipal Water Demand Forecasting Techniques for Chonburi Province, Thailand

By Veerasak Kanganapongporn
Supervisor: Dr. Mukand S. Babel

Experimentation on Hydraulic Performance of a Mangrove System for Tsunami Impact Reduction

By Nitee Siripit
Supervisors: Dr. Roberto S. Clemente/Dr. Sutat Weesakul

Farm Pond Management to Improve Water Allocation in Selected Catchments in Chiang Mai, Thailand

By Pratya Chutipattarasakul
Supervisor: Dr. Roberto S. Clemente

Flood Impact and Vulnerability Assessment in Lower Reach of Kelani River, Colombo

By S.M.C. Kaushalya Subasinghe
Supervisor: Dr. Mukand S. Babel

Improvement of AIT River Network Model for Flood Management: Chao Chet – Bang Yee Hon Irrigation Project, Chao Phraya Basin

By Nikom Kraitud
Supervisors: Dr. Mukand S. Babel/Dr. Sutat Weesakul

Improvement on Detention Storage (Monkey Cheek) Operation of Mahachai Canal System in Samut Sakhon, Thailand

By Adisorn Champathong
Supervisors: Dr. Roberto S. Clemente/Dr. Sutat Weesakul

Integrated Evaluation of the Existing Water Supply System in Vientianne, Lao PDR

By Arief Dhany Sutadian
Supervisor: Dr. Mukand S. Babel

Integrated Modeling of Urban Drainage and Flooding in the Central Area of Ninh Kieu District, Can Tho City, Vietnam

By Lam Van Thinh
Supervisors: Dr. Mukand S. Babel/Dr. Sutat Weesakul

Investigating Crop Diversification and Livelihood Patterns in Two Irrigation Systems of Red River Delta, Vietnam: A Simulation Study Using the Olympe Approach

By Pham Thi Diep
Supervisor: Dr. Sylvain Roger Perret

Irrigation System Performance Evaluation of Selected Projects in Thailand

By Pitakpong Tibkaew
Supervisor: Dr. Roberto S. Clemente

Optimal Design of Water Distribution Mainlines for Future Demographic Scenarios in Southwest Hanoi, Vietnam

By Truong Tran Trung
Supervisors: Dr. Mukand S. Babel/Prof. Ashim Das Gupta

Options for Improving Irrigation Water Allocation and Use: A Case Study in Hari Rod River Basin, Afghanistan

By Ahmad Faisal Basiri
Supervisor: Dr. Sylvain Roger Perret

Probable Maximum Precipitation and Flood Analysis for Chenab River Basin, Pakistan

By Ikram ud Din
Supervisors: Dr. Mukand S. Babel/Prof. Tawatichai Tingsanchali

*Reservoir Operation Considering
Environmental Flows: A Case Study in
Hari Rod River Basin, Afghanistan*

By Said Shakib Atef

Supervisors: Dr. Mukand S. Babel/Prof. Ashim Das
Gupta

*Simulating Non-Point Source Pollution of
Water Resources in the Upper Tha Chin
River Basin, Thailand Using SWAT Model*

By Hafiz Qaisar Yasin

Supervisor: Dr. Roberto S. Clemente

*Urban Water Demand Forecasting Using
Artificial Neural Networks: A Case Study
of Bangkok*

By Victor Rana Shinde

Supervisor: Dr. Mukand S. Babel

Water Resources Management in Ba

*River Basin Under Future Development
and Climate Scenarios*

By Nguyen Thi Thu Ha

Supervisor: Dr. Mukand S. Babel

*Research Study: Evaluation of
Downscaling Techniques in the Ping River
Basin, Thailand*

By Rashid Mahmood

Supervisor: Dr. Mukand S. Babel

*Research Study: Preliminary
Performance Assessment of the Water
Supply System in Ulaanbaatar City,
Mongolia*

By Siilegmaa Batsukh

Supervisor: Dr. Roberto S. Clemente

Chapter 13: SET – INFORMATION AND COMMUNICATIONS TECHNOLOGIES

AREA OF STUDY

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.

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.

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

TEERAPAT
SANGUANKOTCHAKORN,
Associate Professor
POOMPAT SAENGUDOMLERT,
Assistant Professor
TAPIO ERKE, **Visiting Associate
Professor**

From Computer Science and Information Management Fields of Study

KANCHANA KANCHANASUT,
Professor
PETER HADDAWY, **Professor**
PHAN MINH DUNG, **Professor**
VILAS WUWONGSE, **Professor**
SUMANTA GUHA, **Associate
Professor**
VATCHARAPORN ESICHAIKUL,
Associate Professor
MATTHEW N. DAILEY, **Assistant
Professor**
PAUL JANECECEK, **Assistant
Professor, ICT Joint
Coordinator**

From Remote Sensing and Geographic Information Systems Field of Study

KIYOSHI HONDA, **Associate
Professor**
NITIN KUMAR TRIPATHI,
Associate Professor
XIAOYONG CHEN, **Associate
Professor and ICT Joint
Coordinator**

13.4. Masters Students' Theses and Research Studies

A Conceptual Framework for Collaborative Writing Workflow with Email Support and Implications for System Design

By Udayan Mishra
Supervisor: Dr. Paul Janecek

Analysis of Power Efficiency in Channel Estimation for Joint ZP-NZP OFDM

By Raza Ali Shah
Supervisor: Dr. Poompat Saengudomlert

Analysis of Supernode Based Peer-to-Peer System for IP Telephony Over Wireless Ad Hoc Networks

By Jagadish Ghimire
Supervisor: Dr. Teerapat Sanguankotchakorn

An Architecture for Co-ordinated Interaction Over Multiple Views

By Kriti Amatya
Supervisor: Dr. Paul Janecek

A Study of Conversation Traffic Variations and Characteristics

By Phan Anh Tuyet
Supervisor: Assoc. Prof. Tapio J. Erke

A Study of User Acceptance on Mobile Map Search in Thailand

By Lalit Pienchai
Supervisors: Dr. Vatcharaporn Esichaikul/Dr. Donyaprueth Krairit

Automatic Attack Detection and Correction System Development (SmartARP)

By Thanathorn Dechasawatwong
Supervisor: Dr. Teerapat Sanguankotchakorn

Correctness Verification of Web Services Composition Using Event Calculus

By Chaman Priyankara Wijesiriwardana
Supervisor: Prof. Phan Minh Dung

Digital Video Streaming Over a Heterogeneous Network

By Waldeniye Gedara Chinthaka Wasantha Kumara
Supervisor: Prof. Kanchana Kanchanasut

Energy and Capacity Analysis of Relay-Assisted MIMO Ad Hoc Network: A Game Theoretical Approach

By Chatura Kalyana Wickrema Seneviratne
Supervisor: Dr. R.M.A.P. Rajatheva

Modified AODV for Multi-Constrained QoS Routing and Performance Optimization in Manet

By Amina Akhter
Supervisor: Dr. Teerapat Sanguankotchakorn

Multi-Constrained Optimal Path QoS Routing with Inaccurate Link State Information

By Mahawaduge Lesli Newton Perera
Supervisor: Dr. Teerapat Sanguankotchakorn

The Effect of Movement Scenario to Connectivity Performance in MANEMO

By Paweeya Raknim
Supervisor: Dr. Teerapat Sanguankotchakorn

The Manet Mobility Model for Pre-Defined Structured Areas

By Shiddhartha Raj Bhandari
Supervisor: Dr. Teerapat Sanguankotchakorn

Velocity Effect on the Performance of Manemo

By Adisorn Lertsinsrubtavee
Supervisor: Dr. Teerapat Sanguankotchakorn

Research Study: 3G Radio Access Network Capacity Planning and Bottleneck Analysis

By Abhilash Acharya
Supervisor: Dr. Teerapat Sanguankotchakorn

Research Study: An Empirical Study of Cultural Influence on Web User Interface and its Implications on Localization Strategy

By Marie-Lise Bourcier
Supervisor: Dr. Mikko Petri Kovalainen

Research Study: Assessing Student Performance Using Knowledge Driven Data Mining

By Malayphone Soulygnavong
Supervisor: Dr. Sumanta Guha

Research Study: Centralized User Account Management: A Case Study of the National University of Laos

By Kheuangkham Phothisan
Supervisor: Dr. Paul Janecek

Research Study: Handwriting Recognition for Medical Patient Records Using Semantic Information from UMLS Ontology

By Pluert Lertsukittipongsa
Supervisor: Prof. Peter Haddaw

Research Study: Impact of Trust on Consumer Acceptance of Internet Banking System

By Chada Kunnarong
Supervisor: Dr. Vatcharaporn Esichaikul

Research Study: In Search of Market Entry Options for Small Software Platform Providers: A Case Study of the Telecom Industry in Pakistan

By Saqib Jamil
Supervisor: Dr. Mikko Petri Kovalainen

Research Study: Measurement and Analysis of Traffic in an IP-Based Network: A Case Study of Ministry of Defense, Thailand

By Booncherd Nakornrum
Supervisors: Dr. Teerapat Sanguankotchakorn/Assoc. Prof. Tapio J. Erke

Research Study: Mobile-Based Application to Monitor and Schedule Home Appliances

By Su Su Lay
Supervisor: Prof. Phan Minh Dung

Research Study: Relay Selection Techniques in Cooperate Communication Using Game Theory

By Muhammad Mohsin Nazir
Supervisor: Supervisor: Dr. R.M.A.P. Rajatheva

Research Study: The Role of Decision Support Systems in Operational Emergency Management

By Fanny Gaborit
Supervisor: Dr. Mikko Petri Kovalainen

Research Study: Traffic Measurement and Analysis of a CDMA2000 1xEVDO Cellular Network: A Case Study of Mongolian Cellular Mobile Company

By Purev-Osor Azjargal
Supervisor: Assoc. Prof. Tapio J. Erke

Research Study: User-Centred Design for an E-Filing System: A Case Study for HR Documents in Bhutan Telecom Ltd.

By Tshering Pemo
Supervisor: Dr. Mikko Petri Kovalainen

Chapter 14: SET – OFFSHORE TECHNOLOGY AND MANAGEMENT PROGRAM

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), and Geosystem Exploration and Petroleum GeoEngineering (GEPG, and offered in collaboration with the Geotechnical and Geoenvironmental field of study). 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.

14.2 Faculty and Research Staff

Full-time Faculty

GREGORY L.F. CHIU, M.S. Civil Engineering, Columbia University, New York, USA; PhD. Civil Engineering, Stanford University, California, USA

Visiting Associate Professor

Adjunct Faculty

JOKO HARSONO WIDJAJA, Master of Engineering, Asian Institute of Technology, Bangkok, Thailand; Doctor of Philosophy, University of Technology, Sydney-NSW, Australia

L.F. BOSWELL, Doctor of Philosophy, University of Leeds; Doctor of

Science, Technical University of Isai; Doctor of Science, Technical University of Cluj Napoca

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

PORNONG ASAVADORNDEJA, Master of Engineering, Asian Institute of Technology, Bangkok, Thailand; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

PRATEEP POKINWONG, Master of Science, University of Southern California, USA; Doctor of Philosophy in Engineering, University of Southern California

SARUNPHONG ARTICHARTE; Master of Science, Texas A&M University, USA

THITISAK BOONPRAMOTE, Master of Science, Colorado School of Mines, USA; Ph.D., Colorado School of Mines, USA

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

14.3 Ongoing / In Progress Grant and Sponsored Research

Preparation of the structural assessment guideline for offshore petroleum platform and pipeline

Project Description: Process of the preliminary study and analysis, there are 3 tasks to perform: 1. the legislation aspect that focuses on the prescriptive and the performance based regimes; 2 the technical aspect concerning the historical data and the future trend of the development of the code of practice; 3 the stakeholders analysis which

deals with the strategic implementation plan for each group of the stakeholders.
 Duration December 2007 to June 2010
 Project Investigator Prof. Worsak Kanok-Nukulchai
 Sponsors Department of Mineral Fuel
 Total Contracted Amount (Baht) 3,774,000

14.4 Masters Students' Theses and Internships

Application of the Fracture Mechanics Model for Offshore Jacket Structure Inspection Purposes

By Methi Assavinipart
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Pornpong Asavadorndeja

Corporate Risk Tolerance Assessment and Its Application in Optimal Work Interest: The Case of E&P in Thailand

By Nantaphat Chotsuyodchana
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Thitisak Boonpramote

Determination of Eaton's Exponent in the Gulf of Thailand

By Prairaya Somanandana
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Jirawat Chewaroungroj

Dynamic Response of Offshore Minimum Structures in the Southern Gulf of Thailand

By Songkiat Hansanti
 Supervisors: Dr. Gregory L. F. Chiu / Dr. Joko Harsono Widjaja

Dynamic Wave Response of Non-linear Offshore Platform Structural System

By Nakorn Suttara
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Joko Harsono Widjaja

Investigation Into the Effect of Non-Linear Soil Stiffness to Riser Fatigue Life (In Deep Water Scenario)

By Rittichai Sukbanjongwatthana
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Pornpong Asavadorndeja

Offshore Construction Planning and Scheduling Under Resource Constraints

By Boonyawat Buddhimetapong
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Poovadol Sirirangsi/Dr. Winai Ouypornprasert

Offshore Pile Driving Stress Versus Blow Count in Investigating Hammer Performance

By Noppong Klaharn
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Joko Harsono Widjaja

Real Options Analysis as an Investment Decision Tool in Oil and Gas Field Development in Thailand

By Chittree Rungcharoen
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Thitisak Boonpramote

Reliability-Based Decision Making in Offshore Platform Construction Management

By Chompoonut Junkongsuan
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Poovadol Sirirangsi/Dr. Winai Ouypornprasert

Risk Assessment for Offshore Platforms Decommissioning in the Gulf of Thailand

By Chaiyaphruk Bunprasert
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Joko Harsono Widjaja

Risk Assessment for Subsea Pipeline Decommissioning in the Gulf of Thailand

By Watcharapon Tawarat
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Joko Harsono Widjaja

Risk Assessment for Topside Fabrication Decommissioning in the Gulf of Thailand

By Prissanai Tephaisit
 Supervisors: Dr. Gregory L. F. Chiu/Dr. Joko Harsono Widjaja/Dr. Thitisak Boonpramote

Structural Integrity-Based Investigation for Fixed Offshore Steel Template Jacket Platforms

By Pongsathon Punjamaphon
 Supervisors: Dr. Gregory L. F. Chiu / Dr. Joko Harsono Widjaja

The Articulated Stinger Optimization Design

By Pornpat Samutchaikit
 Supervisor: Dr. Pornpong Asavadorndeja

Internship: Assessment of Fire Blast Load Resistance in Offshore Structures

By Pakorn Teerawanichphan
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Assessment of the Existing Jacketed Platform Using Non-Linear Static Pushover Analysis

By Washira Kaew-amatawong
 Supervisor: Dr. Gregory L. F. Chiu

Internship: A Study on the Concept Design of the Spar Buoy Platform in Deep Sea

By Sompong Boonthanaporn
 Supervisor: Dr. Gregory L. F. Chiu

Internship: CEPP Heating Upgrade - Detailed Design

By Thanit Kunmas
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Engineering Design Aspects of Offshore and Onshore Natural Gas Pipelines

By Win Min Thant
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Field Development Plan for New Oil and Gas Fields

By Moe Thu Aung
 Supervisor: Dr. Gregory L. F. Chiu

Internship: In-place and Dynamic Analysis of a Generic Tripod Jacket

By Manoo Sakprasert
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Petroleum Fiscal Regime in the United Kingdom

By Sunti Thongvilard
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Piping Design and Management for Offshore Platforms

By Khamfa Seelachai
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Risk-Based Inspection and Integrity Management of Facility Systems for an Offshore Platform

By Kanjanakorn Promsakanasakonnakorn
 Supervisor: Dr. Gregory L. F. Chiu

Internship: Study of Pipeline Fabrication and Welding Technology for Sour Service Condition

By Nirut Bundeerat
 Supervisor: Dr. Gregory L. F. Chiu

Chapter 15: SCHOOL OF ENVIRONMENT, RESOURCE AND DEVELOPMENT

15.1 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

15.2 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

Inter-university Program

- Environmental Toxicology, Technology and Management

Interdisciplinary Programs

- Cleaner Production
- Agri Business Management
- Sustainable Development
- Disaster Prevention, Mitigation and Management
- Gender, Transportation and Development

15.3 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 equipments, 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, 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.

15.4 School Governance

Dean of School

SIVANAPPAN KUMAR (*until 31 August 2009*)
BE, Univ of Madras, India; MEng, AIT, Thailand; PhD, Inst Natl Polytechnique, Toulouse, France.
Professor [*Solar Energy (Radiation, Thermal and Photovoltaics); Green house gas mitigation and climate change, Cleaner Production; energy and sustainable development*]

WEERAKORN ONGSAKUL (*from 1 September 2009*)
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

KYOKO KUSAKABE (*until 31 August 2009*)
BA, Sophia Univ, Tokyo, Japan; MSc, PhD, AIT, Thailand.
Associate Professor [*Women's employment under macro-economic changes; Gender issues in trade and migration;*

Women and microvendors/informal sector; Borderland studies, Gender issues in organizations, Gender and development policy and planning]

MOKBUL MORSHED AHMAD (*from 1 September 2009*)
BSc, MSc, Dhaka Univ, Bangladesh; MSc, AIT, Thailand; PhD, Univ of Durham, UK.

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

Chapter 16: SERD – AGRICULTURAL SYSTEMS AND ENGINEERING FIELD OF STUDY

16.1 Introduction

This field of study emphasizes on sustainable agricultural and related technologies development through holistic approach for efficient food production from small holder agriculture.

16.2 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, 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 Spectro 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), 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.

16.3 Faculty and Professional Staff

Full-time Faculty

VILAS M SALOKHE, BTech, Mahatma Phule Agricultural Univ., India; MEng, Univ of Sukhadia, India; DEng, AIT, Thailand.

Professor (*Agricultural Machinery; Controlled Environment Agriculture; Terramechanics; Agricultural Systems Analysis; Human Factors Engineering*)

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*)

S L RANAMUKHAARACHCHI, BSc, Univ of Peradeniya, Sri Lanka; MSc, PhD, Pennsylvania State Univ, USA.

Associate Professor (*Agronomy; Crop Eco-physiology; Cropping Systems; Pest Management; Soil*

Fertility Management; Organic Farming; Stress Physiology)

HEMANTHA P W JAYASURIYA, BScEng, Univ of Peradeniya, Sri Lanka; MEng, DEng, AIT, Thailand.

Assistant Professor (*Design & Development of Agricultural Machinery; Precision Agriculture; Agricultural Systems Analysis; Instrumentation & Data Acquisition*)

Visiting and Adjunct Faculty

LAI PO-YUNG; PhD

Visiting Faculty (*Sustainable Agriculture; Integrated Pest Management; Insect-Chemical Entomology; Insect Pathology*)

CHAIYAPHOL

KAEWPRAKAISAEANGKUL; PhD

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

PETER AUN-CHUAN OOI, PhD

Adjunct Faculty (*Crop Protection; Integrated Pest Management; Agricultural Systems*)

ROONGRUANG KALSIRISILP; PhD

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

Professional Staff

PEEYUSH SONI; DEng

Affiliated Faculty and Laboratory Supervisor (*Controlled Environment Agriculture; Agricultural Systems Analysis; Energy in Agriculture;*

Aquacultural Engineering) (1 January – 31 May 2009)
Adjunct Faculty
(Instrumentation and Measurement Techniques; Course Analytical Techniques & Decision Tools for Agribusiness)
 (1 September 2009 to 31 December 2010)

WATTANAPORN MESKUNTA VON,
 DTechSc

Senior Laboratory Supervisor
(Crop Modeling; Farm Management; Laboratory Analyses of Soil and Plants)

16.4 Grants and Sponsored Research Completed in 2009

Development of a Small Rice Combine Harvested

Duration 1-May-07 - 31-Mar-09
 Project Investigator V. M. Salokhe
 Sponsor RTG Visiting Scholar
 Total Contracted Amount (THB) 900,000

Development of an Efficient Sugarcane Transportation System for Sugar Mill

Duration 1-Jun-07 - 30-Apr-09
 Project Investigator V. M. Salokhe
 Sponsor RTG and Buriram Sugar
 Total Contracted Amount (THB) 2,000,000

Eco-friendly Household Biodegradable Waste Recycling and Utilization through Peri-Urban and Urban Agriculture for Amelioration of the City Environment

Duration 30-Jun-08 - 31-Aug-09
 Project Investigator S.L. Ranamukhaarachchi
 Sponsor CIDA/SEA-UEMA
 Total Contracted Amount (THB) 576,000

Increasing Water use Efficiency by using Mulch under SRI

Duration 1-Jan-06 - 31-Mar-09
 Project Investigator V. M. Salokhe
 Sponsor IWMI
 Total Contracted Amount (THB) 2,925,000

Laboratory and Field Training in Agricultural Sciences

Duration 9-Sep-09 - 31-Oct-09
 Project Investigator Vilas M Salokhe
 Sponsor Advancing Afghan Agriculture Alliance (A4)
 C/O Purdue University
 Total Contracted Amount (THB) 1,311,552

Training of Officers and Training of Manual Preparation for Department of Agrarian Development-Sri Lanka

Duration 19-Aug-07 - 31-Dec-09
 Project Investigator S.L. Ranamukhaarachchi
 Sponsor Department of Agrarian Development-Sri Lanka
 Total Contracted Amount (THB) 763,000

16.5 On-going Grants and Sponsored Research

Climate Change Rice Cultivation

Duration 1-May-09 - 30-Nov-10
 Project Investigator Prabhat Kumar, Abha Mishra
 Sponsor APFED/UNEP
 Total Contracted Amount (THB) 1,020,000

Linking Thai Jasmine Rice Farmers with Markets using Participatory action research for sustainability of rain-fed lowland rice-based system in Northeast Thailand

Duration 1-Jan-08 - 31-Dec-10
 Project Investigator Prabhat Kumar, Sudip Rakshit
 Sponsor Consultative Group on International Agricultural Research CGIAR World Bank
 Total Contracted Amount (THB) 8,262,000

Protected cultivation- An Approach to Sustainable Vegetable Production in Humid Tropics- Phase II

Duration 1-Aug-04 - 30-Jun-10
 Project Investigator V. M. Salokhe
 Sponsor Hannover University, Germany
 Total Contracted Amount (THB) 10,000,000

Regional knowledge exchange with SRI: Producing more with less water

Duration 1-Jun-09 - 30-Dec-10
 Project Investigator Prabhat Kumar, Abha Mishra
 Sponsor World Bank Institute
 Total Contracted Amount (THB) 1,426,300

16.6 Publications

Refereed Journals

Doi, R. and **S.L. Ranamukhaarachchi**. 2009. Community-level physiological profiling in monitoring rehabilitative effects of *Acacia auriculiformis* plantation on degraded land of Sakaerat, Thailand. *Journal Silvva Fennica*, 43(5):739-754.

Doi, R. and **S.L. Ranamukhaarachchi**. 2009. Correlations between soil microbial and physiochemical

variations in a rice paddy: implications for assessing soil health. *Journal of Biosciences*, 34(6): 969-976.

G.A. Sanjeevanie Ginigaddara and **S.L. Ranamukhaarachchi**. 2009. Effect of conventional, SRI and modified water management on growth, yield and water productivity of direct-seeded and transplanted rice in Central Thailand. *Australian Journal of Crop Science*, 3(5):278-286.

Kamolsin, P. V.M. Salokhe and **P. Soni** (2009). Physico-Mechanical Properties of Hydrilla (*Hydrilla verticillata*) and Pondweed (*Potamogeton malaiianus*). Manuscript submitted to: Agricultural Engineering International: CIGR Journal of Scientific Research and Development. (Accepted for publication)

Mishra, A. (2009). System of Rice Intensification (SRI): A quest for the interactive science to mitigate the climate change vulnerability. In IOP Conf. Series: *Earth and Environmental Science*. 6 (4), 242028.

Mishra, A. and Uphoff, N (2009). Climate-proofing' crop production in response to climate change: Opportunities with the System of Rice Intensification (SRI). *The Hindu Survey of Indian Agriculture*, 12-13.

Mohammad Gausul Azam, Michael A. Zoebisch, Kanchana S. Wickramarachchi, and **Senaratne L. Ranamukhaarachchi**. 2009. Site-specific soil hydraulic quality (SHQ) index to describe the essential conditions for the optimum soil water regime. *Canadian Journal of Soil Science* (Manuscript Number: CJS08089, Date of acceptance for publication - 05-08- 2009).

Nalavade, P. Salokhe, V.M., Niyamapa, T., and **P. Soni** (2010). Performance of Free Rolling and

Powered Tillage Discs. Soil & Tillage Research. (Accepted for publication)

Nguyen, M.T. and S.L. **Ranamukhaarachchi**. 2009. Soil-borne antagonists for biological control of bacterial wilt disease caused by *Ralstonia solanacearum* in tomato and capsicum. International Journal of Plant Pathology (accepted for publication – 11-08-2009)

Thongsaga, K. and S.L. **Ranamukhaarachchi**. 2009. Simulation of Growth and Yield of Maize under Water Stress Imposed during Critical Growth Periods in Nakhon Ratchasima Province, Thailand. Asia Pacific Journal of Rural Development. Asia Pacific J. of Rural development, XIX(1):109-134.

Book Chapter

Kumar P., and H.-M. Poehling. (2009). **Novel strategies for management of tropical insect-pests of tomato. In: Tomatoes: Agricultural Procedures, Pathogen Interactions and Health Effects. Nova Publishers. USA .**

Conference Proceeding

Alex Keen, Madhav D. Gholkar, James Ward, Vilas M. Salokhe and **Peeyush Soni** (2009). "Force Measurement between a Tractor and a Three Point Linkage Mounted Cultivation Implement". IAEC Ref. AMM-253. In: Proceedings of the 10th International Agricultural Engineering Conference, Hotel Manhattan, Bangkok (THAILAND), 7-10 December, 2009

Chakkrapong Taewichit, Dolores Mae N. Gicana and **Peeyush Soni** (2009). "Alternative Optimal Integrated Agriculture with Ponds using Multi-Objective Linear Programming". IAEC Ref. CTA-261. In: Proceedings of the 10th International Agricultural Engineering Conference, Hotel

Manhattan, Bangkok (THAILAND), 7-10 December, 2009

Ketelaar, J. W. and Kumar, P. (2009). presented lead paper titled "**Asian Smallholder Vegetable Farmers as IPM Experts Experiences from the FAO Regional Vegetable IPM Programme**" International Conference on Horticulture (ICH-2009) 9-12 November 2009, Bangalore, India (*under preparation; see* <http://www.pnasf.org/Scientific%20Programme.html>).

Kumar P. (2009). Climate Change Adaptation workshop, DoAE-FAO, Dhaka. Presented an invited paper on the topic of 'Effect of climate change on the plant production and protection in Bangladesh and lessons for the FFS Programmes'.

Kumar P. (2009). FAO Regional Workshop on Pesticide Risk Reduction, 19-23 Oct. Guilin China PR. Presented an invited paper on 'Effects of climate change on the plant production and protection in Asia'.

Mishra, A. (2009). Climate Change and Water Stress: Does the System of Rice Intensification (SRI) offer any opportunity for better adaptation? In: Regional Knowledge Exchange on SRI: Producing More with Less Water, 23-24 June, 2009, AIT, Thailand (<http://www.slideshare.net/SRI.CORNELL/tag/ait>).

P. Soni and V.M. Salokhe (2009). "Options for Sustainable Agriculture in the Tropics: An Overview". Invited Paper for online journal. Special issue on: Sustainable Agricultural Practices and Technologies. UN-APCTT Asia Pacific Tech Monitor, Jan-Feb. 2009. pp.13-20. http://www.techmonitor.net/techmon/09jan_feb/tm/tm_home.htm

Soni, P. and V.M. Salokhe (2009). "Strategic Analysis of Urban/Peri-

urban Agriculture in Asia: Issues, Potential and Challenges". In: Proceedings of the International Workshop on Sustainable City Region (IWSCR). Inna Grand Bali Beach Hotel, Denpasar, INDONESIA, 23-24 February, 2009. Pp.65-73. <http://www2.ir3s.u-tokyo.ac.jp/scrws2009>

Soni, P. and V.M. Salokhe and A. Noomhorm (2009). "Green Top, Clean Bottom: Storey for Sustainability". In: Abstracts Book. 'Urban Futures: The Challenge of Sustainability'. The Alliance for Global Sustainability (AGS) Annual Meeting 2009, 26-30 January, Zurich, SWITZERLAND. Pp. 47.

V.M. Salokhe and **P. Soni** (Editors) (2009). "BOOK OF ABSTRACTS". International Agricultural Engineering Conference, December 7-10, Bangkok, Thailand. Published by Asian Association for Agricultural Engineering. ISBN: 978-974-8257-70-9

V.M. Salokhe, S. Parvin and **P. Soni** (2009). "Effects of Yield Promoting Inputs on Greenhouse-grown Tomatoes in Humid Tropics". In: Proceedings of the 33rd CIOSTA and CIGR-V Conference 2009. Reggio Calabria, ITALY, 17-19 June, 2009.

V.M. Salokhe, T. Laonapakul and **P. Soni** (2009). "Effects of Tyre Inflation Pressure and Surface Conditions on the Vibration Characteristics of Agricultural Tractors". In: Proceedings of the 11th European Regional Conference of the ISTVS 2009. Bremen, GERMANY, 5-8 October, 2009.

Other Publications

P. Soni (2009). "Agrifood Chain: Where is the Broken Link?". From the Editor's Desk. AAEE Newsletter, 18(1-2).

P. Soni (2009). "Asian Cities and Agriculture?". From the Editor's Desk. AAAE Newsletter, 18(3-4).

16.7 Doctoral Students' Dissertation

Combating Poverty in the Hills of Nepal: Implications for Agricultural Research and Development Policy

By Yuga Nath Ghimire

Supervisor: Prof. Ganesh P. Shivakoti

Comparative Studies on Growth and Yield Simulations for Maize in Drought-Prone Ecosystem in Nakhorn Ratchasima Province, Thailand

By Kiattiyos Thongsaga

Supervisor: Dr. S. L. Ranamukhaarachchi

Development of a Mini Combine Harvester for Rice

By Direk Chimchana

Supervisor: Prof. Vilas M. Salokhe

Development of a Vibratory Subsoiler

By Rattana Karoonboonyanan

Supervisors: Prof. Vilas M. Salokhe / Dr. Tanya Niyamapa

*Exploration of Antagonistic Microorganisms for Biological Control of Bacterial Wilt Disease (*Ralstonia solanacearum*) in Tomato and Capsicum*

By Nguyen Mai Thanh

Supervisor: Dr. S. L. Ranamukhaarachchi

Pesticide Use Knowledge, Perceptions and Practices among Small Tangerine Growers in Chiang Mai Province, Northern Thailand

By Juthathip Chalermphol

Supervisor: Prof. Ganesh P. Shivakoti

Physiological Studies of Water Stress in Irrigated Rice for Enhancing Water Productivity

By G.A.S. Ginigaddara

Supervisor: Dr. S. L. Ranamukhaarachchi

16.8 Masters Students' Theses

An Assessment of Rice Market Chain Management in The Mekong Delta: A Case Study in Cantho City, Vietnam

By Tran Le

Supervisors: Prof. Ganesh P. Shivakoti/Dr. S. L. Ranamukhaarachchi

*A Comparative Study of Color Sensitivity Combined with Opened and Protected Traps for Insect Pest Management in Chinese Kale (*Brassica oleracea* L.)*

By Vindya Niroshini Wickramaarachchi

Supervisor: Dr. S. L. Ranamukhaarachchi

Analysis of Livestock Industry of Mongolia: A Case Study of TUV Province

By Batchimeg Dorjsuren

Supervisor: Prof. Vilas M. Salokhe

Assessment of the Potential of Sustainable Farming System through Farm Level Energy Generation: A Case Study of Sijuwa VDC, Morang District, Nepal

By Umesh Adhikari

Supervisor: Supervisor: Dr. Hemantha P. Jayasuriya

Development of a Cassava Stem Harvester

By Chaiyan Sirikun

Supervisor: Prof. Vilas M. Salokhe

Development of a Coconut Husk Crusher and Cutter

By Sahapat Chalachai

Supervisor: Prof. Vilas M. Salokhe

Diversification of Rice to Oil Palm in Karaked Sub District of Pak Phanang Basin, Thailand: Evaluation of Economic and Land Use Suitability Using Precision Agricultural Techniques

By Somkiet Sinlapavech

Supervisor: Dr. Hemantha P. Jayasuriya

Effect of Composite Media on Growth and Yield of Greenhouse Grown Tomato and Capsicum

By Homayara Momotaz

Supervisor: Prof. Vilas M. Salokhe

*Effects of Selected Air Pollutants on Growth and Yield of Mung Bean (*Vigna radiata* L.)*

By Nilusha Manojani Rajakaruna

Supervisor: Dr. S. L. Ranamukhaarachchi

Improvement of Vase Life of Cut Roses Var. Christian Dior by Optimizing Sucrose, Aluminum Sulphate and Silver Thiosulfate

By Sharmila Piya

Supervisor: Supervisor: Dr. S. L. Ranamukhaarachchi

Life Cycle Assessment of Greenhouse Grown Tomatoes in Thailand

By Davaasuren Dashzegve

Supervisor: Dr. Hemantha P. W. Jayasuriya

Modeling Soil-Moldboard Plough Interaction Using FEM and CFD Techniques

By Pipit Kunlawanit

Supervisor: Dr. Hemantha P. Jayasuriya

Performance Evaluation of a Three-Point Hitch System of a Tractor

By Shivaji Gunga Bachche

Supervisor: Prof. Vilas M. Salokhe

Status of Poultry Production in Mongolia: A Case Study of Ulaanbaatar City

By Burentugs Sayakhuu

Supervisor: Prof. Vilas M. Salokhe

Research Study: Application of Time Series Forecasting for Policy Purposes on Natural Rubber Prices and Production in Thailand

By Chananya Thimaporn

Supervisor: Dr. Hemantha P. Jayasuriya

Research Study: Discrimination of Thai Rice Varieties Using Ground Based Multiangular Hyperspectral Reflectance Data and Biophysical Parameters

By Muhammad Arshad

Supervisor: Dr. S. L. Ranamukhaarachchi

Chapter 17: SERD – AQUACULTURE AND AQUATIC RESOURCES MANAGEMENT

FIELD OF STUDY

17.1 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.

17.2 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 Kjelttec 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.

17.3 Faculty and Research Staff

Emeritus Professor

PETER EDWARDS, BSc, University of Liverpool, UK; PhD, University of Texas, USA.

(General aquaculture with emphasis on recycling organic wastes (human, animal, agro-industrial); small-scale aquaculture; integrated farming; aquaculture for poverty alleviation; and systems approaches to education, research and development; curriculum development; project formulation, management and evaluation.

Full-time Faculty

AMARARATNE YAKUPITIYAGE, BSc, Univ of Kelaniya, Sri Lanka; MSc, AIT, Thailand; PhD, Univ of Stirling, Scotland.

Associate Professor
(Aquaculture, Bioenergetics, Fish Nutrition, Statistics, Database Systems Development)

AMRIT BART, BA Earlham College, USA; MA, MS, PhD, Auburn Univ, USA.

Associate Professor *(Aquatic Resource Management, Cryopreservation, Reproductive Physiology, Seed Production)*

WENRESTI G 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)

Research Staff and Affiliated Faculty

DHIRENDRA P. THAKUR, BFSc, Rajendra Agricultural University, India; MSc, AIT, Thailand; MSc, Kochi University, Japan; PhD, Ehime University, Japan;

Senior Research Specialist and Affiliated Faculty *(Intensive aquaculture, Water quality and nutrient dynamics, Environmental impacts of aquaculture; Integrated Coastal Management, Aquatic product quality and certification)*

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)*

17.4 Grants and Sponsored Research Completed in 2009

Feasibility Study for Adoption of oxygen injection technology in intensive shrimp culture pond

Duration 1-Jan-08 - 31-Jul-09
Project Investigator Dharendra Prasad Thakur
Sponsor OxSeaVision (Thailand) Co. Ltd
Total Contracted Amount (THB) 500,000

17.5 On-going Grants and Sponsored Research

AARM Training and Consultancy Services in Aquaculture

Duration 1-Nov-07 - 31-Dec-10
Project Investigator Amararatne Yakupitiyage
Sponsor Multi donors
Total Contracted Amount (THB) 1,388,130

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

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

Ecosystem Level impacts of Shrimp farm Eutrophication in Thailand

Duration 1-Jun-09 - 31-May-10
Project Investigator Dharendra Prasad Thakur
Sponsor University of Michigan
Total Contracted Amount (THB) 620,160

Integrated culture of tropical abalone (*haliotis asinine*) seaweed (*ulva sp.*) rock oyster (*Saccostrea cuculata*) and sea bass (*Lates calcarifer*) in land based recirculation system

Duration 1-Aug-09 - 31-Dec-10
Project Investigator Wenresti Gallardo
Sponsor RTG
Total Contracted Amount (THB) 950,000

International Symposium on Aquaculture and Fisheries Education

Duration 1-Mar-09 - 28-Feb-11
Project Investigator Wenresti Gallardo, Ram C Bhujel
Sponsor Multi donors
Total Contracted Amount (THB) 2,481,600

Linking the Post-graduate Education in Aquaculture and Aquatic Resources Management with its Industry Through Internship

Duration 1-Sep-07 - 31-Aug-10

Project Investigator Ram C. Bhujel
Sponsor European Commission
Total Contracted Amount (THB) 31,939,965

Sustainable Aquaculture Research Networks in Sub-Saharan Africa

Duration 1-Feb-08 - 31-Jan-11
Project Investigator Ram C. Bhujel
Sponsor European Commission through University of Stirling, UK
Total Contracted Amount (THB) 3,000,010

17.6 Publications

Books

Bhujel, R.C. 2009. Statistics for Aquaculture. Wiley-Blackwell Publishing 224 pages. ISBN: 978-0-8138-1587-9.

Refereed Journals

Amilhat E., K. Lorenzen, E.J. Morales, A. Yakupitiyage and D.C. Little. (2009). Fisheries production in Southeast Asian Farmer Managed Aquatic Systems (FMAS) II. Diversity of aquatic resources and management impacts on catch rates. *Aquaculture* 298 (2009) 57–63.

Amilhat, E., K. Lorenzen, E.J. Morales, A. Yakupitiyage and D.C. Little. (2009). Fisheries production in Southeast Asian farmer managed aquatic systems (FMAS) I. Characterisation of systems, *Aquaculture* 296: 219–226.

Md. Zakir Hossain, Tripathi, N.K., Gallardo W.G. (2009). Land use dynamics in a marine protected area system in Lower Andaman Coast of Thailand, 1990-2005. *Journal of Coastal Research* 25(5):1082-1095.

Saengsupavanich, C., Coowanitwong, N., Gallardo W.G., Lertsuchatavanich, C. (2009). Environmental performance evaluation of an industrial port and estate: ISO14001, port state control-derived indicators. *Journal of Cleaner Production* 16: 154-161.
Samorn Kwantong1 & Amrit N Bart. 2009. Fertilization efficiency of

cryopreserved sperm from striped catfish, *Pangasius hypophthalmus* (Sauvage). *Aquaculture Research*. 40: 292- 297.

Sawitri Silkas and Amrit N. Bart, 2009. Ultrasound enhanced permeation of methanol into zebrafish, *Danio rerio*, embryos. *Aquaculture* (in Press)

Sultanul Arafin Shameem Ahmad, Amrit N Bart, Yang Yi, James E Rakocy & James S Diana. 2009. The effect of the introduction of Nile tilapia (*Oreochromis niloticus*, L.) on small indigenous fish species (*mola*, *Amblypharyngodon mola*, Hamilton; *chela*, *Chela cachius*, Hamilton; *punti*, *Puntius sophore*, Hamilton). *Aquaculture Research*, 1–9.

Taweessin Peatpisut and Amrit N Bart, 2009. Cryopreservation of sperm from natural and sex reversed orange-spotted grouper (*Epinephelus coioides*). *Aquaculture Research* (in Press).

Thakur D.P., Morioka K., Itoh N., Wada M., Itoh Y. (2009). Muscle biochemical constituents of cultured amberjack *Seriola dumerili* and their influence on raw meat texture. *Fisheries Science*, 75 (6): 1489-1498.

Conference Proceedings/Abstracts

Bhujel, R., and Bart, A.N., (2009). Improving aquaculture and fisheries education through curriculum development and internship.

Chavan BR., Thakur D.P., Dhamagaye H.B. (2009). Status of Aquaculture/ fisheries education in India; Book of Abstracts “International Symposium on Aquaculture and Fisheries Education”, AIT Conference Center, Thailand, 27-30 November 2009.

Gallardo, W.G. (2009). Aquaculture and Aquatic Resources Management Curriculum and Teaching Methods at the Asian Institute of Technology; Book of Abstracts “International Symposium on Aquaculture and

Fisheries Education”, AIT Conference Center, Thailand, 27-30 November 2009.

Gallardo, W.G. and Yakupitiyage, A. (2009). Impact of Climate Change on Fish Production from Aquaculture and Fisheries; Book of Abstracts “2nd Annual conference of SEA-EU-NET on Climate Change: Mitigation and Adaptation”, Nov. 11-12, 2009, Bogor, Indonesia.

Thakur D.P., Saelee W., Lakapurnat S. (2009). Adopting responsible shrimp farming practices: a case study on small-scale shrimp farms in Thailand. Book of abstracts “Asian-Pacific Aquaculture 2009”, November 3-6, Kuala Lumpur, Malaysia, pp. 537.

Yakupitiyage, A (2009). Climate change: Research needs in Agriculture, Fisheries and Forestry. Paper presented at the conference on “Sustainable Development in the context of Climate Change” AIT Conference Center, 24-25 September 2009.

Yakupitiyage, A. (2009) Aquaculture education at AIT: The need for Aqua curriculum revision. Book of Abstracts “International Symposium on Aquaculture and Fisheries Education”, AIT Conference Center, Thailand, 27-30 November 2009.

Yakupitiyage, A. (2009). The potential for the development of eco-tourism as a means to support mangrove conservation effort Mangroves. Based on the paper presented at Scientific and Technical Symposium on Sustainable Mangrove Ecosystem Management 22-25 November, 2008.

Magazines/Popular Articles

Belton, B., Turongruang, D., Bhujel, R.C. and Little, D.C. 2009. The History, status, and future prospects of mono-sex tilapia culture in Thailand. *Aquaculture Asia Magazine* April-June 2009, 16-19 pages.

Bhujel, R.C. 2009. Artificial incubation, hormonal sex-reversal promoted tilapia boom. *Global Advocate*, Sept./Oct. 2009: 73-75.

17.7 Doctoral Students' Dissertation

Growth, Nutrient Conversion and Water Quality in Integrated Culture of White Shrimp, Litopenaeus vannamei (Boone), and Nile Tilapia, Oreochromis niloticus L., in an Outdoor Recirculating System

By Banchuen Muangkeow
Supervisor: Dr. Wenresti Gallardo

Improved Thai SS-Live Rotifer Branchionus rotundiformis for First Feeding of Humpback Grouper Cromileptes altivelis Larvae

By Agus Somamihardja
Supervisor: Dr. Amrit Bart

Life History, Fisheries and Aquaculture of Mudskipper (Pseudapocrytes elongatus, Cuvier 1816) in the Coastal Zone of the Mekong Delta, Vietnam

By Truong Hoang Minh
Supervisor: Dr. Wenresti Gallardo

17.8 Masters Students' Theses

A Comparison of Trash Fish Based Feed with Commercial Pellet Feed for Anguilla marmorata Quoy & Gaimard, 1824 at Different Stocking Densities

By Truong Minh Ut
Supervisor: Dr. Amaratatne Yakupitiyage

Carrying Capacity Evaluation for the Tourism Activities in Tarutao National Park, Satun, Thailand

By Surisa Rongtong
Supervisor: Dr. Amaratatne Yakupitiyage

Comparison of Nutritional Value of L-lysine HCl, L-lysine Sulphate and Slow Release Lysine for Thai Red Tilapia (Oreochromis niloticus x Oreochromis mossambicus)

By Suttisak Boonyoung
Supervisor: Dr. Amaratatne Yakupitiyage

Comparison of One-tube and Two-tube Reverse Transcriptase Nested PCR Methods for Detecting Nodavirus Infections in Macrobrachium rosenbergii

By Rungkarn Suebsing
Supervisors: Dr. Amaratatne Yakupitiyage / Prof. Sudip K. Rakshit

Economic Analysis of the Floating Garden Systems for Small-Scale Farmers in Pak Phanang, Thailand

By Khin Aye Han
Supervisor: Dr. Wenresti Gallardo

Economic Valuation of Hard and Soft Control Methods of Water Hyacinth in Pak Phanang, Southern Thailand

By Ivana Yuniarti
Supervisor: Dr. Wenresti Gallardo

Ecotourism as a Means to Support Conservation Efforts in Welu Wetland, Chantaburi, Thailand

By Pakin Santanan
Supervisor: Dr. Amaratatne Yakupitiyage

Effects of Different Feeding Regime, Weaning Period and Stocking Density on the Survival and Growth of Stinging Catfish (Heteropneustes Fossilis, Bloch) Fry

By Theerawat Samphawamana
Supervisor: Dr. Amaratatne Yakupitiyage

Effects of Medications on the Survival of Wild Caught Snakehead (Channa striatus) Fry During Weaning to Pelleted Feed

By Wahida Haque
Supervisor: Dr. Amaratatne Yakupitiyage

Effects of Water Gate Operation on Fisheries in Pak Phanang River, Thailand

By Aye Aye Lwin
Supervisor: Dr. Wenresti Gallardo

Replacement of Fishmeal Component of Thai Red Tilapia (Oreochromis niloticus x Oreochromis mossambicus) Feeds by Enzyme Treated Feather Meal

By Noratat Hutasith Prachom
Supervisor: Dr. Amaratatne Yakupitiyage

Swamp Eel (Monopterus albus) Juvenile Collection and Aquaculture in Mekong Delta, Vietnam

By Le Nguyen Xuan Dien
Supervisor: Dr. Wenresti Gallardo

*The Effect of Varying Light Color on Giant
River Prawn (*Macrobrachium rosenbergii*)
Larvae and Juveniles*

By Randy Goshorn

Supervisor: Dr. Wenresti Gallardo

*The Role of Local Communities,
Government and International
Organizations in the Establishment and
Future Management of Two Marine
Protected Areas (MPAs) in East Timor*

By Aleixo Leonito Amaral

Supervisor: Dr. Wenresti Gallardo

Chapter 18: SERD – ENERGY FIELD OF STUDY

18.1 Introduction

Energy related academic program at AIT was established in 1979. So far, over 1,000 students have graduated in the Energy studies. As of December 2009, about one hundred students are enrolled in Energy Field of Study. About thirty percent of the current students are at doctoral level. Apart from teaching and student research, faculty at Energy FoS is involved in a number of research projects. Some of the current research focuses of Energy FoS are Energy, environment and climate change, Energy for sustainable development, Renewable Energy and Energy efficiency, Electric power system management, and Energy economics and planning.

Student admitted to Energy Field of Study can specialize in one of the three areas.

- Electric Power System Management (EPSM)
- Energy Technology (ET)
- Energy Economics and Planning (EEP)

Details regarding Energy field of study activities are available at www.serd.ait.ac.th/energy

18.2 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 colorimeter; and a Gas chromatography.

The SERD Computer Lab IV in the Energy Building has a large number of computer 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.

18.3 Faculty and Research Staff

Full-time Faculty

RAM M SHRESTHA, BE, Univ of Baroda; LL Tribhuvan Univ, Nepal; MEng, DEng, AIT, Thailand.

Professor (*Energy and Environmental Policy; Energy Economics*)

SAID IRANDOUST, MSc, PhD, Chalmers University of Technology, Sweden

Professor [*Chemical reaction engineering*]

SIVANAPPAN KUMAR, BE, Univ of Madras, India; MEng, AIT, Thailand; PhD, Inst Natl Polytechnique, Toulouse, France.

Professor [*Solar Energy (Radiation, Thermal and Photovoltaics); Green house gas mitigation and climate change, Cleaner Production; energy and sustainable development*]

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*)

MITHULANANTHAN NADARAJAH, BScEng, MEng, Univ of Peradeniya, Sri Lanka; PhD, Univ of Waterloo, Canada.

Assistant Professor (*Application of FACTS controllers; Controller Interactions; Power System Oscillation; Voltage Stability*)

P. ABDUL SALAM, BSc.Eng (Hons.)
University of Peradeniya, Sri Lanka;
M.Eng., D.Eng., AIT
Assistant Professor (*Bioenergy,
Renewable energy; Energy
conservation and efficiency*)

JAI GOVIND SINGH, Ph.D. in Electrical
Engineering, Indian Institute of
Technology, Kanpur, India
Assistant Professor (*Power
system planning; Operation and
control FACTS controllers;
Demand side management;
Integration of renewable energy
resources*)

Visiting Faculty

BRAHMANAND MOHANTY, BSc,
SAICE, India; MSc, AIT, Thailand;
PhD, Institut National Polytechnique
of Toulouse, France
Visiting Associate Professor
*[Energy Efficiency and
Management, Cleaner
Production, Resource
Conservation and Management]*

CHARLES O P MARPAUNG, Ms.c,
Statistics, Bogor Agricultural
University, Indonesia; D. Eng, AIT
Visiting Faculty *[Energy
Planning: Energy, Economy and
Environmental Modelling]*

TATSUO OKA, Master course of
construction, Waseda University,
Doctor's degree at Waseda
University
Visiting Faculty *[Building
Science Energy Conservation
CO2 Emission from Buildings]*

YAW-JUEN WANG, PhD Electrical
Engineering, National Grenoble
Polytechnique Institute, France; Dipl-
Ing, Power Engineering, National
Grenoble Electrical Engineer's
School, France; MEng Energy
Technology, AIT, Thailand.
Visiting Professor *[Electric
Power Quality and Solar
electricity]*

SHAILENDRA KUMAR SHUKLA, B.Sc.
Eng. Deemed University, India, M.

Tech. Energy Studies, IIT Delhi, India
Ph.D. IIT Delhi, India
Visiting Faculty *[Thermal
Engineering, Renewable Energy
System and Management]*

Adjunct Faculty

PIPAT CHAIWIWATWORAKUL, B.Eng.
Chulalongkorn University, Thailand,
M. Eng. AIT, Doctor of Engineering,
AIT
Adjunct Faculty, *[Rational use of
energy and energy conservation
in buildings Efficient lighting,
daylighting and building heat
transfer]*

Research Staff

Mr. Shreekar Pradhan, *Research
Associate* (ABC Emission
Inventory Project)

Ms. Salony Rajbhandari, *Research
Associate* (ABC Emission
Inventory Project)

Ms. M.T. Siriwardhana, *Research
Associate* (Energy Security
project)

Ms. Tin Zar Lin, *Research Associate*
(SSN Networking Norwegian
Project)

Ms. Maria Kathrina Gratuito,
Research Associate (Energy Field
of Study (RERIC))

Mr. Ramesh Soysa, *Research
Associate* (GMSARN Project)

Ms. Nang Htay Yin, *Research
Associate* (UNIDO Project)

Dr. Vo Ngoc Dieu, *Research
Associate* (Part time) (GMSARN
Project)

Ms. Rachelle Sawad, *Research
Assistant* (Energy Security
project)

Mr. Albert Pedrajas, *Program Officer*
(AIT Support to NUOL 2007-

2010 National Research Policy
Development Project)

18.4 Grants and Sponsored Research Completed in 2009

Bioenergy for Rural Development and Poverty Alleviation

Duration 15-Feb-09 - 31-Dec-09
Project Investigator Ram M Shrestha
Sponsor GNESD Denmark
Total Contracted Amount (THB) 866,750

Capacity Building of Faculty/Staff of Government College of Technology India

Duration 1-Mar-09 - 01-May-09
Project Investigator S. Kumar
Sponsor Government College of Technology,
Coimbatore India
Total Contracted Amount (THB) 150,000

Design of Solar Thermal System using RET screen Version 4

Duration 1-Jan-09 - 01-Apr-09
Project Investigator S. Kumar
Sponsor CANMET Energy Technology Center
Total Contracted Amount (THB) 124,200

Development of Methodology Database for ABC Emissions Inventory of Selected Countries

Duration 1-Jan-08 - 31-Dec-09
Project Investigator Ram M Shrestha, Kim Oahn,
Rajendra Shrestha
Sponsor UNEP RRC.AP
Total Contracted Amount (THB) 4,235,945

Driving Force of energy Consumption and Air Pollution

Duration 1-Jan-09 - 31-Dec-09
Project Investigator Ram M Shrestha
Sponsor MHIR Japan
Total Contracted Amount (THB) 756,000

Energy Field of Studies Publications

Duration: 1-Jan-04 31-Dec-09
Project Investigator: Dr. Weerakorn O. and Prof. S.
Kumar
Sponsor: Membership fees, AIT
Total Contracted Amount: 1,521,149 Baht

Future Driving Force of Global Warming

Duration 1-Jan-09 - 31-Dec-09
Project Investigator Ram M Shrestha
Sponsor MHIR Japan
Total Contracted Amount (THB) 1,512,000

Networking with Norwegian and Regional Institutions in Energy Issues (South-South-North Networking): 2006-2009

Duration 1-Aug-06 - 31-Dec-09
Project Investigator S Kumar, Ram Shrestha, Animesh Dutta
Sponsor Norwegian Ministry of Foreign Affairs
Total Contracted Amount (THB) 4,140,000

Regional workshop in urban energy access and development

Duration 15-Jul-09 - 30-Nov-09
Project Investigator Ram M Shrestha
Sponsor GNESD Denmark
Total Contracted Amount (THB) 1,688,500

18.5 On-going Grants and Sponsored Research

Action Towards Resource Efficient and Low Carbon Cities in Asia

Duration 1-Dec-09 - 28-Feb-12
Project Investigator S Kumar, C Visvanathan, Ranjith Perera, P Abdul Salam, Charles Marpaung, Kyoko Kusakabe
Sponsor ADEME (French Agency for Environment and Energy Management)
Total Contracted Amount (THB) 11,052,979

AIT Support to National University (2007-2010)-Curriculum Development

Duration 1-May-07 - 31-Dec-10
Project Investigator S Kumar
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 3,285,600

AIT Support to National University (2007-2010)-Financial Management

Duration 1-Jun-07 - 31-Dec-10
Project Investigator S Kumar
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 998,000

AIT Support to NUOL: National Research Policy Development

Duration 1-Dec-09 - 31-Dec-10
Project Investigator S Kumar
Sponsor SIDA
Total Contracted Amount (THB) 1,259,030

E Learning Course on renewable Energy and energy Policy

Duration 1-Nov-09 - 30-Apr-10
Project Investigator S Kumar
Sponsor UNESCO -Jakarta Office
Total Contracted Amount (THB) 408,000

Energy Environmental Data Analysis for Low Carbon Society

Duration 1-Dec-09 - 31-Mar-10
Project Investigator Ram M Shrestha, S Kumar
Sponsor MHIR Japan
Total Contracted Amount (THB) 740,000

HM King HRD Scholarship Project.

Duration: 1 Oct 09 – Sep 13
Investigator: Weerakorn Ongsakul
Sponsor: EPPO, Thailand
Total contracted amount: 12,753,200 Baht

Green House gas emission mitigation at AIT: Reducing GHG Emission Through Energy Conservation.

Duration: June 2009 – June 2010
Investigator: S. Kumar
Sponsor: AIT
Total contracted amount: 700,000 Baht

International Conference on “Energy and Sustainable Development: Issues and Strategies (ESD 2010)

Duration 1-Sep-09 - 30-Jun-11
Project Investigator Weerakorn Ongsakul, S Kumar, Ram Shrestha
Sponsor Multi donors
Total Contracted Amount (THB) 1,017,703

Pilot appraisal for Low Carbon technology innovation and diffusion in Thai Manufacturing services

Duration 1-Nov-09 - 31-Mar-10
Project Investigator S Kumar, C Visvanathan, P Abdul Salam,
Sponsor UNIDO Austria
Total Contracted Amount (THB) 955,500

Provincial Electricity Authority (PEA)-AIT Cooperation Project.

Duration: Jan 09 – Dec 12
Investigator: Weerakorn Ongsakul
Sponsor: PEA, Thailand
Total contracted amount: 27,374,000 Baht

Regional workshop on "Opportunities and Priorities for Low carbon Green Growth in Asia"

Duration 1-Sep-09 - 30-Apr-10
Project Investigator S Kumar
Sponsor ADB Japan
Total Contracted Amount (THB) 688,704

18.6 Publications

Refereed Journals

Boonchai Riangvilaikul and S. Kumar
“An experimental study of a novel dew point evaporative cooling system” *Energy and Buildings*, accepted for publication, November 2009.

Devbratta Thakur and Nadarajah Mithulananthan “Influence of Constant Speed Wind Turbine Generator on Power System Oscillation” *Electric Power Components and Systems*, Vol.37, pp. 478-494, 2009.

K. Jaojaruek and S. Kumar,
“Numerical simulation of the pyrolysis zone in a downdraft gasification process” *Bioresource Technology*, Vol. 100 No. 23 pp. 6052-6058, 2009.

Lerdlekha Tanachaikhan and S. Kumar “Daylighting for energy conservation in the tropics: a study on the influences of window configurations and shading devices” *Int.J. Engineering Systems Modelling and Simulation*, Vol. 1 Nos. 2/3, 2009.

Mayurachat Watcharejyothin and Ram M. Shrestha “Effects cross-border power trade between Laos and Thailand; Energy security and environmental implications” *Energy Policy*, Vol. 37, pp. 1782 – 1792, 2009.

Mayurachat Watcharejyothin and Ram M. Shrestha “Regional energy resource development and energy security under CO₂ emission constraint in the greater Mekong sub-region countries (GMS)” *Energy Policy*, Vol. 37 No. 11 pp. 4428-4441.

Ongsakul, W. and P. Jirapong,
“Optimal Placement of Multi-Type FACTS Devices to Enhance Total Transfer Capability using Improved Evolutionary Programming”

International Journal of Energy Technology and Policy, Vol. 7 No. 2 pp. 981-1005, 2009.

Ram M. Shrestha and A.M.A.K. Abeygunawardana “Evaluation of economic rent of hydropower projects” *Energy Policy*, Vol. 37, pp. 1886 – 1897, 2009.

Ram M. Shrestha, Gabrial Anandarajah, and Migara H. Liyanage “Factors affecting CO₂ emission from the power sector of selected countries in Asia and the Pacific” *Energy Policy*, Vol. 37, pp. 2375 – 2384, 2009.

Thosapon Katejanekarn, Surapong Chirattananon and S. Kumar “An experimental study of a solar-regenerated liquid desiccant ventilation pre-conditioning system” *Solar Energy*, Vol. 83 pp. 920-933, 2009.

Vo Ngoc Dieu and Weerakorn Ongsakul “Improved merit order and augmented Lagrange Hopfield network for short term hydrothermal scheduling”, *Energy Conversion and Management*, Vol.50, pp. 3015-3023, 2009.

18.7 Doctoral Students' Dissertation

Fuzzy Logic and Wide-Area Control for Low Frequency Oscillation Damping in Power System

By Komkrit Prasertwong
Supervisors: Dr. Weerakorn Ongsakul / Dr. Mithulananthan Nadarajah

Synthesis and Control of Custom Power Devices for Power Quality Enhancement

By Paisan Boonchiam
Supervisor: Dr. Mithulananthan Nadarajah

18.8 Masters Students' Theses and Research Studies

A Study on Biodiesel Production and Application from Jatropha in Thailand

By Nopdanai Vichaisarn
Supervisor: Prof. Sivanappan Kumar

A Study on Energy Conservation of the AIT's Air-Conditioning System

By Bovonson Navaraj
Supervisor: Prof. Sivanappan Kumar

Development of a Sustainable Energy Management Standard for the Industry Sector in Sri Lanka

By A.G.Manjula Taranganie Siriwardhana
Supervisors: Prof. Sivanappan Kumar/Dr. Brahmanand Mohanty

Economic and Environmental Implications of Nodal, Zonal and Uniform Marginal Pricing of Electricity: The Case of Vietnam

By Dao Hoang Duc
Supervisor: Prof. Ram M. Shrestha

Environmental and Economic Impacts of Power Planning in Vietnam: An Input-Output Analysis

By Huynh Thi Huong Thao
Supervisor: Prof. Ram M. Shrestha

Impact of Photovoltaic Generator on Power System Low Frequency and Static Voltage Stability

By Md. Rakibuzzaman Shah
Supervisor: Dr. Mithulananthan Nadarajah

Least Cost Power Generation Expansion Planning: A Case Study of Kyrgyzstan

By Samat Kuvatbekovich Sukenaliev
Supervisor: Dr. Weerakorn Ongsakul

Long-Term Hydrothermal Coordination: A Case of the Vietnam Power System

By Nguyen Thai Duong
Supervisor: Dr. Weerakorn Ongsakul

Operational Design of Intentional Islanding in the Hanoi Area for the Vietnam Power System

By Le Thanh Tuan
Supervisor: Dr. Mithulananthan Nadarajah

Optimal Distributed Generation Placement with Multi Objective Index Using Particle Swarm Optimization

By Nguyen Anh Dung
Supervisor: Dr. Weerakorn Ongsakul

Optimal Generator Redispatching for Congestion Management Using TVAC-PSO

By Panida Boonyaritdachochai
Supervisor: Dr. Weerakorn Ongsakul

Static Voltage Stability of Distribution Systems Integrated with Small Hydro Power Plant

By Nguyen Cong Hien
Supervisor: Dr. Mithulananthan Nadarajah

Static Voltage Stability Study of Bhutan Interconnected Power Grid

By Namgay Wangchuk
Supervisor: Dr. Weerakorn Ongsakul

Research Study: Implications of a Renewable Portfolio Standard for Energy System Development of Vietnam

By Nong Hoang Man
Supervisor: Prof. Ram M. Shrestha

Research Study: Liquid Desiccant Dehumidifier Assisted with Dew Point Evaporative Cooling System

By Boonchai Riangvilaikul
Supervisor: Prof. Sivanappan Kumar

Chapter 19: SERD – ENVIRONMENTAL ENGINEERING AND MANAGEMENT FIELD OF STUDY

19.1 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

19.2 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. The research laboratory is equipped with many sophisticated instruments such as GC-IRD-MSD, HPLC, UV-Vis spectrophotometers, atomic absorption analyzer with flame, graphite and cold vapor operations, and gas and liquid chromatographs. For lab and pilot scale testing purposes, the ambient laboratory has furnished with facility to conduct experiments for treating sludge, sewage 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.

19.3 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*)

CHONGRAK POLPRASERT, BEng, Chulalongkorn Univ, Thailand; MEng, AIT, Thailand; PhD, Univ of Washington, USA.

Professor (*Hazardous Waste Engineering; Resources Recovery; Sanitation*)

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*)

SAID IRANDOUST, MSc, PhD, Chalmers University of Technology, Sweden.

Professor (*Chemical Reaction Engineering*)

NGUYEN THI KIM OANH, DipEng, Odessa Hydrometeorology Inst, Ukraine; MEng, DEng, AIT, Thailand.

Professor (*Air Pollution Engineering and Management, Transboundary pollution, Air Pollution and Climate Interaction/Co-benefit, Environmental Monitoring and Modelling, Exposure Assessment, Integrated*)

Industrial Environment Management)

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

Associate Professor (*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 aspects of Environmental Engineering; Molecular Microbiology, Health and Ecological Risk assessment, Ecological Engineering*)

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*)

THAMMARAT KOOTATEP, BEng, Chiangmai Univ; MEng, DEng, AIT, Thailand.

Assistant Professor (*Decentralized Waste and Wastewater Treatment Systems; Eco-engineering Technology for Waste and Wastewater Treatment and Management; Environmental Health and Sanitation*)

Visiting and Affiliated Faculty

JUTAMAAD SATAYAVIVAD, PhD, Mahidol University, Thailand.

Affiliated Faculty (*Pharmacology*)

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)*)

KHUNYING MATHUROS RUCHIRAWAT, PhD, Massachusetts Institute of Technology, USA.

Affiliated Faculty (*Nutrition Biochemistry and Metabolism*)

SHINICHI OKAMOTO, BEng, MEng, DEng, Waseda Univ, Japan.

Visiting Professor (*Statistics and Environmental Management Systems*)

SKORN MONGKOLSUK, PhD, University of Maryland, USA.

Affiliated Professor (*Biological Science*)

Research Staff

AJAYA SARKOTA, BSc

Research Assistant (*Conducts lab experiments and assist students in their lab activities; assist project leader with research project, training activity*)

ALBERTO E. PEDRAJAS, MEng

Research Associate (*Manages research projects, prepares technical reports and presentations*)

AMILA ABEYNAYAKA, MEng

Research Associate (*Manages research projects, prepares technical reports and presentations*)

ANAND DESHMUKH, MSc

Research Associate (*Manages research projects, prepares technical reports and presentations*)

ANCY R. JOHNSON, MSc

Research Associate (*Manages research projects, prepares technical reports and presentations*)

ANTOINE MOREL, MEng

Senior Research Associate (*Assists in project coordination, prepares project reports, prepares project budgets and manages project finances, support project leader in supervision of AIT and NCCR master and doctoral students and trainees in the field of environmental sanitation*)

ASIF IQBAL, MEng

Research Associate (*Manages research projects, prepares technical reports and presentations*)

AUNG ZAW NAING LIN, MSc

Research Associate (*Actively involve in Asian Regional Research Programme on Environmental Technology Program (ARRPET) research activities*)

CHABA SRISUNO, MSc

Research Associate (*Manages research projects, prepares technical reports and presentations*)

CHAIYAPORN IMSAPSANGWORN, BSc

Laboratory Technician II (*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*)

DO THI THANH CANH, MSc Research Associate (Manages research projects, prepares technical reports and presentations)	MADDALA PADMASRI, MEng Research Associate (Manages research projects, prepares technical reports and presentations)	presentations, collaborating with research partners)
JAGRITI SHANKAR, MSc 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)	PANUPONG BOONYANUN, BTech (Mech.) Laboratory Technician II (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)
JAVKHLAN ARIUNBAATAR, MSc Research Associate (Manages research projects, prepares technical reports and presentations)	MUNU PRADHAN, MSc Research Associate (Manages research projects on diesel particulate matter and air pollutants analysis; prepares technical reports and presentations)	PRAPAT PONGKIATKUL, DEng Senior Research Engineer , (Manages research projects on air pollution; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)
JEERAPUN TANUNCHAI, BSc Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)	NARISSARA KAEWPHAN, BSc Research Assistant (Conducts lab experiments and assists students in their lab activities; assist project leader with research project, training activity)	PRAPASSORN AIMSAMANG, BSc Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)
KANOKWAN SASWATTECHA, MSc Research Associate (Manages research projects on diesel particulate matter and air pollutants analysis; prepares technical reports and presentations)	NGUYEN THI KHANH THUYEN, MEng Research Associate (Manages research projects, prepares technical reports and presentations)	PREM ANANTH ANIYARANGAN, MEng Senior Research Associate (Manages research projects, prepares technical reports and presentations)
KANYA TUNCHAROEN, BSc Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)	NIRANCHANA AUTHAYANRAKSA, MSc Research Associate (Manages research projects, prepares technical reports and presentations)	PUWADEJ THANICHANON, MSc Research Associate (Manages research projects, prepares technical reports and presentations)
KETSIRI LEELASAKULTUM, MSc Research Associate (Manages research projects on diesel particulate matter and air pollutants analysis; prepares technical reports and presentations)	ORATHAI KLUBBARNKOH, BSc Laboratory Technician II (Chemistry and environmental analysis for environmental samples as well as prepare for chemical and glassware for laboratory courses and research projects)	RAQUEL P. PEDRAJAS, MEng Senior Research Associate (Assists in project coordination, prepares project reports, prepares project budgets and manages project finances, assists in maintenance of project websites, organizes international workshops, a conference, training programs and seminars, prepares project brochures, posters, etc., assists formulation
MAI THI THUY PHUONG, MSc Research Associate (Manages research projects on diesel particulate matter and air pollutants analysis; prepares technical reports and presentations)	PANITCHA KHAMMAMONG, BEng Research Assistant (Laboratory operating and sample analysis, prepares technical reports and	

of research proposal, co-edits project newsletters, assists evaluation of reports from National Research Institutions involved in the project, performs other duties as assigned)

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)

SIRILAK SAENGPENG, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SOMCHAI AREMSUM-ANG, BSc

Research Assistant (Wastewater and soil analysis, field survey and data collection, testing and other laboratory sessions)

SUKON HADSOI, MSc

Research Associate (Laboratory operating and sample analysis, report writing, project management and collaborating with research partners)

SUPATTRA JIAWKOK, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

SUTHIRAT KITTIPONGVISES, MSc

Research Associate (Manages research projects on hazardous chemical management; assist the project leader in training activities; prepares technical reports and presentations)

THANUN POONSAWAT, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

TRAN THU TRANG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

VENKATAPPA MANJUNATHA, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

WALAIORN SIRIRATWATTHANA, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

WIJITRA SANSUD, BSc

Laboratory Technician II (Manages laboratory chemical and equipment inventory; issue chemical and equipments for students; conduct water analysis; assist in organizing laboratory sessions)

WILAIWAN KAEWJANG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

19.4 Grants and Sponsored Research Completed in 2009

3R Knowledge Hub

Duration: 10-Oct-06 - 31-Dec-09
Project Investigator: C. Visvanathan
Sponsor: Asian Development Bank
Total Contracted Amount: (THB) 4,681,000

Corporate Initiatives in 3R

Duration: 21-Feb-09 - 30-Nov-09
Project Investigator: C Visvanathan
Sponsor: Ministry of Environment Japan
Total Contracted Amount: (THB) 357,500

Determination of Greenhouse Gases Emission from Anaerobic Digester Treating Fecal Sludge

Duration: 1-Aug-08 - 31-Dec-09
Project Investigator: Thammarat Koottatep

Sponsor: Department of health, Ministry of Public Health, Thailand
Total Contracted Amount: (THB) 199,200

Effective Sanitation Systems through stakeholder involvement: A case study of faecal sludge management in Thailand

Duration: 1-Jul-07 - 31-Aug-09
Project Investigator: Thammarat Koottatep
Sponsor: National Center for Competence in Research (NCCR), Switzerland
Total: Contracted Amount (THB) 1,350,000

Management and Reuse of Oil and Grease Wastes

Duration: 28-Jan-08 - 31-Aug-09
Project Investigator: Thammarat Koottatep
Sponsor: Pollution Control Department, Ministry of Natural Resources and Environment, Thailand
Total Contracted Amount (THB): 1,493,827

Membrane Hybrid System for Removal of PFOS and PFOA in Industrial Wastewater: Application of Conventional Adsorbents and Nano Particles

Duration: 1-Oct-08 - 31-May-09
Project Investigator: C Visvanathan
Sponsor: New Energy and Industrial Technology Development Organization (NEDO), Mahidol University, Thailand
Total Contracted Amount: (THB) 700,000

Inventory Profiling on 3R Good Practices

Duration: 18-Feb-08 - 31-Aug-09
Project Investigator: C. Visvanathan
Sponsor: Mitsubishi Research Institute (MIRI)
Total: Contracted Amount (THB) 638,155

Pilot Scale Field Testing of Ceramic Microfiltration System for Highly Turbid Surface Water Treatment

Duration: 20-Jan-09 – 30-Jun-09
Project Investigator: C. Visvanathan
Sponsor: University of Tokyo, Japan
Total Contracted Amount: (Baht) 539,850

Sustainable Wastewater Management in Tsunami Hit Area through People Participation: A case study of Phi Phi Island

Duration: 15-Jan-08 - 31-Dec-09
Project Investigator: Thammarat Koottatep
Sponsor: SEA-UEMA / CIDA Project
Total Contracted Amount: (THB) 350,000

SWOP Analysis of Eco-industrial Clusters in China, Indonesia and Sri Lanka

Duration: 1-Aug-08 - 31-Dec-09
Project Investigator: C. Visvanathan
Sponsor: Institute for Global Environmental Strategies, Japan
Total Contracted Amount: (THB) 1,500,000

Wastewater Reuse and Recycling for Industrial, Domestic and Agricultural sectors in Thailand

Duration: 25-Jun-07 - 31-Dec-09
 Project Investigator: Thammarat Koottatep
 Sponsor: Pollution Control Department, Ministry of Natural Resources and Environment, Thailand
 Total: Contracted Amount (THB) 3,799,763

19.5 On-going Grants and Sponsored Research

A Euro-Asia Partnership for the Development of Human Resource Capacity for Engineering in Afghanistan

Duration: 15-Sep-08 - 31-Dec-10
 Project Investigator: Oleg Shipin
 Sponsor: European Commission
 Total Contracted Amount (THB): 4,231,730

Air quality and climate impacts of Switching to Natural Gas fueled Public Transportation Vehicles in Bangkok

Duration: 1-Aug-09- 30-Jul-10
 Project Investigator: Nguyen Thi Kim Oanh
 Sponsor: RTG
 Total Contracted Amount: (THB) 850,000

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 8,827,225

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 24,641,185

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 8,599,710

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 3,405,000

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 9,327,400

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 29,492,630

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Ajit P. Annachatre
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 8,999,735

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Nguyen Thi Kim Oanh, Chongrak Polprasert
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 28,262,965

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: Nguyen Thi Kim Oanh, Chongrak Polprasert
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 10,012,643

Asian Regional Research Programme on Environmental Technology (ARRPET): Phase II

Duration: 1-Jan-04 - 31-Mar-10
 Project Investigator: C. Visvanathan
 Sponsor: Swedish International Development Cooperation Agency, Sweden
 Total Contracted Amount: (THB) 20,498,695

Capacity Strengthening on Hazardous Chemicals Management

Duration: 1-Jan-07 - 31-Dec-10
 Project Investigator: Nguyen Thi Kim Oanh, Chongrak Polprasert
 Sponsor: The Norwegian Ministry of Foreign Affairs
 Total Contracted Amount: (THB) 23,732,687

Database of 3R good practices related to organic waste

Duration: 20-Jan-10 – 30-Apr-11
 Project Investigator: Prof. C. Visvanathan
 Sponsor: Mitsubishi Research Institute, Japan
 Total Contracted Amount: (Baht) 978,543

Determining Factors of Groundwater use and its Quality in Nakomprathom and Samutsakorn Provinces

Duration: 6-Feb-09 - 31-Dec-10
 Project Investigator: Thammarat Koottatep
 Sponsor: Thai Water Supply Public Company Ltd
 Total Contracted Amount: (THB) 1,952,200

Environmental Sanitation and Urban Agriculture

Duration: 25-Sep-02 - 30-Jun-10
 Project Investigator: Thammarat Koottatep
 Sponsor: Department of Water and Environmental Sanitation in Developing Countries (SANDEC), Switzerland
 Total Contracted Amount: (THB) 21,329,791

Healthcare Waste Management Facility Design and Operation Guidelines for Laos

Duration: 1-Sep-09 - 30-Jun-10
 Project Investigator: C Visvanathan
 Sponsor: ADB, Philippines
 Total Contracted Amount: (THB) 1,650,000

Integrated Sustainable Solid waste Management in Asia

Duration: 1-Jan-09 - 30-Jun-11
 Project Investigator: C. Visvanathan
 Sponsor: European Commission
 Total Contracted Amount: (THB) 2,449,490

Investigation on the Impacts of Urban-Rural Air Pollution on Air Quality and Climate in Southeast Asia

Duration: 1-Dec-06 – 31-Mar-10
 Project Investigators: Nguyen Thi Kim Oanh
 Sponsor: Asia Pacific Network (APN) for Global Change Research
 Total Contracted Amount: (Baht) 2,134,800

Low-Cost Treatment of Septage by Constructed Wetlands and Pond Systems in Tropical Regions

Duration: 1-Aug-96 - 31-Dec-10
 Project Investigator: Thammarat Koottatep
 Sponsor: Swiss Federal Institute for Environmental Science and Technology (SANDEC)
 Total Contracted Amount: (THB) 6,993,981

Permeable Reactive Barrier for Remediation of Acid Mine Drainage

Duration: 1-Nov-09 - 30-Oct-10
 Project Investigator: Ajit P. Annachhatre
 Sponsor: UNESCO -IHE
 Total Contracted Amount: (THB) 972,270

Phyto-Bioremediation for VOCs at Contaminated Site

Duration: 1-Nov-07 - 30-Apr-10
 Project Investigator: Chongrak Polprasert, Preeda Parkpian
 Sponsor: NEDO/ Shimizu Corporation Japan
 Total Contracted Amount: (THB) 1,080,000

Pilot scale field testing of ceramic microfiltration system for highly turbid surface water treatment.

Duration: 1-May-09 - 31-Jul-10
 Project Investigator: C. Visvanathan
 Sponsor: University of Tokyo, Japan
 Total Contracted Amount: (THB) 1,020,000

Real Time PCR Diagnostic Kit for Giardia and Cryptosporidium parasites

Duration: 1-Aug-08 - 30-Jul-10
 Project Investigator: Oleg Shipin
 Sponsor: NIH USA
 Total Contracted Amount: (THB) 2354700

Stakeholder Engagement: Pilot Project Stakeholder dialogues and its application for Social Corporate Responsibility

Duration: 25-Jul-09 - 31-Dec-10
 Project Investigator: Thammarat Koottatep
 Sponsor: SCG Paper Public Co Ltd
 Total Contracted Amount: (THB) 780,300

Sustainable Water Management in Urban Fringe Areas through Industrial Wastewater Reuse

Duration: 01 March 2010 to 31 January 2012
 Project Investigator: Prof. C. Visvanathan
 Sponsor: French Ministry of Foreign and European Affairs
 Total Contracted Amount: (Baht) 1,343,441

The development of a Supersensitive Chemo sensor kit for the detection of Hg (II) in aqueous environment and in living cells

Duration: 1-Sep-09 - 30-Aug-10
 Project Investigator: Preeda Parkpian
 Sponsor: RTG
 Total Contracted Amount: (THB) 928,000

US-ASEAN Next Generation Cook Stove Workshop

Duration: 1-Sep-09 - 31-Mar-10
 Project Investigator: Nguyen Thi Kim Oanh
 Sponsor: Air Force Office of Scientific Research (AFOSR)
 Total Contracted Amount: (THB) 330,000

19.6 Publications

Refereed Journals:

Adhikari, R. and **C. Visvanathan**. (2009). Effect of Leachate Cross-circulation in Thermophilic Sequential Batch Anaerobic Digestion of Municipal Solid Waste. *International Journal of Process Waste Treatment*, 1, 1, 1-10.

Anceno, A., Rousseau, P., Béline, F., **Shipin, O.** and P. Dabert. (2009). Evolution of N-converting bacteria during the start-up of anaerobic digestion coupled biological nitrogen removal pilot-scale bioreactors treating high-strength animal waste slurry. *Bioresource Technology*, 100 (14), 3678-87.

Chevakidagarn, P., Annachhatre, A. P., Puetpaiboon, U. and **T. Koottatep**. (2009). Dissolved oxygen control system for upgrading conventional activated sludge process for seafood industrial wastewater in Southern Thailand. *Asian J. Energy Environ.*, Vol. 8, Issue 1 and 2.

Chiemchaisri, C., Charnnok, B. and **C. Visvanathan**. (2009). Recovery of plastic wastes from dumpsite as refuse-derived fuel and its utilization in small gasification system. *Bioresource Technology*, doi:10.1016/j.biortech.2009.08.061.

Co, H.X., Dung, N.T., Le, H.A., An, D.D., Chinh, K.V. and **N.T. Kim Oanh**. (2009). Integrated management strategies for brick kiln emission reduction. *International Journal for Environmental Studies*. V <http://www.informaworld.com/smp/p/title~content=t713642046~db=all~tab=issueslist~branches=66-v6666> (1): 113 - 124.

Dacera, D.D.M., Babel, S. and **Preeda Parkpian**. (2009). Potential for land application of contaminated sewage sludge treated with fermented liquid from pineapple wastes. *Journal of*

Hazardous Materials. 167 (2009) 866-972.

Diallo, M.B.C., Anceno, A.J., Tawatsupa, B., Tripathi, N.K., Wangsuphachat, V. and **O. Shipin**. (2009). A GIS-based analysis of the fate of waste-related pathogens, *Giardia lamblia*, *Cryptosporidium parvum* and *E.coli* in a tropical canal network. *Journal of Water and Health*, 7, 1, 133–14. (Published by International Water Association Publishing in collaboration with the World Health Organization)

Emberson, L.D., Büker, P., Ashmore, M.R., Mills, G., Jackson, L., Agrawal, M., Atikuzzaman, M.D., Cinderby, S., Engardt, M., Jamir, C., Kobayashi, K., **Kim Oanh, N.T.**, Quadir, Q.F. and A. Wahid. (2009). Dose-response relationships derived in North America underestimate the effects of ozone (O₃) on crop yields in Asia. *Atmospheric Environment*, 43: 1945-1953 (IF: 2.89)

Hai Van, D.T. and **N.T. Kim Oanh**. (2009). Open top chamber experiment study to assess effects of ground level ozone on local peanut cultivar in Vietnam. *International Journal for Environmental Studies*. V <http://www.informaworld.com/smp/p/title~content=t713642046~db=all~tab=issueslist~branches=66-v6666> (1) 101 - 111.

Jegatheesan, V., Liow, J.L., Shu, L., Kim, S.H. and **C. Visvanathan**. (2009). The Need for Global Coordination in Sustainable Development. *Journal of Cleaner Production*, 17, 637-643.

Khan, S.J., **Visvanathan, C.** and V. Jegatheesan. (2009). Prediction of membrane fouling in MBR systems using empirically estimated specific cake resistance. *Bioresource Technology*, 100, 6133-6136.

Khanal, S.K., Rasmussen, M., Shrestha, P., Leeuwen, H.V., **Visvanathan, C.** and Liu, H. (2008). Bioenergy and Biofuel Production

from Wastes/Residues of Emerging Biofuel Industries. *Water Environment Research*, 80, 10, 1625-1647.

Kim Oanh, N.T., Pongkiatkul, P., Upadhyay, N. and P. Hopke. (2009). Design a Monitoring Program of Ambient Particulate Matter for Source Apportionment Study by Receptor Modeling. *Atmospheric Environment*, 43: 3334-3344, IF: 2.89.

Kondo, Y., Sahu, L., Kuwata, M., Miyazaki, Y., Takegawa, N., Imaru, J., Moteki, N., Han, S., **Kim Oanh, N.T.**, Hu, M., and Y.J. Kim. (2009). Stabilization of mass absorption cross section of elemental carbon for filter-based absorption photometry by the use of heated inlet. *Aerosol Science and Technology*, 43:741–756. (IF: 2.350).

Kunacheva, C., Juanga, J.P. and **C. Visvanathan**. (2009). Electrical and Electronic Waste Inventory and Management Strategies in Bangkok, Thailand. *Journal of Environment and Waste Management*, 3, 1/2, 107-119.

Laobusnanant, P., Lee, S.H., Anceno, A.J., Ghosh, G., Dongjin Kim, Pathak, B. and **O. Shipin**. (2009). N-removal performance and underlying bacterial taxa of upflow filter bioreactor system under different dissolved oxygen and internal recycle conditions, 32, 6, 809-818.

Le, H.A. and **N.T. Kim Oanh**. (2009). Integrated Monitoring and Modeling for Air Quality Management of Brick Manufacturing Village. Accepted. *Journal of Environmental Monitoring and Assessment*, DOI 10.1007/s10661-009-1285-y.

Leadprathom, N., **Parkpian, P.**, Satayavivad, J., Delaune, R.D., and Aroon Jugsujinda (2009). Transport and deposition of organochlorine pesticides from farmland to estuary under tropical regime and their potential risk to aquatic biota. *Journal of Environmental Science and*

Health, Part B, Volume 44, Issue 3, 249-261.

Liamleam, W., Oo, Z.K., Thai, P.T. and **A.P. Annachhatre**. (2009). Pilot scale investigation of zinc and sulphate removal from industrial discharges by biological sulphate reduction with molasses as electron donor. *Environmental Technology*, 30 (12), pp. 1229-1239.

Lohwacharin, J. and **A.P. Annachhatre**. (2009). Biological sulfide oxidation in an airlift bioreactor. *Bioresource Technology* (In Press)

Muenhor, D., Satayavivad, J., Limpaseni, W., **Parkpian, P.**, Delaune, R.D., Gambrell, R.P. and Aroon Jugsujinda. (2009). Mercury contamination and potential impacts from municipal waste incinerator on Samui Island, Thailand. *Journal of Environmental Science and Health, Part A*, Volume 44, 376-387.

Nghiem, L.H. and **N.T. Kim Oanh**. (2009). Comparative Analysis of Predicted Maximum Daily Ozone Levels in Bangkok Metropolitan Region Using Statistical Models. *Journal ScienceAsia*, 35: 276–283.

Nguyen Viet, H., Zinsstag, J., Schertenleib, R., Zurbrugg, C., Obrist, B., Montangero, A., Surinkul, N., Koné, D., Morel, A., Cissé, G., **Koottatep, T.**, Bonfoh, B. and M. Tanner. (2009). Improving environmental sanitation, health and well-being - a conceptual framework for integral interventions. *EcoHealth*, DOI: 10.1007/s10393-009-0249-6

Panuvatvanich, A., **Koottatep, T.** and D. Koné. (2009). Hydraulic Behavior of Vertical Flow Constructed Wetlands with different Operating Conditions. *Environmental Technology*, 30:10, 1031 – 1040.

Panuvatvanich, A., **Koottatep, T.** and D. Koné. (2009). Influence of bed configuration and impounding regime on nitrogen transformation

in vertical-flow constructed wetlands treating faecal sludge. *J. of Water Research*, doi:10.1016/j.watres.2009.03.029

Pokasoowan, C., Kanitchaidecha, W., K.C., B.K. and **A.P. Annachhatre**. (2009). Investigation on laboratory and pilot-scale airlift sulfide oxidation reactor under varying sulfide loading rate. *Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering*, 44 (1), pp. 87-98.

Prem Ananth, A., and **C. Visvanathan**. (2009). How Can Solid Waste Management and 3R Contribute to Climate Change Mitigation? ASEP Newsletter. *Asian Society for Environmental Protection*, Thailand, 26; 4, 1-3.

Prem Ananth, A., Prashanthini, V. and **C. Visvanathan**. (2010). Healthcare Waste Management in Asia. *J. Waste Management*, 30, 154–161.

Singhakant, C. and **T. Koottatep**. (2009). Enhanced Arsenic Removals through Plant Interactions in Subsurface-Flow Constructed Wetlands. *J. Environ. Sci. Health, Part A*. Vol. A44, No.2.

Subramanian, R., Bond, T.C, Thiansathit, W., **Kim Oanh, N.T.**, Duleep, K.G., Paw-armart, I. and E. Winijkul. (2009). Source characterization to support quantification of co-benefits: a piggyback study in Bangkok, Thailand. Submitted to the *Environmental Science and Technology*. DOI 10.1021/es8032296. (IF: 4.458).

Surinkul, N. and **T. Koottatep**. (2009). Advanced Sanitation Planning Tool with Health Risk Assessment: Case study in a peri-urban community in Thailand. *J. of Human and Ecological Risk Assessment*.

Thanh, B.X., Sperandio, M., Guigui, C., Ben Aim, R., Wan, J.F. and C. **Visvanathan**. (2009). Coupling Sequencing Batch Airlift Reactor (SBAR) and Membrane Filtration: Influence of Nitrate Removal on Sludge Characteristics, Effluent Quality and Filterability. *Desalination, Volume 250, Issue 2*, doi:10.1016/j.desal.2008.11.055.

Thanh, B.X., **Visvanathan, C.** and R. Ben Aim. (2009). Characterization of Aerobic Granular Sludge at Various Organic Loading Rates. *Journal of Process Biochemistry*, 44, 242-245.

Tsuzuki, Y., **Koottatep, T.** and MDM. Raman. (2009). Water Quality Profiles of the Tidal Rivers and Canal in Peri-urban Areas of Bangkok, Thailand, and Dhaka, Bangladesh, Focusing on the Water Quality Transition in Coastal Areas. *J. of Japan Society of Water Environment*, Vol. 32 No 1, pp 47 - 52. (In Japanese)

Tsuzuki, Y., **Koottatep, T.**, Wattanachira, S., Sarathai, Y. and C. Wongburana. (2009). On-Site Treatment Systems in the Wastewater Treatment Plants (WWTPS) Service Areas in Thailand: Scenario Based Pollutant Leads Estimation. *J. of Global Environment Engineering*, Vol. 14, pp.57-65.

Van Ha, N.T., Prem Ananth, A., **Visvanathan C.** and V. Anbumozhi. (2009). Techno Policy Aspects and Socio-economic Impacts of Eco-Industrial Networking in the Fishery Sector: Experiences from An Giang Province, Vietnam. *Journal of Cleaner Production*, Accepted for publication.

Wickramasinghe, S., Borin, M., Kotagama, S., Cochard, R. Anceno, A. and **O. Shipin**. (2009). Multi-functional pollution mitigation in a rehabilitated mangrove conservation area. *Ecological Engineering*. 35, 898–907.

Zin Hnin Ei Tun, **Parkpian, P.**, Delaune, R.D., Gambrell, R.P. and

Aroon Jugsujinda. (2009). Cadmium concentration in sea bottom sediment and its potential risk in the upper Gulf of Thailand. *Journal of Environmental Science and Health, Part A*. Volume 44, Issue 3, 244-248

Refereed Books/Chapters:

Emberson, L.D., Bükér, P., Engardt, M., van Tienhoven, A.M, Agrawal, M., Zunckel, M., Hicks, K., Pleijel, H., **Kim Oanh, N.T.**, Amgain, L., P., Islam, T., Shamsi, S.R.A., Perera, G.A.D, Krüger, G.H.J. and Smit, P.R. (2009). "The RAPIDC Crops Project: Assessing ground-level ozone (O₃) impacts to crops in parts of Asia and southern Africa. A chapter in the "Air Pollution: Health and Environmental Impacts". Edited by Gurjar B, Molina L, and CSP Ojha. Published by CRC Press (Taylor & Francis, USA). In press.

Hoai Nam, N., **Visvanathan, C.** and V. Jegatheesan. (2009). Performance Evaluation of Septic Tanks as onsite Sanitation Systems. In: *Southeast Asian Water Environment – 3*, IWA Publications, ISBN: 9781843392767, pp: 141-146.

Kim Oanh, N.T. and Didin A. Permadi. (2009). Chapter 12 "Photochemical smog modeling for ozone air quality management" of "Modelling of Pollutants in Complex Environmental Systems". Volume 1, edited by G. Hanrahan. ILM Publications, Hertfordshire, UK.

Laugesen, C.H., Fryd, O., **Koottatep, T.** and H. Brix. (2009), *Sustainable Wastewater Management in Developing Country: New paradigms and Case Studies from the Field*. ASCE Press, Virginia, 252 p.

Prem Ananth, A. and **C. Visvanathan**. (2008). Chapter 8 "Towards environmentally, financially and socially sound waste management practices in Asia" In *WASTEnomics: turning waste liabilities into assets*, Eds. Kenny Tang and Jacob Yeoh,

Middlesex University Press, London, ISBN: 978 1 904750 28 4.

Conference Proceedings:

Anh Tuan, L., **Visvanathan, C.**, Yonekawa, H. and Yoshimasa Watanabe. (2009). Pre-Treatment Options for Hybrid Ceramic Microfiltration Systems for Surface Water Treatment. *Conference on the Challenges in Environmental Science and Engineering 2009*, Queensland Australia, 14-17 July 2009.

C. Visvanathan. (2009). Resource Circulation in Asia: Practical Challenges in Settling up Recycling Industries. **Plenary Lecture, R'09 Twin World Congress, - Resource Management and Technology for Material and Energy Efficiency**, Nagoya – Japan & - Davos – Switzerland, 14-16 September 2009.

C. Visvanathan. (2009). Solid Waste and Climate Change: Perceptions and Possibilities. Proceeding of the *International Conference on Solid Waste Management (Technical, Environmental and Socio-economical Contexts) Key Note Lecture– WasteSafe 2009*, Khulna, Bangladesh, 9-10 November 2009.

Kim Oanh, N.T. and K. Saswattecha. (2009). Assessment effects of control devices and cleaner fuel on diesel emission: a case study for Bangkok. Presented at *Regional Workshop for East Asia On the Partnership for Clean Fuels and Vehicles*, Pathumthani, Thailand, May 15, 2009.

Kim Oanh, N.T. and M.T. Thuy Phuong. (2009). Emission Inventory for Motorcycles in Hanoi, Vietnam. Presented at *Regional Workshop for East Asia On the Partnership for Clean Fuels and Vehicles*, Pathumthani, Thailand, May 15, 2009.

N.T. Kim Oanh. (2009). Air pollution in Asian countries: climate co-benefit consideration. Proceedings, *AWMA's*

Conference on “Harmonizing GHG Assessment”, Baltimore, September 1-2, 2009

N.T. Kim Oanh. (2009). Air pollution in Asian countries: levels, sources and climate effects. World Renewable Energy Congress 2009 – Asia. 3rd International Conference on “Sustainable Energy and Environment (SEE-2009)”, 19-22 May 2009, Bangkok, Thailand.

N.T. Kim Oanh. (2009). Black carbon levels in ambient air: air quality and climate change implications. *Paper 153, Proceedings AWMA Annual Conference and exhibition*, Detroit 16-19 June 2009.

N.T. Kim Oanh. (2009). Climate change and air pollution interaction: co-benefit opportunity. *BGI-Climate Change Workshop*, Hanoi, Feb. 24-26, 2009.

Padmasri, M. and **C. Visvanathan.** (2009). Trends in Environmental Engineering Education and Visions of Membrane Technology in Wastewater Reuse, *Conference on Challenges in Environmental Sciences and Engineering*, organized by James Cook University, Townsville, Queensland, Australia, 30 April 2009.

Shipin, O., Goonewardene, N.P. and T. Clasen. (2009). Impact of the 2004 tsunami on household water treatment (HHWT) practices by the population of affected areas in Sri Lanka. *International WHO Conference of the Network to Promote Household Water Treatment and Safe Storage*, Royal College of Surgeons, Dublin, Ireland, 21–23 Sept. 2009 (Oral Presentation).

Shipin, O. Jenkins, M.W., Hoang Ngoc Tuong Van, Sharmin, S., and B. Scott. (2009). Consumer Drinking Water Quality and Treatment Preferences: A Repertory Grid Investigation Comparing Mental Constructs and Criteria Consumers Use to Make Drinking Water Quality

and Treatment Choices in Bangladesh, Vietnam, and Kenya. *International WHO Conference of the Network to Promote Household Water Treatment and Safe Storage*. Royal College of Surgeons, Dublin, Ireland, 21–23 Sept. 2009 (Oral Presentation).

T. Koottatep. (2009). Knowledge Sharing – Technology. *ADB-DMC Sanitation Dialogue*, 3 – 5 March 2009, ADB Headquarter, Manila, the Philippines.

T. Koottatep. and A. Morel. (2009). Emerging Sanitation Technology in GMS Countries. *Proc. of the 1st MRSI International Conference on Mekong Development in Transition: Challenges and Prospects*, Ubon Ratchathani University, 28 July 29.

T. Koottatep. and N. Surinkul. (2009). Application of QMRA for environmental sanitation planning in urban/peri-urban cities: Case study in Klong Laung municipality Thailand. *Proc. of 2009 AIT-KU Joint symposium on Human Security Engineering*, 19 – 20 November 2009, Bangkok, Thailand.

Thuy Phuong, M.T and **N.T. Kim Oanh.** (2009). Emission Inventory for Motorcycles in Hanoi, Vietnam using the International Vehicle Emissions Model. Poster presented at the 102th AWMA Annual Conference & Exhibitor, Detroit, June 16-19, 2009.

Visvanathan, C. and A. Prem Ananth. (2009). Integrated Solid Waste Management: Avenues for Climate Action. *Proceedings of the 20th Annual Conference of Japan Society of Material Cycles and Waste Management*, 17-19 September 2009, Nagoya, Japan. pp 111-112

Visvanathan, C. and N.H. Yin. (2009). Lysimeter Study on Co-disposal of E-Waste with Municipal solid Waste. *Twelfth International Waste Management and Landfill Symposium SARDINIA 2009*, Cagliari, Italy, 5-9 October 2009.

Research Reports

Kim Oanh, N.T., Kondo, Y. and Co, H.X. (2009). Final report of APN project, ARCP2007-07CMY “Investigation on the Impacts of Urban-Rural Air Pollution on Air Quality and Climate in Southeast Asia”, submitted to APN secretariat.

Kim Oanh, N.T., Polprasert, C., Karstensen, K.H. and S. Kittipongvises. (2009). Annual report of the project “Capacity Strengthening on Hazardous Chemicals Management”, submitted to the NORAD/MOFA of Norway.

N.T. Kim Oanh. (2009). “Results of the second attempt of the Inter-laboratory comparison for UNEP-Male’ Declaration acid monitoring network”. Invited speaker for UNEP-Male’ Declaration 7th Regional Refresher’s training, Delhi, India, March 16-19, 2009.

19.7 Doctoral Students' Dissertation

Environmental Engineering & Management

Fouling Behavior and Nitrogen Removal in the Aerobic Granulation Membrane Bioreactor

By Bui Xuan Thanh
Supervisor: Prof. C. Visvanathan

Integrated Pathogen Flow Analysis (PFA) and Quantitative Microbial Risk Assessment (QMRA) for Health and Environmental Sanitation Planning

By Narong Surinkul
Supervisor: Dr. Thammarat Koottatep

Pollution and Its Mitigation by Natural Wastewater Treatment Systems Linked to Agriculture/Aquaculture and Conservation of Biodiversity in Selected Ecologically Valued Areas in Thailand and Sri Lanka

By Wickramasinghe. M. Sriyani
Supervisor: Dr. Oleg Shipin

Typology and Activity of the Nitrifying Bacteria Underlying Select Bioprocesses Treating Animal and Municipal Wastewater

By Alfredo J. Anceno
Supervisor: Dr. Oleg Shipin

Application of Nanoparticles for Removal of Perfluorinated Compounds in Synthetic Wastewaters

By Jidapa Khatikarn
Supervisor: Prof. Chongrak Polprasert

Degradation of PCBs and Paraquat in Soil and in Water with Zinc Oxide and Zero Valence Iron Nanoparticles

By Tran The Vinh
Supervisor: Prof. Chongrak Polprasert

Environmental Toxicology, Technology and Management

Arsenic Removal in Subsurface-Flow Constructed Wetland Planted with Vetiver Grasses

By Chatchawal Singhakant
Supervisor: Dr. Thammarat Koottatep/Dr. Jutamaad Satayavivad

Assessing Nutrient Flows by Material Flow Analysis (MFA) in Hoang Tay and Nhat Tan Communes, Hanam Province, Vietnam

By Do Thu Nga
Supervisor: Dr. Thammarat Koottatep

Development of Arsenic Toxicity from a Small Scale Gold Mine: Case Study of Khao Phanom Pha in Phichit Province, Thailand

By Pattarawan Chularueangoaksorn
Supervisor: Dr. Preeda Parkpian

Chemopreventive properties of Stilbene Derivatives in Human Breast and Prostate Cancer Cell Lines

By Sunisa Sangjun
Supervisor: Prof. Somsak Ruchirawat/Prof. Martin van den Berg

Assessment of Acid Deposition in the Dhaka Division of Bangladesh using Air Pollution Dispersion Modeling

By Asif Iqbal
Supervisor: Prof. Nguyen Thi Kim Oanh

Development of Mitigation Measures of Anthropogenic Impacts on the Coastal Ecosystems in Central Vietnam (Hoi An City)

By Bui Thi Thy
Supervisor: Dr. Oleg Shipin

Ecological Risk Assessment of Organochlorine Pesticides in Sediment: A Case Study of the Chanthaburi Estuary

By Napaporn Leadprathom
Supervisor: Dr. Preeda Parkpian/Dr. Jutamaad Sattayavivad

Assessment of Heavy Metal (Lead, Copper and Zinc) Contamination in Selected Rifle Range Soils

By Mai Thi Nguyet
Supervisor: Dr. Preeda Parkpian

Effects of Environmental Factors on Biohydrogen Production from Organic Wastes

By Numfon Eaktasang
Supervisor: Prof. Chongrak Polprasert

The Effects of Benzene Inhalation Exposure and Pyridoxine Deficiency in Male B₆C₃F₁ Mice

By Chanthana Tanjarukij
Supervisor: Dr. Khunying Mathuros Ruchirawat/Prof. Judith T. Selikoff

Assessment of Water Quality in Nam Kok River, Savannakhet Province, Lao PDR

By Oukham Phounpakone
Supervisor: Dr. Thammarat Koottatep

Emission Inventory for Motorcycles in Hanoi, Vietnam using the International Vehicle Emissions Model

By Mai Thi Thuy Phuong
Supervisor: Prof. Nguyen Thi Kim Oanh

The Evaluation of PCBs Contamination on the Eastern Coast of Thailand using Chemical and Biological Techniques

By Chate Jaikanlaya
Supervisor: Dr. Khunying Mathuros Ruchirawat/Dr. Preeda Parkpian

Bacterial Community Changes in Sequential Anaerobic-Aerobic Composting of Trichloroethylene (TCE) Contaminated Soil

By Walaiporn Siriratwatthana
Supervisor: Dr. Preeda Parkpian/Prof. Skorn Mongkolsuk

Food Safety Evaluation of the Selected Metal Levels in Bananas and other Natural Complementary Foods

By Nucharat Tuntiwigit
Supervisor: Dr. Jutamaad Satayaivad/Dr. Preeda Parkpian

19.8 Masters Students' Theses

Application of Constructed Wetland Systems to Treat Wastewaters Containing Perfluorinated Compounds

By Yanasinee Suma
Supervisor: Prof. Chongrak Polprasert

Cleaner Technology Development for Treatment and Management of Industrial Sludge Containing Zinc

By Nuchanart Leelakahakit
Supervisor: Prof. Ajit P. Annachhatre

Impact of the 2004 Tsunami on Household Water Treatment Practices by the Population of Affected Areas in Sri Lanka

By Nalayini Ponnambalam Goonewardene
Supervisor: Dr. Oleg Shipin

Contents and Mass Balances of Some Potentially Toxic Elements in the Wastewater-Fed Fish Pond: A Case Study of Hoang Mai District, Hanoi, Vietnam

By Le Thai Ha
Supervisor: Prof. Chongrak Polprasert

Level of Particulate Matter and Volatile Organic Compounds in Map Ta Phut Area, Rayong province, Thailand

By Vitsanu Wingpud
Supervisor: Prof. Nguyen Thi Kim Oanh

Cultivation of Microalgae and Cyanobacteria for Carbon Fixation

By Puttimon Kaiwan-arporn
Supervisor: Prof. Ajit P. Annachhatre

Lysimeter Study on Co-Disposal of E-Waste with Municipal Solid Waste

By Nang Htay Yin
Supervisor: Prof. C. Visvanathan

Cumulative Effects Assessment in the Developing World: A Case of Asian Multi-Functional Coastal Wetlands

By Efren Laguda Linan
Supervisor: Dr. Oleg Shipin

Nitrogen Flow Analysis for Environmental Sanitation Planning: A Case Study in Cantho City, Vietnam

By Tran Van Cam

Supervisor: Dr. Thammarat Koottatep

Phosphorus Removals in Charcoal-Filled Vertical Flow Constructed Wetlands Treating Fecal Sludge

By Dao Kim Luu

Supervisor: Dr. Thammarat Koottatep

Pilot Scale Studies on Direct Filtration of Domestic Wastewater using the Ceramic Micro-Filtration System

By Athit Phetrak

Supervisor: Prof. C. Visvanathan

Removal of Endosulfan-Additional POPs from Contaminated Sediment by Low Density Polyethylene (LDPE) Pellets

By Naraporn Glanpracha

Supervisor: Dr. Preeda Parkpian

Sequential Precipitation of Heavy Metals with Hydroxide and Sulfide

By Tamirkhuu Narangerel

Supervisor: Prof. Ajit P. Annachatre

The Chiangmai Haze Episode in March 2007: Cause Investigation and Exposure Assessment

By Ketsiri Leelasakultum

Supervisor: Prof. Nguyen Thi Kim Oanh

Thermophilic Aerobic Membrane Bioreactor for Industrial Wastewater Treatment

By Amila Abeynayaka

Supervisor: Prof. C. Visvanathan

Research Study: GHG Reduction Potential in the Seafood Industry: A Case Study of Surimi Processing Industry in Thailand

By: Awais Anwar Baloch

Supervisor: Prof. Ajit P. Annachatre

Research Study: Source Apportionment of Particular Matter Pollution at AIT during Dry Season 2009

By Muhammad Zeeshan Ali Khan

Supervisor: Prof. Nguyen Thi Kim Oanh

Towards Cumulative Effects Assessment of Anthropogenic Activities on Coastal Wetland Ecosystem: A Case Study of Van Phong Bay, Khanh Hoa Province, Central Vietnam

By Vo Tran Tuan Linh

Supervisor: Dr. Oleg Shipin

Chapter 20: SERD – FOOD ENGINEERING AND BIOPROCESS TECHNOLOGY FIELD OF STUDY

20.1 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.

20.2 Faculty and Research Staff

Full-time Faculty

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*)

SUDIP KUMAR RAKSHIT, BSc, Loyola College; BTech, Jaavpur Univ, India; MTech, PhD, Indian Inst of Tech, India

Professor (*Biochemical Engineering and Biotechnology; Biopolymers and Lipid Biotechnology; Fermentation and Enzyme Technology; Food*

Biotechnology; Functional Foods)
Vice President, Research

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

Assistant Professor (Food Engineering & Bioprocess Technology Field of Study) (*Animal Biotechnology, Food and Pharmaceutical Biotechnology, Dairy and Meat Process Technology, Food Colloids and Biopolymer, Functional Foods, Micro-/Nanoencapsulation, Bionanotechnology*)
Associate Dean of Research & Outreach, School of Environment, Resources & Development

20.3 Grants and Sponsored Research Completed in 2009

EU Southeast Asia Expert Meeting on Food Quality Safety & Traceability

Duration 1-Feb-09 - 28-Dec-09
Project Investigator Sudip K Rakshit
Sponsor CIRAD France
Total Contracted Amount (THB) 440,000

Molecular Identification of Novel Cellulase from Buffalo Rumen

Duration 15-Oct-08 - 15-Oct-09
Project Investigator Sudip Rakshit
Sponsor RTG
Total Contracted Amount (THB) 900,000

Organic Symposium and Regional Workshop

Duration 1-Sep-08 - 30-Jun-09
Project Investigator Athapol Noomhorm
Sponsor National Innovation Agency, Ministry of Science and Technology, RTG
Total Contracted Amount (THB) 2,046,188

Sustainability Workshops: Spreading Awareness through intensive program on Sustainability

Duration 1-Jul-08 - 31-Jan-09

Project Investigator Athapol Noomhorm
Sponsor University of Tokyo, Japan
Total Contracted Amount (THB) 990,960

The Advance International Training Program "Putting Ideas to work strategies for Innovation led Sustainable growth"

Duration 1-Mar-09 - 31-Dec-09
Project Investigator Sudip K Rakshit
Sponsor VINNOVA
Total Contracted Amount (THB) 684,766

20.4 On-going Grants and Sponsored Research

AIT Support to National University (2007-2010)-Research

Duration 1-Jun-07 - 31-Dec-10
Project Investigator Sudip Kumar Rakshit
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 3,252,400

Development of Anti Fungal Acrylic Fibre for Novel Applications

Duration 1-Jan-09 - 31-Dec-10
Project Investigator Sudip Kumar Rakshit
Sponsor Various
Total Contracted Amount (THB) 400,000

Enabling Bio-innovation for poverty alleviation in Asia

Duration 8-Mar-08 - 31-Dec-11
Project Investigator Sudip Rakshit (33%), Bernadette Resurreccion (33%), Edsel Sajor (33%)
Sponsor International Development Research Centre, Canada
Total Contracted Amount (THB) 17,232,280

Green composites from Soy flour based plastic and Biofibers from agro-industrial byproducts

Duration 1-Jul-09 - 30-Jun-10
Project Investigator Athapol Noomhorm
Sponsor RTG
Total Contracted Amount (THB) 978,000

International Conference on Innovations in Food Process Technology and Engineering 2008

Duration 1-Aug-08 - 31-Jan-10
Project Investigator Athapol Noomhorm
Sponsor Participants
Total Contracted Amount (THB) 650,000

Networking with French speaking French, Vietnamese and Cambodian universities in the area of bioconversion of lignocellulose residues to ethanol

Duration 1-Jan-08 - 31-Jun-10
 Project Investigator Sudip Kumar Rakshit
 Sponsor Agence Universitaire de la Francophonie (AUF)
 Total Contracted Amount (THB) 1,000,000

Production of Germinated Brown Rice using Thai Rice Variety (KMDL 105)

Duration 1-Nov-08 - 30-Apr-10
 Project Investigator Athapol Noomhorm
 Sponsor RTG
 Total Contracted Amount (THB) 820,000

Production of instant rice using combined microwave fluidized bed drying

Duration 1-Nov-08 - 30-Apr-10
 Project Investigator Athapol Noomhorm
 Sponsor RTG
 Total Contracted Amount (THB) 2,000,000

Residues from Pulp and Paper Industries for Bio-ethanol Production

Duration 13-Oct-09 - 12-Oct-11
 Project Investigator Sudip K Rakshit
 Sponsor RTG/DA Research Center Co Ltd
 Total Contracted Amount (THB) 2,000,000

Sustainability workshop: Spreading awareness through intensive program on Sustainability

Duration 1-Jul-09 - 31-Jan-10
 Project Investigator Athapol Noomhorm
 Sponsor University of Tokyo Japan
 Total Contracted Amount (THB) 1,069,428

20.5 Publications

Refereed Journals

Ho Ky Quang Minh, S.K.Rakshit, Use of specific pcr-based molecular markers for discrimination, rapid analysis of purity and identification of six fragrant rice varieties."International Journal of Food Science and Technology, 2009, **44**, 1959-10965

Huong Thi Thu Do, Alfredo J. Ancemo II, Sudip K. Rakshit, DNase I treated DNA-PCR based detection of food pathogens immobilized by metal hydroxides. World Journal of Microbiology and Biotechnology, Volume 25, Issue 8 (2009), PP/ 1497

Jarun Likittaratanaporn and Athapol Noomhorm. (2009) "Effect of Simultaneous Parboiling and Drying by Infrared Radiation Heating (IR) on Parboiled Rice Quality, Paper submitted to Drying Technology.

Jirawan Maneerote, P. S. Takhar and Athapol Noomhorm (2009) Optimization of processing conditions to reduce oil uptake and enhance physico-chemical properties of deep fried rice cracker. LWT Journal Volume 42, Issue 9, 805-812.

Noomhorm, A and Imran Ahmad. (2009). Food supply chain management and food safety: South& East-Asia scenario. Agricultural Information Research, 17(4), 2009.

Noomhorm, A, P. Sirisoontarak, C. Uraichoen and I. Ahmad (2009) Effect of pressurized carbon dioxide on mortality of *Sitophilus zeamais* and properties of milled rice ; Journal of Stored Products Research 45(2009) 201-205.

R.M.U.S.K.Rathnayaka and S.K.Rakshit, Evaluation of metal hydroxide immobilization and DNA extraction methods on detection of salmonella enterica from pork sausage by nested PCR. Journal of Muscle Foods, Accepted, 25-Feb-2009

Rittichai Assawarachan and Athapol Noomhorm (2009) "Suitability of Mathematical Models to represent Vacuum-Microwave concentration Behavior of Pineapple Juice" ;Journal of Food Process Engineering. (accepted)

Rittichai Assawarachan and Athapol Noomhorm (2009) Influence of Temperature and TSS on performance of evaporation and Rheological Properties of Pineapple Concentration by Microwave Vacuum Evaporator; Journal of Food Process Engineering. (accepted)

Rittichai Assawarachan and Athapol Noomhorm (2009); "Change in Color and Rheological Behavior of Pineapple Concentrate through Various Evaporation Methods; International Journal of Agricultural and Biological Engineering. (accepted)

S. J. M. Skinner, M Geaney, L Hai, M Muzina, Anil Anal, R. B. Elliott and P. Tan. (2009). Encapsulated living choroid plexus cells : Potential long term treatments for central nervous system disease and trauma. Journal of Neural Engineering, 6: 1-11 (Most highlighted and downloaded Paper 2009).

Thutiyaporn.Chittapalo and Athapol Noomhorm (2009)"Ultrasonic assisted alkali extraction of protein from defatted rice bran and properties of the protein concentrates" International Journal of Food Science and Technology. Vol 44, No.9 , September 2009, pp. 1843-1849(7)

Wilasinee S, Imran A and Athapol Noomhorm. (2009). Optimization of Rice Supply Chain in Thailand – A Case Study of Two Rice Mills; paper accepted for Springer book series. The International Symposium on Food and Water Sustainability in China 2007 / Asia 2008.

Papers presented in Conferences, workshops and seminars

A. Noomhorm. (2009). Rice supply chain in Thailand: Paper presented at the 4th International Conference on Innovations in Food Processing Technology and Engineering, 19-20 January 2009; AIT: Bangkok.

Anal, Anil K. (2009) Microencapsulation in Bioprocess and Bioseparation Technology. International Conference on Separation Processes, 20-22 October, 2009; Varanasi, India (<<http://www.serd.ait.ac.th/news/news.php>>) (Invited)

Anal, Anil K. (2009) Structure and Techno-functional Properties of Customized Biocapsules: From Multilayers to Smart Containers for Delivery of Bioactive Molecules; NZBIO2009 Conference, 9-11 March, 2009 (Invited)

E. Cheevitsopon and A. Noomhorm. (2009). Study of hydration kinetics and dimensional changes of brown rice during soaking by image analysis: Paper presented at the 4th International Conference on Innovations in Food Processing Technology and Engineering, 19-20 January 2009; AIT: Bangkok.

Noomhorm A;(2009); Overview Asean Grain Postharvest” paper presented at Seminar on the training course on Grain post-harvest Technology;” organized by Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF-Japan) under the CLMV Focus Component of the Project for Strengthening Partnership[among Japan and Asean countries, implement by the Asean secretariat;, Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand July 14th, 2009

Noomhorm A, (2009); Encapsulation on Food application by spray drying and Freeze drying; NSTDA (the National Science and Technology Development Agency); Annual Conference at Thailand Science Park, Pathum Thani.; 12 March 2009

Noomhorm A. (2009) Innovative processing and utilization of rice products; Successfully evaluating, measuring & Managing R&D innovation: The Asia Business Forum; Grand Sukhumvit Hotel, Bangkok, 12 March 2009

Noomhorm A;(2009) “ Rice postharvest in Thailand ” paper presented (invited speaker) at Post harvest Rice Conference and exhibition organized by International Rice Research Institute, Queen Sirikit Conventional Center

Bangkok Thailand, 15th -17th July 2009.

SK Rakshit, Systems for Sustainable Science (IR3S) adaptation. Innovations in biofuels and their uses, At : Opportunities with Alternate Energy, An international Conference Organized by “The Nation”, May 22nd, 2009

SK Rakshit, Second Generation biofuels, Plenary Lecture, 1st International Conference on “New Frontiers in Biofuels”, India Habitat Centre, New Delhi, India, January 16-19, 2010

Invited lecturer and Keynote Speaker

Anal, Anil K. Functional Foods; Special Talk; International Agricultural Engineering Conference; Bangkok, Thailand; 7-10 December 2009

Anal, Anil K. Microencapsulation in Bioprocess and Bioseparation Technology. International Conference on Separation Processes, 20-22 October, 2009; Varanasi, India (<<http://www.serd.ait.ac.th/news/news.php>>)

Noomhorm, A., “Rice supply chain: A case study of two Thai rice mill: at the 4th International Conference on Innovations in Food Processing Technology and Engineering, 19-20 January 2009; AIT: Bangkok.

Noomhorm A., Overview Asean Grain Postharvest” organized by Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF-Japan) under the CLMV Focus Component of the Project for Strengthening Partnership[among Japan and Asean countries, implement by the Asean secretariat;, Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand July 14th, 2009

Noomhorm A., Rice postharvest in Thailand” at Post harvest Rice Conference and exhibition organized by International Rice

Research Institute, Queen Sirikit Conventional Center Bangkok Thailand, 15th -17th July 2009.

Papers published in Proceedings

W. Srikham and A. Noomhorm. (2009). Determination of optimal rice milling quality using friction type milling. Paper presented at the 4th International Conference on Innovations in Food Processing Technology and Engineering, 19-20 January 2009; AIT: Bangkok.

S. Parnsakhorn and A. Noomhorm. (2009). Changes in free fatty acid and pasting characteristics of brown rice and parboiled rice during storage. Paper presented at the 4th International Conference on Innovations in Food Processing Technology and Engineering, 19-20 January 2009; AIT: Bangkok.

N. Laosanguanek, R Assawarachan and A Noomhorm; Thin Layer Infrared Radiation Drying of Turmeric Slices, Proceeding of the Agricultural Engineering Conference (IAEC) at AIT 5-8 Dec 2009 IAEC 2009.

Magazines/popular articles

Anal, Anil K. (2009). Microencapsulation and its Application in Delivery of Bioactive Compounds in Food Systems. Innovative Science Editions (Founder article-Online Science Magazine).

Other Publications

SK Rakshit, Climate Change Adaptation – Challenges and Opportunities in Higher Education, Organized by UNU on behalf of the International Consortium of universities for Integrated Research

SK Rakshit, Second generation biofuels - constraints and potential, International meeting – Bio-ethanol: Status and Future, Hanoi University of Technology, Vietnam. 25-27 March, 2009

SK Rakshit, Rapid testing of food pathogens using molecular biology methods, Invited Lecture, Southern and Eastern Africa Network for Analytical Chemists (SEANAC) 2009 Conference 5th to 7th July, 2009, Kwaluseni, Swaziland.

SK Rakshit, Looking Forward : Charting the Transition to a Low-carbon society, at “The Ultimate Policy Challenge : Rising Energy Demands versus Emissions Reduction”, Asia Pacific Media Forum convened by the Global Subsidies Initiative and the Inter Press Service, Asia Pacific Bureau, 23 -24 July, 2009, Bangkok, Thailand.

SK Rakshit, Regional research priorities and expectations from a partnership with Europe, Debate introduced by SK Rakshit, International Conference “Dialogue between Europe and Southern partners on agricultural research and climate change”, Brussels, 16-17 December 2009

SK Rakshit, “Importance of trans-disciplinary research in the context of climate change”, International Conference and Workshop on the Role of Higher Education in adapting to eco-system and climate change, Organized by UNU on behalf of the International Consortium of universities for Integrated Research Systems for Sustainable Science (IR3S), June 10-12, 2009, Yogyakarta, Indonesia.

SK Rakshit, Food Fuel and fiber, Competition or synergies? SE Asia EU Net Climate Change Adaptation and Mitigation Conference Bogor, Indonesia, November 11-12, 2009

SK Rakshit, Renewable energy and sustainable development in SE Asia - context of biofuels. European Science Cooperation Conference, Mandalay, Myanmar, 4-5 December, 2009

SK Rakshit, Trans –disciplinary Capacity Building : Education and Training LCS-Rnet & ICLCS Panel 4 IGES, Tokyo, June 27, 2009

SK Rakshit, Climate Change – Challenges and Opportunities in Higher Education, EU Asia Higher Education Platform symposium, Bangkok, Thailand ,30th October, 2009

20.6 Doctoral Students' Dissertation

*Optimization and Evaluation of Molecular Methods for Rapid Detection and Quantification of *Salmoella Enterica* in Contaminated Food*

By Mr. R.M.U.S.K. Rathnayaka
Supervisor: Prof. Sudip Kumar Rakshit

Transport Phenomina and Frying Conditions on Fried Rice Crackers

By Ms. Jirawan Maneerote
Supervisor: Prof. Athapol Noomhorm

Processing Effects on Quality of Parboiled Brown Rice and Germinated Brown Rice

By Mrs. Sunan Parnsakhorn
Supervisor: Prof. Athapol Noomhorm

Evaluation of Cooked Rice Texture by Near Infrared Spectroscopy

By Ms. Weena Srisawas
Supervisor: Prof. Athapol Noomhorm

*Preparation, Charcterization and Functional Properties of Gelatin from Lizardfish (*Saurida spp.*) Scales*

Mr. Sutee Wangtueai

Supervisor: Prof. Athapol Noomhorm

20.7 Masters Students' Theses and Research Studies

*The Enzymatic Process of Biodiesel Production from *Jatropha Curcas**

By Mr. Apichart Aroonnual.
Supervisor: Prof. Sudip K. Rakshit

Enzymatic Delignification of Lignocellulosic Rice Straw and Water Hyacinth for Biofuel Appications

By Ms. Melanie C. Blanca
Supervisor: Prof. Sudip K. Rakshit

The Modification of Sago Starch by Heat-Moisture Treatment for Noodle Production

By Ms. Tanapak Songkhrachai
Supervisor: Prof. Sudip K. Rakshit

Studies on Phytochemical Screening and Biological Activities of Thai Herbal Formulations

By Ms. Chonthicha Thanathitipong
Supervisor: Prof. Sudip K. Rakshit

Bioconversion of Aqueous Glycerol Pretreated Rice Straw to Ethanol

By Ms. Nay Yee Wint
Supervisor: Prof. Sudip K. Rakshit

Production of Cassava Based Composite Bread with Improved Functional Characteristics

By Ms. Wikanda Wongrinthramathee
Supervisor: Prof. Sudip K. Rakshit

*Antioxidant Activity and DNA Damage Protection by Total Carotenoids and Vitamin C from Fresh and Cooked *G. cowa* Leaves*

By Ms. Rujira Chaiyasit
Supervisor: Prof. Sudip K. Rakshit

Modification of Corn Distillers Dried Granins With Solubles by Probiotics

By Mr. Pruet Pathirapong
Supervisor: Prof. Sudip K. Rakshit

Study of Vacuum Microwave-Assisted Extraction of Proanthocyanidins from Grape Seed By

Ms. Yuwadee Poosiripinyo
Supervisor: Prof. Sudip K. Rakshit

Utilization of Biodiesel by-Product Glycerol for the Production of 1,3-Propanediol

By Ms. Amika Promtra
Supervisor: Prof. Sudip K. Rakshit

The Optimization of Fermentation Conditions for Arachidonic acid Production by Halophytophthora spinosa var. lobata (BCC6563)

By Ms. Patcharee Tirakom
Supervisor: Prof. Sudip K. Rakshit

The Effects of Operating Conditions on Pomegranate Juice Quality During the Ohmic Heating Process

By Mr. Theradech Lerdvilaianunt
Supervisor: Prof. Athapol Noomhorm

Development of Rice Supply Chain Management and Identification of Rice Adulteration: a Case Study of Pathumthani Fragrant Rice in Suphanburi Province

By Ms. Sutamas Singhagamol
Supervisor: Prof. Athapol Noomhorm

Continuous Downdraft Rice Husk Gasifier for Paddy Drying

By Mr. Charoonsak Somphong
Supervisor: Prof. Athapol Noomhorm

Design and Development of an Evaporative Cooling System for Tropical Fruits and Vegetables in Transport Vehicles

By Ms. Nattriya Supmoon
Supervisor: Prof. Athapol Noomhorm

Frozen Catfish Supply Chain Management in Vietnam a Case Study of a Medium Scale Company VS a Large Scale Company

By Ms. Nguyen Thi Anh Tuyet
Supervisor: Prof. Athapol Noomhorm

Parameters Influencing Performance of Rubber Roll Husker

By Mr. Karn Chitsuthipakorn
Supervisor: Prof. Athapol Noomhorm

Effects of Different Concentrating Processes on the Quality of Reconstituted Mulberry Juice

By Ms. Naruedee Chokanuwat
Supervisor: Prof. Athapol Noomhorm

Improvement of Tofu by Freezing Process Application on Soybean and the Addition of Hydrocolloids on SoybeanCurd

By Ms. Dhayutithron Jongjairuksa
Supervisor: Prof. Athapol Noomhorm

Comparison of Spray Drying and Microwave Vacuum for Producing Mango Powder

By Mr. Teeradate Kongpichitchoke
Supervisor: Prof. Athapol Noomhorm

Optimization of Drying Method and other Parameters During encapsulation of Vitamin E

By Ms. Pacharawan Moosadang
Supervisor: Prof. Athapol Noomhorm

Influence of Drying Methods on Drying Kinetics and Qualities of White Pepper

By Ms. Pornpimol Tapbuntom
Supervisor: Prof. Athapol Noomhorm

Effect of Extrusion Conditions on the Physicochemical Properties of a Snack made from Purple Rice (Hom Nil) and Soybean Flour Blend

By Ms. Korntip Thititumjariya
Supervisor: Prof. Athapol Noomhorm

Microwave Assisted Extraction of Pectin from Yellow Passion Fruit Peels

By Ms. Morakot Zae-lee
Supervisor: Prof. Athapol Noomhorm

Chapter 21: SERD – GENDER AND DEVELOPMENT STUDIES FIELD OF STUDY

21.1 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.

21.2 Faculty and Research Staff

Full-time Faculty

BERNADETTE RESURRECCION, BSc, Assumption College, Philippines; MA, PhD, Inst of Social Studies, the Hague, the Netherlands.

Associate Professor (*Gender, environment and Natural Resource Management, Labor Migration, Governance, Urban Development*)

KYOKO KUSAKABE, BA, Sophia University, Tokyo, Japan; MSc, PhD, AIT, Thailand.

Associate Professor and SERD Associate Dean (*until 31 August 2009*) (*Women's employment in informal economy; Labor migration, Cross-border trade; Gender and development policy and planning; Gender issues in fisheries/aquaculture.*)

PHILIPPE DONEYS, B.A., University of Toronto, Canada; MA, University of London, UK; PhD, Institut d'Etudes Politiques de Paris, France.

Assistant Professor and Field Coordinator (*New Technologies, Industrialization and Gender HIV/AIDS; Gender Politics, Civil Society and Human Rights; Gender, Migration and Trafficking in Asia*)

Visiting Faculty

DONNA L. DOANE, M. A. Anthropology, M.A., M. Phil. Economics, Yale University, and Ph.D. Economics, Yale University

Visiting 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

Project Manager and Visiting Faculty (*Gender and Development with emphasis on the policies and programmes for gender equality and women's empowerment; Gender, Employment and Organization; Gender and ICT for Development; Gender and Human Rights; Gender, Development and Public Policy; Gender Mainstreaming; Gender and Natural Resource Management*)

YAYOI SUGIHASHI, BA, MA, Hosiye University Graduate School, PhD University of Manchester, UK

Visiting Lecturer, Ochanomizu University, Japan (*Gender and*

economic development; Gender statistics; and Gender issues in employment)

YUKARI, SAWADA, BA in Osaka University of Foreign Studies (current Osaka University, Faculty of Foreign Studies), MA in Tokyo University of Foreign Studies)

Visiting Professor, Tokyo University of Foreign Studies, Japan (*Gender and economic development, social welfare in East Asia, migrant labor, unemployment, workfare, care for elderly*)

Research Staff

JULAIKHA BENTE HOSSAIN, MSc in University of Dhaka, Bangladesh; MSc. and PhD in Asian Institute of Technology, Thailand

Project Manager and Visiting Faculty (*Gender and Development with emphasis on the policies and programmes for gender equality and women's empowerment; Gender, Employment and Organization; Gender and ICT for Development; Gender and Human Rights; Gender, Development and Public Policy; Gender mainstreaming; Gender and Natural Resource Management*)

LADA PHADUNGKIATI, MSc. in Asian Institute of Technology, Thailand

Project Researcher (*Gender, Crossborder Migrant Workers and Citizenship: A case study of the Burmese-Thai border*)

KANOKPORN JAROENRITH, M.SW. in Education, Thammasat University, Thailand

Research Associate (*Capacity Building for Gender, poverty and Mobility Analysis of Road Transportation Development in*

Greater Mekong sub-Region
Project supported by ASEAN
Foundation)

21.3 Grants and Sponsored Research Completed in 2009

Awards for Post-Graduate Education: Gender and Development Studies with Specialization in Gender and Social Analysis in Environment and Development

Duration 1-Apr-05 - 28-Feb-09
Project Investigator Bernadette Resurreccion
Sponsor IDRC Regional Office for South Asia, New Delhi
Total Contracted Amount (THB) 8,406,177

Student Exchange Program from University of Dhaka, Bangladesh

Duration 1-Mar-07 - 31-Dec-09
Project Investigator Bernadette Resurreccion
Sponsor University of Dhaka, Bangladesh
Total Contracted Amount (THB) 173,150

21.4 On-going Grants and Sponsored Research

Assessing And Monitoring of Vulnerability And Adaptation To Climate Change In Southeast Asia For Responsive Planning,

Duration 01-Nov-09 – 01-Nov-11
Project Investigator Dr. Bernadette Resurreccion, Dr. Edsel E. Sajor, Dr. Philippe Doneys, Dr. Paul Janecek, Dr. Lal Samarakoon.
Sponsor SIDA and AIT
Total Contracted Amount (THB) 2,600,000 (requested)

Capacity Building for Gender, Poverty and Mobility Analysis of Road Transportation Development in the GMS Region

Duration 1-Jan-08 - 01-Jul-10
Project Investigator Kyoko Kusakabe
Sponsor ASEAN Foundation
Total Contracted Amount (THB) 10,889,238

Gender Analysis of Cross Border Road Infrastructure: A case of Kunming Bangkok Highway

Duration 1-Dec-09 - 30-Jun-10
Project Investigator Kyoko Kusakabe
Sponsor ADB
Total Contracted Amount (THB) 1,000,500

Gender and Sustainable Development: Natural Resource Management, Migration and Multi-local Livelihoods

Duration 1-Dec-07 - 01-Aug-10
Project Investigator Bernadette Resurreccion
Sponsor European Commission
Total Contracted Amount (THB) 3,098,103

Gender, Cross Border Migrant Workers and Citizenship- A Case Study of the Burmese-Thai Border

Duration 1-Nov-06 - 31-Dec-10
Project Investigator Kyoko Kusakabe
Sponsor IDRC
Total Contracted Amount (THB) 10,559,630

International Workshop on Gender Migrant workers and Citizenship in GMS: Economic and Political perspectives for a world in Crisis

Duration 1-May-09 - 31-Mar-10
Project Investigator Kyoko Kusakabe
Sponsor Japan Foundation
Total Contracted Amount (THB) 572,600

Japanese Government - Gender and Development

Duration 1-Dec-06 - 31-Dec-10
Project Investigator Kyoko Kusakabe
Sponsor Japanese Government
Total Contracted Amount (THB) 15,556,465

M-Power Research Fund

Duration 1-Jan-07 - 30-Apr-10
Project Investigator Bernadette Resurreccion, Edsel Sajor
Sponsor Mekong Program on Water, Environment and Resilience (M-Power)
Total Contracted Amount (THB) 732,600

NORAD-GDS 2006-2009

Duration 1-Jan-06 - 30-Jun-10
Project Investigator Bernadette Resurreccion
Sponsor NORAD
Total Contracted Amount (THB) 20,781,377

SEA-UEMA Project -Gender

Duration 1-Apr-08 - 31-Aug-10
Project Investigator Kyoko Kusakabe, Edsel Sajor
Sponsor CIDA-AIT/SEA-UEMA
Total Contracted Amount (THB) 3,972,864

Socially and Gender Responsive Natural Resource Management in the Context of the Biodiversity Conservation Corridors Initiative Project

Duration 1-Jul-08 - 31-Jan-10
Project Investigator Julaikha B Hossain
Sponsor Asian Development Bank
Total Contracted Amount (THB) 3,400,000

Training workshop for the students from Ochanomizu University, Japan

Duration 1-Jun-05 - 31-Dec-10
Project Investigator Kyoko Kusakabe
Sponsor Participants
Total Contracted Amount (THB) 97,778

21.5 Publications

Refereed Journals

Groves, Gabrielle, Resurreccion, Bernadette and Doneys, Philippe (2009) "Keeping the Peace is Not Enough: Human Security and Gender-based Violence During the Transitional Period in Timor Leste," *Sojourn* Vol 24, no. 2 (Institute of Southeast Asian Studies *ISEAS*, National University of Singapore).

Resurreccion, Bernadette, (2009) "Gender, Migration and Social Reproduction in the Mekong Region," *Asian and Pacific Migration Journal*. Vol 18 No 1. (Scalabrini Migration Centre), pp 101-22.

Refereed Books/Chapters

Kusakabe Kyoko (2009) "Economic development policy and gender: Cambodia under regional economic integration in GMS" in *Economic system, consumer society and globalization*, Gender history series Vol. 6, Akashi-Shoten. (in Japanese)

Kusakabe, Kyoko (2009) "Street vendors in Phnom Penh, Cambodia", in Sharit Bhowmik (ed.) *Street vendors in the global urban economy*, Routledge, pp.120-143.

Resurreccion, Bernadette (2009) 'Gender Trends in Migration and Employment in Southeast Asia, in T Devasahayam (ed). *Gender Trends in Southeast Asia. Women Now, Women in the Future*. Singapore: ISEAS

Conference Proceedings

Kusakabe, Kyoko (2009) "Gender, poverty and mobility analysis of road transportation development in GMS: overview", presented at the Research design workshop for Gender, poverty and mobility analysis of road transportation development in GMS, 1-3 April 2009, AIT.

Kusakabe, Kyoko and Ruth Pearson (2009) "Transborder Childcare arrangements of Burmese migrant workers in Thailand", presented at The International Workshop on Gender, Migration and Citizenship in Greater Mekong Subregion: Economic and Political Perspectives for a World of Crisis, AIT, Thailand, 1-3 June 2009

Pearson, Ruth and Kyoko Kusakabe (2009) "Nowhere to return to: Gender, Citizenship and Strategies of migrant workers on the Thai-Burmese Border", presented in COMPAS annual conference on New Times? Economic crisis, geo-political transformation and the emerging transformation migration order at University of Oxford, 21-22 September 2009

Philippe Doneys, Re-empowering Gender: What about 'Politics' in Development Practice?, in Re-visiting, Re-thinking Gender in Development Workshop, NTNU, Trondheim, Norway, 24-25 June 2009.

Resurreccion, Bernadette 'Embedded Essentialism: Persistent Women, Nature and Environment Linkages in Climate Change and Sustainable Development Agendas.' Re-thinking, Re-visiting Gender in Development, Trondheim, Norway, 25-26 June 2009.

Resurreccion, Bernadette, Sajor, E. and Hor Sophea. 'Gender, Rural-Urban Mobility and the System of Rice Intensification in Cambodia.' Unesco Conference on Gender &

Women's Studies Gender Networking and Research. Bangkok, 9-13 February 2009.

Shalini Mitra and Philippe Doneys, Role of Caste and Gender in the Context of Disaster Response: A Case study of Super Cyclone in Jagatapada, Orissa. In Second India Disaster Management Congress, November 4-6, 2009, Vigyan Bhavan, New Delhi

Technical Reports

Kusakabe, Kyoko and Ruth Pearson (2009) Proceedings of the International Workshop on Gender, Migrant Workers and Citizenship in Greater Mekong Sub-region: Economic and Political Perspectives for a World in Crisis, 1-3 June 2009, AIT Conference Center.

Kusakabe, Kyoko (2009) "Gender mainstreaming in transport sector in ADB" Asian Development Bank, Manila, July 2009.

Other publications

Kusakabe, Kyoko (2009) "Open border, closed opportunities", *Yemaya: ICSF's newsletter on gender and fisheries*, No.31, July, pp.2-3.

21.6 Doctoral Student's Dissertation

Conjugal Power Relations and Women's Participation in Reproductive Health Decision-Making in Nepal
By Matrika Chapagain
Supervisor: Dr Kyoko Kusakabe

Role of Self-Help Groups in Empowering Disabled Women: The Case of Kathmandu Valley, Nepal
By Bishnu Maya Dhungana
Supervisor: Kyoko Kusakabe

21.7 Masters Students' Theses and Research Studies

A Comparative Analysis on Insecurity Among Thai, Thai-Karen and Karen Women in the Context of Forest Livelihoods in Kaeng Krachan Complex, Thailand
By Sufia Khanom
Supervisor: Dr. Bernadette P. Resurreccion

Gender and Climate Change Adaptation: Changing Rural Farmers' Livelihood Patterns in Kors Krolar District, Battambang Province, Cambodia
By Norm Sina
Supervisor: Dr. Bernadette P. Resurreccion

Gender Dimension in Cassava Production and its Implications on Livelihood Strategies: A Case Study from Kampong Cham Province, Cambodia
By Thak Socheat
Supervisor: Dr. Philippe Doneys

Gender Dimension in Circular Migration: The Case of Ninh Binh, Vietnam
By Pham Thi Ha Phuong
Supervisor: Dr. Kyoko Kusakabe

Gendered Impacts of Plantation Employment: A Comparative Analysis of Two Villages in Khammuane Province, Lao PDR
By Satomi Kimijima
Supervisor: Dr. Kyoko Kusakabe

Gender Implications of Occupational Safety and Health (OSH) Among Home-Based Workers in Nepal
By Nir Prasad Dahal
Supervisor: Dr. Philippe Doneys

Globalizing the Marriage Field: Inter-Cultural Marriage Between African Male Migrants and Local Thai Women
By Jummai Othniel Yila
Supervisor: Dr. Bernadette P. Resurreccion

Role of Caste and Gender in the Context of a Natural Disaster: A Case Study of Super Cyclone in Jagatapada, Orissa
By Shalini Mitra
Supervisors: Dr. Philippe Doneys / Prof. Jayant Kumar Routray

Socio-Economic Impacts of Incomes from Cross-Border Works: The Case of Khmer Workers in Tri Ton District, Vietnam

By Thai Huynh Phuong Lan

Supervisor: Dr. Kyoko Kusakabe

The Impacts of Post Traumatic Stress on Survivors' Access to Humanitarian Assistance After Cyclone Nargis in Delta, Myanmar

By May Thu Myint

Supervisor: Dr. Philippe Doney

The Impacts of Vietnam's Retirement Age Policy on Women and Men: A Case Study of Civil Servants in Quang Binh Province, Vietnam

By Do Thi Bich Thuy

Supervisor: Dr. Philippe Doney

The Role of Social Networks on Mon Migrant Workers in Thailand: Gender Analysis in Maha Chai, Samut Sakhon Province

By Thet Htar Myint

Supervisor: Dr. Kyoko Kusakabe

Women's Participation in Community-Based Water Resource Management in Kanchanaburi, Thailand

By Zhao Jingnan

Supervisor: Dr. Bernadette P. Resurreccion

Women's Roles and Challenges in the Context of China's Response and Reconstruction in Disaster: A Case Study in Zundao Township in 2008 Sichuan's Earthquake

By Tan Siying

Supervisor: Dr. Philippe Doney

Chapter 22: SERD – NATURAL RESOURCES MANAGEMENT FIELD OF STUDY

22.1 Introduction

This field of study emphasizes natural resources, including land, forest and wild animal, and environmental conservation concerns. It addresses the problems of deforestation, land and coastal ecosystem degradation, biodiversity depletion, diminishing water supply, and other environmental pressures and threats on local, national, regional and global ecosystems.

22.2 Faculty and Research Staff

Full-time Faculty

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*)

DIETRICH SCHMIDT-VOGT, BSc, Freiburg University, Germany; MSc, University of Saskatoon, Canada; PhD, Heidelberg University, Germany.

Associate Professor (*Landscape Ecology; Integrated Land Use Systems; Sustainable Forest Management; and Human Impact on Vegetation*)

RAJENDRA P SHRESTHA, BSc, Haryana Agri. Univ, India; MSc, DTechSc, AIT, Thailand.

Associate Professor (*Sustainable Land Management; Natural Resources Degradation and Environmental indicators; Landuse-climate, Geoinformatics*)

ROLAND COCHARD, Ph.D., ETH, Switzerland

Assistant Professor (*Savanna ecosystem dynamics, landscape*

ecology, biodiversity, mangrove, risk management)

Visiting Faculty

SYLVAIN 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

EDWARD L WEBB, BA, Occidental College, Los Angeles; PhD, Univ of Miami, USA.

Adjunct Associate Professor (*Tropical Forest Ecology; Community-based natural resources management, and Forestry*)

22.3 Grants and Sponsored Research Completed in 2009

Asian Governance and Leadership Training and Observation Tour

Duration 1-Apr-05 - 31-Dec-09
Project Investigator Ganesh P. Shivakoti
Sponsor Graduate School of Governance at SungkyunKwan University, South Korea
Total Contracted Amount (THB) 820,000

Capacity Building of Faculty Staff of Tamil Nadu Agricultural University India

Duration 15-Nov-08 - 30-Mar-09
Project Investigator Rajendra P. Shrestha
Sponsor Tamil Nadu Agricultural University India
Total Contracted Amount (THB) 117,088

Collaboration in Integrated Natural Resources Management in Indonesia "Decentralization, Local People, Gender and Resources"

Duration 1-Aug-05 - 31-Dec-09
Project Investigator Ganesh P. Shivakoti

Sponsor The Ford Foundation
Total Contracted Amount (THB) 984,000

Modelling interactions between human activities and biophysical processes in coastal ecosystem using remote sensing and GIS

Duration 1-Nov-08 - 31-Oct-09
Project Investigator Rajendra P. Shrestha
Sponsor RTG
Total Contracted Amount (THB) 608,000

Monitoring and Conserving Forest Diversity in Nam Dong District, Thua Thien Province, Vietnam

Duration 1-Jan-06 - 31-Dec-09
Project Investigator Ganesh Shivakoti (Edward L. Webb)
Sponsor The MacArthur Foundation
Total Contracted Amount (THB) 12,800,000

MSU-Study Abroad VI

Duration 1-Jan-07 - 31-Dec-09
Project Investigator Ganesh P. Shivakoti
Sponsor Michigan State University, USA
Total Contracted Amount (THB) 1,832,012

Roles of Natural and Restored Forests in Carbon Sequestration and Climate Change

Duration 15-Nov-08 - 15-Nov-09
Project Investigator Dietrich Schmidt - Vogt
Sponsor RTG
Total Contracted Amount (THB) 900,000

22.4 On-going Grants and Sponsored Research

Collaboration on Capacity Building of Hanoi Agricultural University and Hue University of Agriculture and Forestry in Initiating INRM and Poverty Alleviation

Duration 1-Jul-08 - 31-Dec-10
Project Investigator Ganesh P. Shivakoti
Sponsor The Ford Foundation, Hanoi, Vietnam
Total Contracted Amount (THB) 6,536,600

Downscaling Global climate data for assessing the impact of Climate change on Dipterocarp species in Peninsular Thailand

Duration 1-Jul-09 - 30-Jun-10
Project Investigator Rajendra P. Shrestha
Sponsor RTG

22.5 Publications

Refereed Journals

Chalermphol, Juthathip and Genesh P. Shivakoti .2009. "Pesticide use and prevention practices of tangerine growers in Northern Thailand" *Journal of Agricultural Education and Extension*.15(1):21-38. Routledge, Taylor and Francis.

Khaledian, M.R., Mailhol, J.C., Ruelle, P., Mubarak, I. & Perret, S.R. (2010) The impact of direct seedling into mulch on the energy balance of crop production system in the SE of France. *Soil & Tillage Research*, 106 (2010): 218–226

Khumsree, Malasree, K. Ruddle and Ganesh P. Shivakoti .2009. "Rights and Conflicts in the Management of Fisheries in the Lower Songkhram River Basin, Northeast Thailand." *Environmental Management*. 43:557-570.

Mahdi, Shivakoti, G., Schmidt-Vogt, D. 2009: Livelihood change and livelihood sustainability in the uplands of Lembang sub-watershed, West Sumatra, Indonesia, in a changing natural resources management context. *Environmental management*, 43 (1), pp. 84-99.

Mertz, O., Leisz, S., Heinemann, A., Rerkasem, K., Thiha, Dressler, W., Pham Van Cu, Vu Kim Chi, Schmidt-Vogt, D., Colfer, C.J.P., Epprecht, M., Padoch, C. 2009: Demography of swidden cultivators in Southeast Asia. *Human Ecology*, 37 (3), 347-360.

Pattanapant, Arpaphan and Ganesh P. Shivakoti. 2009. "Opportunities and constraints of organic agriculture in Chiang Mai Province, Thailand." *Asia Pacific Development Journal*. 16(1):115-147.

Podchong, S., Schmidt-Vogt, D., Honda, K. 2009: An improved

approach for identifying suitable habitat of Sambar Deer (*Cervus unicolor*, Kerr) using ecological niche analysis and environmental categorization: case study at Phu-Khieo Wildlife Sanctuary, Thailand. *Ecological Modelling*, 220, pp. 2103-2114.

Rerkasem, K., Lawrence, D., Padoch, C., Schmidt-Vogt, D., Ziegler, A.D., Brun, T.B. 2009: Consequences of swidden transitions for crop and fallow biodiversity in Southeast Asia. *Human Ecology*, 37 (3), 281-289.

Roy, R., Schmidt-Vogt, D., Myrholt, O. 2009: "Humla Development Activities" for better livelihoods in the face of isolation and conflict. *Mountain Research and Development* 29 (3), pp.211-219.

Schmidt-Vogt, D., Leisz, S., Mertz, O., Heinemann, A., Thiha, Messerli, P., Epprecht, M., Cu, P.V., Chi, V.K., Hardiono, M., Truong, D.M. 2009: An assessment of trends in the extent of swidden in Southeast Asia. *Human Ecology*, 37 (3), pp. 269-280.

Singhrattana, N., Babel, M.S., Perret, S.R. (2009) Hydroclimate variability and its statistical links to the large-scale climate indices for the Upper Chao Phraya River Basin, Thailand. *Hydrology and Earth System Sciences Discussions* 6(5):6659-6690

Speelman, S., Frija, A., Perret, S.R., Farolfi, S., D'haese, M. and D'Haese, L. (2009) Variability in smallholders' irrigation water value: study in North-West Province, South Africa. *Irrigation and Drainage* (in press, DOI: 10.1002/ird.539)

Refereed Books/Chapters

Caron P., Craufurd P., Martin A., McDonald A., Abedini W., Afiff S., Bakurin N., Bass S., Hilbeck A., Jansen T., Lhaloui S., Lock K., Newman J., Primavesi O., Sengooba T., Ahmed M., Ainsworth E.A., Ali M., Antona M., Avato P., Barker D., Bazile D., Bosc P.M., Bricas N.,

Burnod P., Cohen J.I., Coudel E., Dulcire M., Dugué P., Faysse N., Farolfi S., Faure G., Goli T., Grzywacz D., Hocdé H., Imbernon J., Ishii-Eiteman M., Leakey A., Leakey C., Lowe A., Marr A., Maxted N., Mears A., Molden D.J., Müller J.P., Padgham J., Perret S., Place F., Raoult-Wack A.L., Reid R., Riches C., Scherr S.J., Sibelet N., Simm G., Temple L., Tonneau J.P., Trébuil G., Twomlow S., Voituriez T. (2009) Impacts of AKST on development and sustainability goals. In : McIntyre Beverly D. (ed.), Herren Hans R. (ed.), Wakhungu Judi (ed.), Watson Robert T. (ed.). *Agriculture at a crossroads. International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD): global report*. Washington : Island Press, p. 145-253.

Mullick, M. R. A., Babel, M. S. & Perret, S. R. 2009. Managing the competing water demands from offstream & instream users – a conceptual framework. In Blöschl, G., Van De Giesen, N., Muralidharan, D., Ren, L., Seyler, F., Sharma, U., & Vrba, J. (eds.) (2009). *Improving Integrated Surface and Groundwater Resources Management in a Vulnerable and Changing World*. *IAHS publication no. 330*, pp 327 – 333.

Shrestha, R.P. and K. Roy, 2009. RS/GIS-aided Land Degradation Assessment in the Greater Mekong Subregion, In *Geoinformatics for Natural Resources Management* (Eds. Joshi, P.K., P. Pani, and S.N. Mohapatra), **NOVA Science Publishers, Inc., New York. Pp. 317-331. ISBN: 978-160692-211-8.**

Singzon, S.B. and Shivakoti, G. 2009. "Farmers in debt: The case of rainfed upland farmers in Northeast Thailand". In Goenka A. and D. Henley (ed.). *Southeast Asia's Credit Revolution: from money lenders to micro-finance*. London: Routledge; Taylor and Francis Group. Pp. 158-174

Wilson, Z., **Perret, S.** (2009) Participation in Water Resource and Services Governance in South Africa: Caught in the Acts. In: Berry, K. and Mollard, E. (editors), *Social Participation in Water Governance and Management: Critical and Global Perspectives*. EarthScan, London, UK, pp325-353 (ISBN 9781844078851)

Conference Proceedings

Mullick, R.A.M., **Perret, S.R.**, Babel, M.S. (2009) Instream water use – how much value does it carry? 12th International River Symposium, Brisbane, 21-24 September 2009, Australia. Available online: http://www.riversymposium.com/index.php?element=Th_S1_GH1_Reaz+Akteer+Mullick.pdf

Shrestha, R.P. 2009. Natural Resources Management Education and Research at the Asian Institute of Technology, Thailand. *International Workshop on Strategic Research Framework of NREMC and the GMS/UniNet on NREM*, 8-9 October 2009 Mae Fah Luang University, Chiangrai, Thailand.

Shrestha, R.P. 2009. Peri-urban agriculture in Nepal: Problems and Prospects. *International Symposium on Status and Tendency of Suburban Agriculture in South and Southeast Asian Countries*, 11 July 2009, Fujisawa, Japan.

Shrestha, R.P. and M.K. Vinh. 2009. GIS and Participatory Approach for Zoning Marine Protected Area: A Case of Phu Quoc, Vietnam. 30th *Asian Conference on Remote Sensing*, 19-23 October 2009, Beijing, China.

Vorn, V. and R.P. Shrestha. 2009. Land use and livelihood of ethnic communities of Rattanakiri province, Cambodia, *International Symposium on Impacts of Economic Integration on Upland Farming and Ethnic Minorities in the Greater Mekong*

Sub-region, 27-29 November 2009, Khon Kaen, Thailand.

Book reviews

Schmidt-Vogt, D. 2009 "Karl Husa, Rolf Jordan, Helmut Wohlschlaegl (eds.): Ost- und Suedostasien zwischen Wohlfahrtsstaat und Eigeninitiative: Aktuelle Entwicklungstendenzen von Armut, Alterung und sozialer Unsicherheit. Institut fuer Geographie und Regionalforschung: Wien 2008". In: *Erdkunde* 63 (2), 204-206.

Schmidt-Vogt, D. 2009. „Tim Forsyth, Andrew Walker: Forest guardians, forest destroyers: the politics of environmental knowledge in Northern Thailand. University of Washinton Press 2008“. In: *Internationales Asienforum (International Quarterly for Asian Studies)*, 40 (3-4), pp. 393-395.

22.6 Doctoral Students' Dissertation

An Assessment of Wildlife Habitats and Human Threats for Wildlife Conservation and Protected Area Management: A Case Study in Phukhiew Wildlife Sanctuary in Chaiyaphum Province, North-east Thailand

By Suchart Podchong
Supervisors: Dr. Dietrich Schmidt-Vogt / Dr. Kiyoshi Honda

Consequences of Land Use Change on Land Quality, Water Resource and Food Availability in Phatthalung Watershed, Thailand

By Anisara Pensuk
Supervisor: Dr. Rajendra Prasad Shrestha

22.7 Masters Students' Theses

Assessment of Adoption and Benefits of the Contour Farming System in Pin Laung Township, Inle Watershed Area, Southern Shan State, Myanmar

By Thin Nwe Htwe
Supervisor: Dr. Dietrich Schmidt-Vogt

Assessment of the Socio-Economic Services and Uses of Watershed Under Traditional Forest Management and Practices : A Study of Sikhu Khola Catchment in, Nepal

By Sapana Lohani
Supervisor: Prof. Ganesh P. Shivakoti

Factors and Impact of Participation on the Operation and Maintenance of an Irrigation System in Nepal: A Case Study of the Babai Irrigation Project

By Ravi Gyawali
Supervisor: Dr. Sylvain Roger Perret

Gender-Based Community Participation in Biodiversity Conservation Activities: A Case Study from Ratchaburi, Thailand

By Thitikan Satchabut
Supervisor: Dr. Dietrich Schmidt-Vogt

Impact Assessment of Bamboo Harvesting in the Seima Biodiversity Conservation Area, Mondulkiri, Cambodia

By Mann Mouy
Supervisor: Dr. Dietrich Schmidt-Vogt

Influence of Arbuscular Mycorrhizal Fungi on the Growth of Agricultural Crops in Arsenic Amended Soil

By Bayezid Mahmud Khan
Supervisor: Dr. Dietrich Schmidt-Vogt

Investigating the Resilience of Natural Resource-Based Livelihoods to Natural Disaster: Case Study of a Cyclone Nargis Affected Area, Myanmar

By Nyi Nyi Soe
Supervisor: Dr. Sylvain Roger Perret

Land Use Change and its Impacts on Rural Livelihood in Ratanakiri Province, Cambodia

By Vorn Vichheka
Supervisor: Dr. Rajendra Prasad Shrestha

Local People's Participation in Community Forest Management: A Comparison Between Ban Huai Kaeo and Ban Mae Kam Pong, Huai Kaeo Sub-District, Mae-On District, Chiang Mai Province, Thailand

By Sorawit Na Nongkhai
Supervisor: Dr. Dietrich Schmidt-Vogt

Perception of and Adaptation to Climate Change by Farmers in Different Ecological Zones of the Western Development Region of Nepal

By Sujata Manandhar

Supervisor: Dr. Dietrich Schmidt-Vogt

The Linkages of Agroforestry System and the Food Security of Farm Household in Upland Rural Area: A Case Study in Kalaw Township, Myanmar

By Mya Hpoo Ngone

Supervisor: Dr. Dietrich Schmidt-Vogt

Research Study: Impact of Drying Out of the Aral Sea on Land Degradation and its Implication on Agricultural Production in Uzbekistan

By Mariya Motorina Sergeyevr

Supervisor: Dr. Rajendra Prasad Shrestha

Role of Animal Husbandry and Participatory Technology Development in Agro-Pastoralist Livelihoods: A Case Study of Gongshan County, Northwest Yunnan Province, China

By Shicai Shen

Supervisor: Dr. Rajendra Prasad Shrestha

Research Study: A Comparative Analysis of Energy Use Patterns in Small and Large Scale Irrigated Rice Farming Systems: A Case Study in Ayutthaya Province in the Central Region of Thailand

By Asmat Ullah

Supervisor: Dr. Sylvain Roger Perret

The Impact of Water Resources Degradation on Agricultural Land Use, Productivity and Rural Livelihoods in Deh-Sabz District, Afghanistan

By Muhammad Ajmal Rahimy

Supervisor: Dr. Rajendra Prasad Shrestha

Research Study: Farmers' Perception of the Impact of New Governance Arrangements on the Performance of Selected Irrigation Systems in Punjab Province, Pakistan

By Sajjad Ahmad

Supervisor: Dr. Sylvain Roger Perret

Chapter 23: SERD – PULP AND PAPER TECHNOLOGY FIELD OF STUDY

23.1 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).

23.2 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; Voith Sulzer 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.

23.3 Faculty and Research Staff

Full-time Faculty

SAID IRANDOUST, MSc, PhD,
Chalmers University of Technology,
Sweden

Professor [*catalytical gas-fluid processes with a focus on reaction kinetics, mass transport, flow calculations, reactor modeling and reactor design*]

MOUSA M 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*]

ESA MATTI JUHANI VILJAKAINEN, MSc. in Chem. Eng. (HUT), Tech. Lic. (HUT), Helsinki University of Technology, Finland.

Visiting Faculty [*Fiber Processing: Mechanical pulping and Recycled fiber technology; Expert in industrial effluent treatment and Environment technology*]

AHMAD MIRSHOKRAEI, BSc, Univ of Tehran, Iran; MSc, Univ of TEHRAN, IRAN; PhD, Univ of McGill, Montreal, Canada.

Professor [*Pulping, bleaching, lignin structure*]

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

ELIAS ANTERO RETULAINEN, MSc., D.Tech. in Paper Technology, Helsinki University of Technology, Finland.

Visiting Lecturer [*Fiber and Paper Science*].

EWALD BEIVI, Graduate in Sheet-fed offset printing; in Publication rotogravure printing; Eledg. Dipl. in Printing Production Management & Technology, Betriebsfachmann Druck, St. Gallen, Switzerland.

Visiting Lecturer [*Covering printing technology*]

ESA KALEVI LEHTINEN, M.Sc. (Tech.) in Wood Chemistry and Pulping Technology, Lic.Sc. (Tech.) in Paper Technology and Chemistry of Forest Products, Helsinki University of Technology, Finland.

Visiting Lecturer [*Pigment coating technology of paper, Paper technology in general*]

RAIMO O MALINEN, MSc, LicTech,
DTech, Helsinki Univ. of Tech.,
Finland.

Associate Professor [*Wood and
Fibre Chemistry in general;
Pulping Technology;
Environmental Technology;
Project Management*]

Research Staff

Ms. Nareerat Nitisoravut, Senior
Laboratory Supervisor
Ms. Lalita Joshi, Laboratory
Supervisor

Technician and Laboratory

Mr. Manoch Suansiri, Laboratory
Technician II
Mr. Suchart Junteing, Laboratory
Technician II
Mr. Kanong Malaithong, Laboratory
Technician I

Administrative Staff

Ms. Suwannee Tilapornputt,
Secretary II

23.4 Grants and Sponsored Research Completed in 2009

Determination of Cationic Rosin Demand in Stock Samples of Stuff Pump, Fan Box and Head Box

Duration: March 2009
Project Investigator: Dr. Esa Viljakinen
Sponsor: Connell Bros. Co. (Thailand), Ltd.
Total Contracted Amount: (Baht) 27,000

Study the Use of PFI Mill to separate starch granules from tapioca fiber, use the Bauer-McNett to actually quantify the separation and microscopic study

Duration: February 2009
Project Investigator: Dr. Esa Viljakinen
Sponsor: Corn Products Amardass (Thailand) Ltd.
Total Contracted Amount: (Baht) 27,000

23.5 On-going Grants and Sponsored Research

Climate Change

Duration: 5 years
Investigators: Prof. Said Irandoust and Dr. Mousa
M. Nazhad
Sponsor: IROST, Iran
Total Contracted Amount: (USD) 4,000,000

Nano-Paper

Duration: 2006-2010
Investigator: Dr. Mousa M. Nazhad
Sponsor: Nanotec
Total Contracted Amount: (Baht) 5,000,000

23.6 Publications

Refereed Journals

Amir Khosravani, A. Jahan Latibari, S.
A. Mirshokraei, M. Rahmaninia, and
Mousa M. Nazhad, (2009), 'Effect of
cationic starch-anionic nanosilica
system on retention and drainage –
BioRes. J., (in press).

Hubbe, M. A. and **Mousa M. Nazhad**,
(2009), 'Composting of
lignocellulosic materials – A review',
BioRes. J., (in press).

Refereed Books/Chapters/Monographs

Substrate role on biodegradation,
Chapter on 'Biorefining', 2009, in
press

23.7 Doctoral Students' Dissertations

Anti-virus filter paper

By Reza Imani
Supervisor: Dr. Mousa M. Nazhad

Influence of nanoparticles on strength of OCC pulp

By Mehdi Rahmaninia
Supervisor: Dr. Mousa M. Nazhad

Influence of nanosilica on retention and drainage

By Amir Khosravani
Supervisor: Dr. Mousa M. Nazhad

23.8 Masters Students' Theses and Projects

A Comparative Study of Three Fast Growing Hardwood Kraft Pulps as Material in Uncoated Fine Paper

By Zu Wen Xia
Supervisor: Dr. Mousa M. Nazhad

Bleaching Comparison on Acacia Kraft Pulp Produced from Continuous and Batch Cooking System

By Itsna Lathifah Lasmaretty
Supervisor: Dr. Shashank Bharti

Developing the Water Resistance Paper by Poly(ϵ -caprolactone) and Soy Protein Isolated

By Nattinee Bumbudsanpharoke
Supervisor: Dr. Mousa M. Nazhad

Effect of Chip Thickness on Kraft Cooking and Bleachability of Acacia Crassiparpa

By Radar Herri Dalimunthe
Supervisor: Dr. Shashank Bharti

Effect on Paper Broke and Filtrate Water on Paper Properties

By Damrongiet Santijanroenkit
Supervisor: Dr. Mousa M. Nazhad

Effects of Process, Wet end variables on Alum-Cationic Rosin Sizing & Comparisons with Pac-Cationic Rosin and Akd Sizing

By Ma Tieng Chuong
Supervisor: Dr. Mousa M. Nazhad

Evaluation of Oxygen Delignification Process on Removing Lipophilic Extractive of Acacia Mangium and Acacia Crassiparpa

By Ari Aji Sanyoto
Supervisor: Dr. Shashank Bharti

Linting Problem of Newsprint Due to Filler Content, A Theoretical Approach

By Marin Malai
Supervisor: Dr. Mousa M. Nazhad

Non-Chemical Recycling on MOW by fractionation

By Tunchira Bunyaphiphat
Supervisor: Dr. Mousa M. Nazhad

The Role of OCC Long Fiber Fractionation on Testliner Strenght

By Luong Chi Hieu
Supervisor: Dr. Mousa M. Nazhad

*The Role of Sulphuric Acid Addition on
Hot Chlorine Dioxide Bleaching of
Unbleached Acacia Kraft Pulp*
By Azka Aman
Supervisor: Dr. Shashank Bharti

*Using Hybrid Tulip as Pulpwood for Kraft
Pulping*
By Yan Yan Han
Supervisor: Dr. Shashank Bharti

Chapter 24: SERD – REGIONAL AND RURAL DEVELOPMENT PLANNING FIELD OF STUDY

24.1 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 subdistrict 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.

24.2 Faculty and Research Staff

Full-time Faculty

GOPAL B THAPA, BSc, Tribhuvan Univ, Nepal; MSc, DTechSc, AIT, Thailand.

Professor(Natural Resources Management; Sustainable Agricultural Development and Planning; Watershed Management)

JAYANT K ROUSTRAY, BSc(Hons), MSc, PhD, Utkal Univ; MRP, Indian Inst of Tech, India.

Professor (Community Forestry; Distric Planning Methods and Techniques; Geographic Information Systems; Rural Transport Development; Rural-Regional Development; Social Impact Assessment)

SOPARTH PONGQUAN, BSc, Chiang Mai Univ; MSc, AIT, Thailand; DSc, Univ 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)

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

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

Professional Staff

VITON NIL-UBOL, MSc, AIT, Thailand

Field Lab Supervisor, Regional and Rural Development Planning

24.3 Grants and Sponsored Research Completed in 2009

AIT-Norwegian Institution Networking

Duration 1-Jan-06 - 31-Dec-09
Project Investigator Jayant Roustray
Sponsor The Norwegian Ministry of Foreign Affairs
Total Contracted Amount (THB) 12,178,388

International training program on Education for sustainable development in Higher education

Duration 1-Nov-08 - 30-Nov-09
Project Investigator Gopal B. Thapa
Sponsor Ramboll Natura
Total Contracted Amount (THB) 3,663,000

24.4 On-going Grants and Sponsored Research

Online Pilot programme on Sustainable development practices in public policy

Duration 1-Jun-09 - 31-Jan-10
Project Investigator Mokbul Morshed Ahmad
Sponsor TERI University , New Delhi, India
Total Contracted Amount (THB) 289,000

Understanding the next Agricultural Transition in Asia

Duration 1-Nov-09 - 30-Jul-10
Project Investigator Gopal B. Thapa
Sponsor The Rockefeller Foundation
Total Contracted Amount (THB) 2,768,194

24.5 Publications

Refereed Journals

Akom Sowana, Rajendra Shrestha, Preeda Parkpian, and Sopath Pongquan, Influence of Coastal Land Use on Soil Heavy Metal Contamination in Pattani Bay, Thailand, Journal of Coastal Research (JCR), JCR in Press, 2009.

Bualar, T. and Ahmad, M. M. (2009). "Why Community-based Rehabilitation Fail Physically Disabled Women in Northern Thailand?". *Development in Practice*. Vol. 19. No. 1. pp. 28-38.

M. Zafarullah Khan and Soparth Pongquan, An Analysis of Professional Competencies of Agriculture Officers to Cope with Problems of Weeds in NWFP-Pakistan, African Journal of Agricultural Extension & Rural Development, accepted in 2009.

Morais, N. and Ahmad, M. M. (2010). "Sustaining Livelihoods in Complex Emergencies: Experiences of Sri Lanka". *Development in Practice*. Volume 20, Number 1, pp. 5-17.

Phadungkiati, Lada and Soparth
Pongquan, The Comparison Effects of
Community-based Rural Enterprises,
Thailand, Economic, Social and
Institutional Effects, Saarbrücken:
VDM Verlag Dr. Muler
Aktiengesellschaft & Co.KG, Germany,
Amazon Distribution GmbH, Leipzig,
2009, ISBN: 978-3-639-19925-3.

Refereed Books/Chapters

Ahmad, M. M. (2009). "For God's
Sake: The Religious Non-
Governmental Organisations in
Bangladesh". Khan, F. R., Ahmad, A.
and Quddus, M. (ed.). *Recreating
the Commons? NGOs in Bangladesh*.
pp. 183-206. Dhaka: The University
Press Limited.

Ahmad, M. M. (2009). "New Threat
to Development: The NGO (Non-
Governmental Organisations) -
Fundamentalist Conflict in
Bangladesh". Khan, F. R., Ahmad, A.
and Quddus, M. (ed.). *Recreating
the Commons? NGOs in Bangladesh*.
pp. 129-148. Dhaka: The University
Press Limited.

24.6 Doctoral Students' Dissertation

*Adoption of Agricultural Land
Management Technologies by Smallholder
Farmers in the Jos-Plateau, Nigeria*
By Othniel Mintang Yila
Supervisor: Prof. Gopal Bahadur Thapa

*Farmer's Network Approach to Small
Farmer Development in the Northeast of
Thailand*
By Artittaya Phongphom
Supervisor: Dr. Soparth Pongquan

*NGO-LED Microfinance and Livelihoods in
Conflict Affected Areas: A Case Study of
Sri Lanka*
By Soosaiappu Neavis Morais
Supervisor: Dr. Mokbul Morshed Ahmad

*Organic Vegetable Farming in
Mahasarakham Province, Thailand*
By Kanokporn Rattanasuteerakul
Supervisor: Prof. Gopal Bahadur Thapa

*Participation of Women with Physical
Disabilities in Community-based
Rehabilitation: A Case Study of Upper
Northern Thailand*
By Theeraphong Bualar
Supervisor: Dr. Mokbul Morshed Ahmad

24.6 Masters Students' Theses and Research Studies

*Assessment of a Participatory Technology
Development (PTD) Approach for Poor
Farmers in Ba Ria-Vungtau Province,
Vietnam*
By Tran Thi Bach Cuc
Supervisor: Dr. Soparth Pongquan

*Community Development Projects in
Rural China: An Analysis of Processes and
Changes*
By Zhang Jun
Supervisor: Dr. Mokbul Morshed Ahmad

*Factors Influencing Economic
Transformation in the Peri-Urban Area
Around Rajshahi City in Bangladesh*
By Md. Mizanoor Rahman
Supervisor: Prof. Jayant Kumar Routray

*Factors Influencing the Adoption of
Vegetables and Fodder by Upland
Farmers in Lao PDR*
By Khamphou Phouyyavong
Supervisor: Prof. Gopal Bahadur Thapa

*Impact of Information and
Communication Technology on Rural
Livelihoods: A Case Study of Mobile
Phones in Kampong Thom, Cambodia*
By Va Sothy
Supervisor: Dr. Mokbul Morshed Ahmad

*Impacts of Conflict Induced Displacement
in the Livelihoods of Internally-Displaced
Persons (IDPs) in Nepal*
By Poonam Sharma
Supervisor: Prof. Gopal Bahadur Thapa

*Market Information Services and farmers'
decision making process for vegetable
marketing in Syangja and Tanahun
districts of Nepal*
By Amar Bahadur Thing
Supervisor: Prof. Gopal Bahadur Thapa

*Rural Urban Transport Linkages for Rural
Development: A Case Study of Panom
Dong Rak District in Thailand*
By Sarawudh Wattatham
Supervisor: Prof. Jayant Kumar Routray

*Social and Economic Impacts of Socio-
Economic Program (SEP) in Myanmar: A
Study in Gas Pipeline Construction Area
in Dawei Township*
By Naw Pe The Law
Supervisor: Dr. Soparth Pongquan

*Social Welfare Program for the Rural
Elderly in Thailand: A Case Study in Khon
Kaen Province*
By Chaba Srisuno
Supervisor: Dr. Soparth Pongquan

*Socio-Economic Impacts of Cyclone
Nargis in the Labutta Township of
Myanmar*
By Yupa Nwe
Supervisor: Prof. Jayant Kumar Routray

*Research Study: Achieving Food Security
in Pakistan: Policy Issues at National and
Regional Levels*
By Abid Hussain
Supervisor: Prof. Jayant Kumar Routray

*Research Study: Community
Preparedness for Earthquake Induced
Emergency Management in Balochistan*
By Ain-ud-Din Syed
Supervisor: Prof. Jayant Kumar Routray

*Research Study: Farmers' Satisfaction
with Sugarcane Contract Farming : A
Case Study in Surin Province, Thailand*
By Sirinath Matra
Supervisor: Prof. Gopal Bahadur Thapa

*Research Study: Foreign Aid Flow and its
Utilization in Afghanistan: Issues and
Challenges for Management*
By Bashirullah Khpalwan
Supervisor: Prof. Jayant Kumar Routray

*Research Study: HIV/AIDS and Female
Sex Workers in Myanmar: A Case Study of
Hlaing Thar Yar Township, Yangon*
By Nay Nwe Linn Maung
Supervisor: Dr. Soparth Pongquan

Chapter 25: SERD – URBAN ENVIRONMENTAL MANAGEMENT FIELD OF STUDY

25.1 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 field, 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.

25.2 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.

25.3 Faculty and Research Staff

Full-time Faculty

EDSEL SAJOR, BSc, University of the Philippines; MA, PhD, ISS, The Hague, The Netherlands.

Associate Professor (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)

L. A. S. RANJITH PERERA, BSc, MSc, University of Moratuwa, Sri Lanka; MSc, PhD, AIT, Thailand.

Assistant Professor (Urban Architecture and Environmental Design; Urban Planning and Housing; Urban Environmental Management, Results-based Project Management and Evaluation)

VILAS NITIVATTANANON, BEng, Chulalongkorn Univ; MA, Thammasat University; MEng, AIT, Thailand; PhD, University of Pittsburgh, USA.

Assistant Professor (Economic Analysis; Management of Infrastructure and Services; Systems and Integrated Management; Environmental Assessment; Waste Management; Water Engineering)

Adjunct Faculty

A.T.M. NURUL AMIN, PhD, University of Manitoba, Canada

Professor (Urban Environmental Economics and Finance)

BANASOPIT MEKVICHAI, PhD, Cornell University, USA

Associate Professor (Urbanization and Environmental Policy)

Visiting Faculty

SOO-HOON PARK, PhD, University of Sydney, Australia

Associate Professor (Building Information Modeling)

Research Staff

Dr. Muhammad Abu Yusuf, SEA-UEMA Project Director

Dr. Ariva S. Permana, Program Specialist

Ms. Arlene Neites Satapornvanit, Senior Project Associate

Ms. Lekha Ratnayake, Senior Project Associate

Mr. Prajapati Shapkota, Senior Project Associate

Mr. Pravakar Pradhan, Project Associate

Ms. Farhana Khan Lima, Project Associate

Ms. Pham Thi Khanh Van, Project Associate

Ms. Warin Choomsai Na Ayudhaya, Project Associate

Ms. Jubaiya Jahan, Project Associate

Ms. Patcharaporn Panwong, Project Associate

Mr. Rezaur Rahman, Project Associate

Ms. Wanwichanee Sritha, Project Associate

Ms. Sheree Ann Mendoza, Project Assistant

Ms. Concordia Pogoy, Project Assistant

Mr. Krisda Tuprung, Research Associate

Ms. Leilani Gallardo, Project Associate

Mr. Ekarin Thongchantr, Project Technician

Ms. Munu Pradhan, Research Associate
 Ms. Laksiri Chomchuen, Research Associate
 Ms. Le Thi Thu Huong, Research Associate
 Ms. Siwaporn Tangwanichagapong, Research Associate

Administrative Staff

Ms. Vantana Pattanakul, Administrative Secretary

25.4 Grants and Sponsored Research Completed in 2009

Benchmarking on environmental infrastructure management in selected cities of Southeast Asia

Duration: May 2008 – March 2009
 Project Investigator: Dr. Vilas Nitivattananon
 Sponsor: Canadian International Development Agency (CIDA)/SEA-UEMA Project
 Total Contracted Amount: (Baht) 372,880

Environmental Management Measures applied on the range of formal to informal sectors in selected cities

Duration: July 2008 – September 2009
 Project Investigator: Dr. L. A. S. Ranjith Perera
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 116,480

Study of the rise gated communities in Bangkok Metropolitan Area and its implication on land equity

Duration: 2007-2009
 Research Mentor: Dr. Edsel Sajor
 Sponsor: Royal Thai Government

Rain water Harvesting and Utilization

Duration: October 2008-October 2009
 Project Investigator: Dr. Vilas Nitivattananon
 Sponsor: Royal Thai Government/RMUTT
 Total Contracted Amount: (Baht) 300,000

Research Cooperation between Sida and AIT on Support Planning Urban Research during 2007-2009

Duration: May 2007-February 2009
 Project Investigators: Dr. Edsel Sajor, Dr. L. A. S. Ranjith Perera, Prof. ATM Nurul Amin, Dr. Vilas Nitivattananon
 Sponsor: SIDA-Swedish Research Council
 Total Contracted Amount: (Baht) 7,800,000

Water Governance in Mekong Region Peri-urban Areas, A thematic research

segment under the research project of “Improving Mekong Water Allocation, (Mekong Program on Water Environment and Resilience)

Duration: 2007-2009
 Project Investigator: Dr. Edsel Sajor
 Sponsor: CGIAR Challenge Program on Water & Food and M-Power/IFAD
 Total Contracted Amount: (Baht) 800,000

25.5 On-going Grants and Sponsored Research

Assessing and Monitoring of Vulnerability and Adaptation to Climate Change in Southeast Asia for Responsive Planning

Duration: 2009-2010
 Project Investigator: Dr. Edsel Sajor
 Sponsor: AIT and SIDA
 Total Contracted Amount: (Baht) 2,000,000

Evaluation of TIPMSE Programs as a Tool to Support Decision Making for Promoting Waste Recycling System in Thailand

Duration: November 2008-May 2010
 Project Investigator: Dr. Vilas Nitivattananon
 Sponsor: Thailand Institute of Packaging for Sustainable Environment (TIPMSE)/ Royal Thai Government (RTG)
 Total Contracted Amount: (Baht) 2,250,000

Enabling Bio-innovation for Poverty Alleviation in Asia

Duration: June 2008-December 2011
 Project Investigators: Prof. Sudip Kumar Rakshit, Dr. Edsel Sajor, Dr. Bernadette Resurreccion
 Sponsor: International Development Research Centre (IDRC), Canada
 Total Contracted Amount: (Baht) 17,000,000

SEA-UEMA Graduate Education Core Area

Duration: April 2008-August 2010
 Project Investigator: Dr. Vilas Nitivattananon
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 29,818,752

SEA-UEMA Project -Flagship Projects

Duration: April 2008-August 2010
 Project Investigator: Dr. L. A. S. Ranjith Perera
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 24,132,672

SEA-UEMA Project - Learning Networks and Training Core Area

Duration: April 2008-August 2010
 Project Investigator: Dr. Vilas Nitivattananon
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 12,290,528

SEA-UEMA Project - Policy Advocacy Core Area

Duration: April 2008-August 2010
 Project Investigator: Dr. Edsel Sajor
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 7,486,400

SEA-UEMA Project Management

Duration: April 2008-August 2010
 Project Investigators: Dr. Muhammad Abu Yusuf, Dr. Edsel Sajor, Dr. L. A. S. Ranjith Perera, Dr. Vilas Nitivattananon
 Sponsor: CIDA-AIT/SEA-UEMA
 Total Contracted Amount: (Baht) 33,541,664

Short Course on Urban Planning for Sustainable Management

Duration: October 2009-January 2010
 Project Investigator: Dr. L. A. S. Ranjith Perera
 Sponsor: AIT Center-Indonesia
 Total Contracted Amount: (Baht) 556,129

25.6 Publications

Refereed Journals

Sajor, E. and Thu, M. (2009). “Institutional and Development Issues in Integrated Water Resource Management of Saigon River”. *Journal of Environment & Development*, 18(3):268-290.

Sujaritpong, S. and Nitivattananon, V. (2009). “Factors Influencing Wastewater Management Performance: Case of Housing Estates in Suburban Bangkok, Thailand”, *Journal of Environmental Management* 90(1):455-465.

Trethanya, S. and Perera, R. (2009). “Environmental Assessment for Small and Medium Scale Road Projects Implemented in Local Authority Areas: A Case Study from Thailand”, *Journal of Construction in Developing Countries*, 14(2):57-76

Zaki, S. and Amin, ATM N. (2009). "Does Privatization Benefit the Poor? Some Evidence from the First Privatization Scheme in Thailand", *Urban Studies*, 46(11):2301-2327.

Refereed Books/Chapters/Monographs

Perera, R. and Permana, A. eds. (2009). “Constructed wetland system

for treatment of wastewater from fermented fish production in Ban Sang sub-district, Phayao Province, Thailand”, Case Study Series, ADP 8/2009, Bangkok: Asian Institute of Technology, pp.32.

Perera, R. and Permana, A. S. (2009). "Capturing Co-benefits through Land Use: A Case Study from Bandung, Indonesia" in Zusman, E., Srinivasan, A. & Dhakal, S. eds., *Low Carbon Transport in Asia: Strategies for Optimizing Co-benefits*, Earthscan: London.

Perera, R. and Ranamukaarachchi, H. eds. (2009). "Community-based urban agriculture and solid waste management in a commune in Ha Noi, Vietnam", Case Study Series, ADP 7/2009, Bangkok: Asian Institute of Technology, pp.22.

Perera, R. and Ranamukaarachchi, H. eds. (2009). "Community-driven action for integrated environmental management in a river bank settlement in Bandung, Indonesia", Case Study Series, ADP 9/2009, Bangkok: Asian Institute of Technology, pp.41.

Perera, R. and Ranamukaarachchi, H. eds. (2009). "Reduction of air pollution through cleaner pottery production in Bat Trang, Hanoi, Vietnam", Case Study Series, ADP 3/2009, Bangkok: Asian Institute of Technology, pp.29.

Perera, R. ed. (2008). "Unlocking the potential of community composting towards the establishment of an eco-neighborhood", Case Study Series, ADP 2/2008, Bangkok: Asian Institute of Technology, pp.39

Perera, R. ed. (2009). "Ecological solid waste management and water pollution monitoring system in an urbanizing Barangay in Urdaity, Philippines", Case Study Series, ADP 6/2009, Bangkok: Asian Institute of Technology, pp. 66

Perera, R. ed. (2009). "Strengthening of a community enterprise for supplying water to a kampong in Yogyakarta", Case Study Series, ADP 4/2009, Bangkok: Asian Institute of Technology, pp.32

Perera, R. ed. (2009). "Sustainable rice straw management for urban air pollution reduction in Bang Bua Thong Nonthaburi Province, Thailand", Case Study Series, ADP 5/2009, Bangkok: Asian Institute of Technology, pp.23.

Perera, R. ed. (2009). "Utilizing faith-based organizations in the social preparation of setting-up an ecological waste management center", Case Study Series, ADP 10/2009, Bangkok: Asian Institute of Technology, pp.34.

Sujaritpong, S. and **Nitivattananon, V.** (2009). "An Assessment of Community Wastewater Management Performance" in Takizawa, S., Kurisu, F. and Satoh, H. eds., *Southeast Asian Water Environment 3*, ISBN: 9781843392316, IWA Publishing, London, pp.147-152.

Conference Proceedings

Amin, ATM N. (2009). "Towards a Lasting Approach to Urban Air Quality Improvement". Keynote Address, Proceedings: International Conference on Air Quality Management in Southeast Asia, pp.261-283, SEA-UEMA Project, AIT, Thailand.

Amin, ATM N. (2009). "Urbanization's Sustainability: What Urban Planning and a Decentralized Urban System Can Do", Keynote Address, Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.321-325, SEA-UEMA Project, AIT, Thailand.

Amin, ATM N. (2009). "Urban Planning and Environmental Management in the Present Era of

Free Market System of Global Scale", Keynote Address, Proceedings, Fourth Seminar on Urban and Regional Planning, Department of Architecture and Planning, pp.3-13, NED University of Engineering and Technology, Karachi.

Lay, C. and **Nitivattananon, V.** (2009). "Environmental Implications of Imported Second Hand Products: Case of Computer and Tire in Cambodia", Proceedings of International Conference on Green and Sustainable Innovation 2009, Chiangrai, Thailand.

Manowong, E. and **Perera R.** (2009). "Construction Waste Management in Thailand: An Analysis Using a Structural Equation Model", Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.201-211, SEA-UEMA Project, AIT, Thailand.

Nguyen, T. C. and **Nitivattananon, V.** (2009). "Application of Process Benchmarking for Urban Water Supply System: Case of, Hue City, Vietnam", Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.3-18, SEA-UEMA Project, AIT, Thailand.

Nitivattananon, V., Tran, T. T., Rattanapan, A. and Asavanant, J. (2009). "Vulnerability and Resilience of Urban Communities under Coastal Hazard Conditions in Southeast Asia", Proceedings of Fifth Urban Research Symposium, Marseille, France.

Permana, A. S. and **Perera, R.** (2009). "Land Use Change as the Primary Determinant of Air Quality Degradation in Bandung City, Indonesia", Proceedings of International Conference on Air Quality Management in Southeast Asia, pp.37-55, SEA-UEMA Project, AIT, Thailand.

Permana, A. S. and **Perera, R.** (2009). “Reinventing Development Control to Reduce Consumption of Non-Transportation Energy: Evidence from Bandung City, Indonesia”, Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.251-265, SEA-UEMA Project, AIT, Thailand.

Prasertsabpakij, D., **Nitivattananon, V.** and Iamtrakul, P. (2009). “Sustainable Metro Accessibility Performance Indicators: An Integrated Approach to Multi-dimensional Assessment”, Proceedings of the Eastern Asia Society for Transportation Studies, Vol.7, Indonesia.

Sembling, E. and **Nitivattananon, V.** (2009). “Role of Informal Sector in Solid Waste Management: Dilemma on Decision Making for Urban Environment”, Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.283-296, SEA-UEMA Project, AIT, Thailand.

Sigit, D. A. and **Perera, R.** (2009). “Exploring the Spatial Pattern of Quality of Life in a Third World City and its Implications to Planning Policies towards Sustainable Development”, Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.89-102, SEA-UEMA Project, AIT, Thailand.

Tripathi, N. K., Arthit, L. and **Perera, R.** (2009). “Geospatial Modeling of Urban Growth Pattern in Pathumthani, Thailand”, Proceedings of International Conference on Sustainable Urban Environmental Practices, pp.117-125, SEA-UEMA Project, AIT, Thailand.

Velez, G. and **Nitivattananon, V.** (2009). “Improving Air Quality through Managing Vehicle Emissions among Jeepneys in Davao City, Philippines”, Proceedings of International Conference on Air

Quality Management in Southeast Asia, pp.3-12, SEA-UEMA Project, AIT, Thailand.

Other Publications

Amin, ATM N. (2009). “Reducing emissions from private cars: Incentive measures for behavioural change”, Economics and Trade Branch, Division of Technology, Industry and Economics, United Nations Environment Program, Geneva, October

25.7 Doctoral Students' Dissertation

Assessing the Performance and Influencing Factors for Promoting Successful Municipal Solid Waste Recycling Systems
By Samonporn Suttibak
Supervisor: Dr. Vilas Nitivattananon

Changes in Neighborhood Governance in Residential Communities in the Context of Economic Renovation in Ho Chi Minh City, Vietnam
By Le Thi Thu Huong
Supervisors: Dr. Edsel E. Sajor / Dr. Willi Zimmermann

Economic Instruments' Use in Management of Wastewater: An Analysis of Limitation in Thailand's Case
By Lalita Rammont
Supervisor: Prof. A. T. M. Nurul Amin

Environmental Management System for Infrastructure Development Projects in Extended Metropolitan Areas: A Case Study in Samut Sakon Province, Thailand
By Suparb Trethanya
Supervisor: Dr. L. A. S. Ranjith Perera

The Development of a Public Land Management Policy for Under-Utilized Space in Bangkok, Thailand
By Ariya Aruninta
Supervisors: Dr. Edsel E. Sajor/Dr. Willi Zimmermann

25.8 Masters Students' Theses

Adaptation to Flood Risk in Coastal Urban Area under Rapid Urbanization and Climate Change in Ho Chi Minh City, Vietnam
By Tran Thanh Tu
Supervisor: Dr. Vilas Nitivattananon

An Analysis of Paratransit Services from a Multi-Benefit Perspective: A Case Study of Jeepneys in Cebu City, Philippines
By Faisal Mamicpic Alih
Supervisor: Dr. L. A. S. Ranjith Perera

Benchmarking of Hygiene and Sanitation Performance of Public Food Markets in Vientiane, Lao PDR
By Souphonesay Lorphenngsy
Supervisor: Dr. L. A. S. Ranjith Perera

Bioaerosol and Health Assessment in the Hospital: A Case Study of Thammasat Hospital, Thailand
By Churairat Puributr
Supervisors: Dr. Edsel E. Sajor/Dr. Nowarat Coowanitwong

Disaster Vulnerability Assessment for Housing and Infrastructure of Coastal Communities in Southern Thailand
By Amornrat Rattanapan
Supervisor: Dr. Vilas Nitivattananon

Domestic Wastewater Management for Wetland Protection: A Study of Thatluang Marsh in Vientiane, Lao PDR
By Khamsamai Onedavong
Supervisor: Dr. L. A. S. Ranjith Perera

Enhancing Environmental Awareness through Non-Formal Education: A Case Study of Solid Waste Management in Vientiane Municipality, Lao PDR
By Thevarack Phonekeo
Supervisor: Dr. L. A. S. Ranjith Perera

Incorporating Stakeholder Preferences in the Decision Making for Solid Waste Management in Urban Areas of Hung Yen Province, Vietnam
By Nguyen Thi Hoa
Supervisor: Dr. Vilas Nitivattananon

Industrial Wastewater Management in a Peri-Urban Area: A Case Study in Ulaanbaatar, Mongolia
By Usukhbayar Yadamsuren
Supervisor: Dr. Edsel E. Sajor

Land Tenure Security and Options for Urban Land Owners in Sporadic and Systematic Land Registration in Cambodia

By Sokthoeurn In
Supervisor: Dr. Edsel E. Sajor

New Government Policy Changes on Slum Community Relocation in Phnom Penh, Cambodia: A Case Study of Dey Krahorm Area

By Samnavuth Nuon
Supervisor: Dr. Edsel E. Sajor

Partnerships with Scavenger in Achieving Sustainable Solid Waste Management in Jakarta: A Social Impact Analysis

By Suryaputrianita Satyanugraha
Supervisor: Dr. L. A. S. Ranjith Perera

Perceptions and Responses to Warming in and Urban Environment: A Case Study of Bandung City, Indonesia

By Niken Prilandita
Supervisor: Dr. L. A. S. Ranjith Perera

Public-Private Partnership on Household Solid Waste Management in Villages of Xaysettha District, Vientiane Capital City, in Lao PDR

By Thavixay Xayphaseat
Supervisor: Dr. Edsel E. Sajor

Reducing Waste by Food Waste Separation at Household Level: A Review and Case of Faisalabad City, Pakistan

By Ghaffar Ali
Supervisor: Dr. Vilas Nitivattananon

Results-Based Evaluation of the Project for Improving Urban Water Supply and Sanitation in Xieng Ngeuan District, Luan Prabang Province, Lao PDR

By Sonthong Maichingteng
Supervisor: Dr. Vilas Nitivattananon

Sanitation Provisioning for the Urban Poor in Dhaka: Impacts and Implications of Public Expenditure Management (PEM)

By Niaz Rahman
Supervisor: Dr. Edsel E. Sajor

Strategic Decision Making in Solid Waste Management Using Life Cycle Assessment: A Case Study of La Carlota City, Philippines

By Kirstin Amparo Toda
Supervisor: Dr. Vilas Nitivattananon

Sustainable Transportation Planning Through Environmental Assessment: A Case Study of Hanoi, Vietnam

By Nguyen Viet Dung
Supervisors: Dr. Edsel E. Sajor/Dr. Nowarat Coowanitwong

Assessment of Water Supply Performance: A Case of Public Service Efficiency in Tashkent City, The Republic of Uzbekistan

By Grigoriy Samoylov
Supervisor: Dr. Vilas Nitivattananon

The Potential for Recycling Household Solid Waste in Can Tho City, Vietnam

By Nguyen Van Su
Supervisor: Dr. Vilas Nitivattananon

Tube Housing Development and Ensuing Quality of the Living Environment in Residential Areas: A Case Study of Hanoi, Vietnam

By Ngo The Vinh
Supervisor: Dr. L. A. S. Ranjith Perera

Vulnerability of Coastal Communities to the Impacts of Climate Change: A Case Study of the City of Puerto Princesa in the Philippines

By Allan Laban Lagrosa
Supervisor: Dr. L. A. S. Ranjith Perera

Chapter 26: SERD – AGRIBUSINESS MANAGEMENT PROGRAM

26.1 Introduction

Agriculture plays a vital role in the economic growth of many country especially developing countries like of Asia including Thailand, China, India, Vietnam, Malaysia etc. Due the growing industrialization the importance of agri-products has increased several-folds. The food and food-products import-export policies play important role in the overall development of any country and the world as a whole.

In developing countries, since last 25 years, majority of the young people educated, came from agriculture community or from the similar background. But, due to many reasons they have not been able to compete for available jobs, which demand specialized skills and knowledge. Even in their attempts to set up small entrepreneurial activities in non-farm sector they face many problems generally not encountered by such youths in urban areas. All these rural youths can now be supported for new opportunities of entrepreneurship in business activities related to Agriculture. They have the basic understanding of agriculture, which can be utilized for promotion of business enterprises revolve around agricultural activities.

Rationale

As the nature of rural economy of many developing countries of Asia-Pacific region shifts from subsistence farming to commercial food enterprises, a new breed of agribusiness professionals is needed to manage this transformation. The proposed program will cater 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:

1. 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.
2. 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.

26.2 Faculty and Professional Staff

Faculty

ATHAPOL NOOMHORM [**Professor**, Food Engineering & Bioprocess Technology Field of Study]
(*Starch and Cereal Technology; Postharvest Technology; Food Processing; Agro-industrial 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*)

SUDIP KUMAR RAKSHIT [**Professor**, Food Engineering & Bioprocess Technology Field of Study]
(*Food and Biosafety; Biofuels and Food Security; New Bio-based Food Products; Bioprocess Technology*)

ANIL KUMAR ANAL [**Assistant Professor**, Food Engineering & Bioprocess Technology Field of Study]

(Agriculture and Food Biotechnology; Bionanotechnology; Functional Properties of Proteins and Polysachharides; Food Colloids and Biopolymers; Encapsulation and Targeted Delivery of Biomolecules)

PEEYUSH SONI [**Adjunct Faculty and ABM Coordinator**, Agricultural Systems & Engineering Field of Study,]

(Terramechanics; Agricultural Instrumentation; Controlled Environment Agriculture; Agricultural Systems Analysis; Analytical Techniques)

NICHOLAS DIMMITT [**Assistant Professor**, School of Management]

(Action Research; Business Communication; Business Ethics; Professional Development & Training; Language Policy and Language Planning)

RIAN BEISE-ZEE [**Assistant Professor**, School of Management]

(International Marketing and Branding; Diffusion of

Innovation; Customer-manufacturer Interaction in Innovation Development)

SUNDAR VENKATESH [**Visiting Associate Professor**, School of Management]

(Finance; Financial Accounting; Corporate Governance; Financial Restructuring; Financial Information Management)

SAHDEV SINGH [**Adjunct Faculty**]

(Information and Communication Technologies; Decision Tools; ERP; Quantitative Analysis; Human Resources Development in Agro-industries; SCM)

BOONJIT TITAPIWATANAKUN [**Adjunct Faculty**]

(Agricultural Supply Chain Management)

Professional Staff

IMRAN AHMAD [**Laboratory Supervisor**, Food Engineering & Bioprocess Technology Field of Study]

(Food Enterprises Productivity; Food Process Operations; Food Supply Chain)

26.3 Masters Students' Theses

An Analysis of Ethanol Production from Nypa fruiticans by Local Community Along the Coastal Region in Thailand: A Case Study of Pak Panang Basin Region, Nakhon Sri Thammarat Province

By Kruewan Thong-Om
Supervisor: Prof. Ganesh P. Shivakoti

Assessment of Daily Industry and Its Competitiveness in Thailand

By Shankar Shivdas Tagad
Supervisor: Prof. Vilas M. Salokhe

Current Status Assessment and Business Concepts Development for Hydroponic Agribusiness in Thailand

By Phianphen Rattanarat
Supervisor: Prof. Vilas M. Salokhe

Farmer's Satisfaction and Happiness in the Milieu of Rice-Based Livelihood Systems in Chiang Mai, Thailand

By Atidtaya Yaophruckchai
Supervisor: Prof. Ganesh P. Shivakoti

Chapter 27: GENDER, TRANSPORTATION AND DEVELOPMENT AREA OF STUDY

27.1 Introduction

Asia as a region has historically experienced high intra-mobility of goods and people, but in the recent years, the quantum of such mobility has increased dramatically. Various factors have contributed to this increase, including economic disparity within the region; differences in economic/ employment/ business opportunities; transportation and communication infrastructure development, education opportunities, and a wider network of migrants in major cities and industrial areas in the region.

The largest factor is the heavy investment in the construction and renovation of road networks. Road networks, which are important for regional integration within Asia, are critical for the less developed member countries, especially those in the Greater Mekong Subregion (GMS) countries. Recognizing this, bilateral and regional financial institutions supported heavily to improve the road network. The fact that people move both within and out of the region has implications not only for the well-being of migrants themselves, but also for the sending and receiving communities.

However, several questions remain. Have these roads actually contributed to poverty alleviation in the poorer regions of Asia? Or have they only increased the disparity between the rich and poor, resulting in future social tensions in the region?

The graduate course Gender, Transportation and Development (GTD) is a multi-disciplinary program that is problem-solving in nature. It focuses on specific problems of the effect of infrastructure planning and management on equitable and sustainable development for women and men. As a multi-disciplinary program, it focuses on:

1. Gender and development
2. Regional development planning
3. Infrastructure planning and management, with special focus on transportation engineering and management

It covers both the physical planning based on transportation engineering, and social, community and gender analysis and planning based on social science. It envisages to develop planning and management theories and practices contextualized to Southeast Asia, especially the GMS region.

The program consists of required courses, elective courses and research (Thesis or Research Study). Required and elective courses are offered from the areas of gender and development, transportation engineering, regional development and planning, urban environmental management, and construction engineering and infrastructure management. The Area of Study has had the first batch of students in August 2008.

27.2 Faculty and Research Staff

Coordinating faculty members

KYOKO KUSAKABE, **Associate Professor**, Gender & Development Studies Field of Study, School of Environment, Resources & Development

SHINYA HANAOKA, **Visiting Associate Professor**, Transportation Engineering Field of Study, School of Engineering & Technology, and Associate Professor, Tokyo Institute of Technology, Japan.

Contributing faculty members

School of Engineering & Technology

Transportation Engineering Field of Study

HYUNMYUNG KIM,
Assistant Professor

KUNNAWEE KANITPONG,
Assistant Professor

HIRONORI KATO, **Visiting Associate Professor**, Associate Professor, Department of Civil Engineering, The University of Tokyo

PICHAJ TANEERANANON,
Visiting Associate Professor

SHINJI TANAKA, **Visiting Assistant Professor**, Assistant Professor, Institute of Industrial Science, the University of Tokyo, Japan

School of Environment, Resources & Development

Gender & Development Studies Field of Study

PHILIPPE DONEYS, **Assistant Professor**

Regional & Rural Development Planning Field of Study

JAYANT KUMAR ROUSTRAY,
Professor

MOKBUL MORSHED AHMAD, **Assistant Professor**

Urban Environmental Management Field of Study

VILAS NITTIVATANANON,
Assistant Professor

Research staff

LADA PHADUNGKIATI, **Project
Researcher**

TANARADEE KHUMYA, **Project
Researcher**

Transportation Studies, Vol.7,
Surabaya.

Regmi, B. M. and **Hanaoka, S.** (2009)
“Impacts of climate change on
transport and adaptation in Asia”,
Proceedings of the Eastern Asia
Society for Transportation Studies,
Vol.7, Surabaya.

Tokunaga, T., Takeishi, M., **Hanaoka,
S.** and Raphael, E. W. (2009)
“Analysis of LBT applicability in
Tanzania throughout the nationwide
LBT stakeholder survey”, 13th ILO
Regional Seminar for Labour-Based
Practitioners, Kampala, Uganda.

Yoshida, T., Shibasaki, R., Nemoto,
T., **Hanaoka, S.**, Ono, K. and
Onodera, H. (2009) “Future scenario
of international transport based on
questionnaire survey by the Delphi
method”, Proceedings of the Eastern
Asia Society for Transportation
Studies, Vol.7, Surabaya.

**Conference Proceedings (International
and National):**

Dadhich, P. N. and **Hanaoka, S.**
(2009) “Influence of marble mines
on urbanization of Makrana city- A
study based on remote sensing”,
11th International Summer
Symposium, Japan Society of Civil
Engineers (JSCE).

Das, R. and **Hanaoka, S.** (2009)
“Food supply chain problems in
Bangladesh”, 11th International
Summer Symposium, Japan Society
of Civil Engineers (JSCE).

Das, R. and **Hanaoka, S.** (2009)
“Perishable food supply chain
constraints in Bangladesh”,
Proceedings of Infrastructure
Planning, No.40.

Dondov, B. and **Hanaoka, S.** (2009)
“Operating cash flows of a cement
plant based on a limestone deposit
in Mongolia”, Proceedings of
Infrastructure Planning, No.40.

Hanaoka, S., Inamura, H. and Ohi, T.
(2009) “Passenger satisfaction of
low-cost carriers terminal, Kuala
Lumpur International Airport”, 13th
World Conference of Air Transport
Research Society (ATRS 2009), Abu
Dhabi.

Kawasaki, T. and **Hanaoka, S.** (2009)
“Analysis of SEA&AIR and Japanese
shippers’ preference on freight
transport between Japan and
Russia”, Proceedings of
Infrastructure Planning, No.40. (in
Japanese).

Kawasaki, T. and **Hanaoka, S.** (2009)
“Risk analysis on access to seaport
by landlocked developing countries”,
Proceedings of Infrastructure
Planning, No.39. (in Japanese).

Palapus, P. H. and **Hanaoka, S.**
(2009) “Build-operate-transfer
challenges in Asian rail projects”,
Proceedings of Infrastructure
Planning, No.40.

Palapus, P. H. and **Hanaoka, S.**
(2009) “Revisiting build-operate-
transfer scheme in Asian rail
projects”, 11th International
Summer Symposium, Japan Society
of Civil Engineers (JSCE).

Book Chapters:

Hanaoka, S. (2009) “Hub port
competition and mega-ship port
choice”, In Imai, A. (eds.), *Global
Intermodal Transportation*, pp.146-
163, Tokai University Press, Japan.
(in Japanese)

Other Publications:

Hanaoka, S. (2009) “Evaluation of
Build-Operate-Transfer Scheme for
Transport Infrastructure in Asian
Cities Development”, Final Report of
13th IBS Fellowship, Institute for
Behavioural Science. (in Japanese)

27.3 Publications

International Journals

Hanaoka, S. and Kunadhamraks, P.
(2009) “Multiple criteria and fuzzy
based evaluation of logistics
performance for intermodal
transportation”, *Journal of Advanced
Transportation*. Vol.43, No.2, pp.123-
153.

Hanaoka, S. and Qadir, F. M. (2009)
“Passengers’ perceptions and effects
of bus-holding strategy using
automatic vehicle location
technology in Bangkok”, *Journal of
Advanced Transportation*, Vol.43,
No.3, pp.301-319.

Zhang, A., **Hanaoka, S.**, Inamura, H.
and Ishikura, T. (2009) “Low-cost
carriers in Asia: deregulation,
regional liberalization and secondary
airport”, *Research in Transportation
Economics*, Vol.24, No.1, pp.36-50.

Refereed International Conference Full Papers:

Hanaoka, S., Kawasaki, T. and
Tokunaga, T. (2009) “Economic
impact of the implementation of LBT
in Tanzania and cost comparison
between LBT and EBT”, 13th ILO
Regional Seminar for Labour-Based
Practitioners, Kampala, Uganda.

Kawasaki, T. and **Hanaoka, S.** (2009)
“Developing prompt list for
landlocked developing countries’
access to seaport in transit
countries”, Proceedings of the
Eastern Asia Society for

Chapter 28: SCHOOL OF MANAGEMENT

28.1 Introduction

The School of Management (SOM) prides itself for having world class academic and professional programs. SOM is offering a PHD Program, Doctor of Business Administration (DBA) Program, Full time MBA Program, Executive Masters (EMBA) and Professional Masters in Technology Management (PMTM) programs. SOM was ranked third in 2004 by Asia Inc. among the MBA programs of South East Asia and 2008 SOM was ranked as the internationally known TOP school in Thailand.

SOM was established in October 1987 to meet the growing need for managerial expertise in the Asia – Pacific region. The School strongly believes in the need for intensive development of socially responsible corporate leaders for Asia. Currently SOM provides specialization in CSR, Entrepreneurship, Strategy, Management of Technology, Public Management, Marketing, Finance and other areas. The courses at SOM are taught by highly experienced faculty from over 15 nations.

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.

28.2 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”

Vision

“to become the leading creator and disseminator of Asian management knowledge, practices and values”

Positioning

“A global management school which offers knowledge that promotes deep understanding of Asian management practices

28.3 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)

28.4 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:

- Corporate relationship management
- Executive development programs
- Organizing executive forums, workshops, seminars, and conferences
- Other activities contributing to SOM's objectives

28.5 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. The School of Management has its own computer laboratory for instructional purposes and there is a network of over 60 computers for student's use.

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.

28.6 Faculty and Research Staff

Full-time Faculty

JOHN C S TANG, BS, MS, PhD, Univ of Florida, USA.

Professor (*Engineering Economy; International Economics; International Operating Environment of Business; Managerial Economics*)

ILKKA KAURANEN, MS Engg, Lic Tech, DTech, Helsinki University of Technology, Finland.

Visiting Professor (*Development and Management in Industry*)

BARBARA IGEL, BA, MA, Technical Univ, Berlin; PhD, Freie Univ, Berlin, Germany.

Associate Professor (*High-tech Entrepreneurship; Industrial Economics; Knowledge Management; Management of Innovation*)

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)

SUNUNTA SIENGTHAI, BA, Chulalongkorn Univ, Thailand; MA, PhD, Univ of Illinois, USA.

Associate Professor (*Labor & Industrial Relations, HRM, Wages & Productivity*)

SUNDAR VENKATESH, BSc, BL, Univ of Calcutta; PhD, Indian Inst of Management, India.

Visiting Associate Professor (*Finance; Financial Accounting*)

ARUN KUMAR GOPALASWAMY, BCom, MCom, Bangalore Univ, India; PhD, Institute of Science, India.

Visiting Associate Professor (*Finance; Financial Accounting*)

DONYAPRUETH KRAIRIT, BS, Thammasat Univ, Thailand; MS, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Assistant Professor (*Technology, Policy and Management*)

NICHOLAS J DIMMITT, BA, MA, San Francisco State Univ; PhD, Univ of Southern California, USA.

Assistant Professor (*Business Communication, Business Ethics, Research Methods*)

RIAN BEISE-ZEE, Dipl. Ing. (Industrial Engineering), Technical University of Berlin, Dr.oec (Economics & Business), Germany

Assistant Professor (*International Marketing, Innovation Marketing, Service Marketing*)

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*)

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*)

Visiting and Adjunct Faculty

NAZRUL ISLAM, BScEng, BUET, Bangladesh; MEng, DEng, AIT, Thailand.

Visiting Professor (*Management of Technology; Technology and Development; Technology Policy; Technology Transfer*)

INDRA M PANDEY, MComm, PhD, Univ of Delhi, India.

Visiting Professor (*Corporate Finance, Emerging Capital Markets*)

FREDRIC W SWIERCZEK, BA, Temple Univ, USA; MA, PhD, Univ of Pittsburgh, Pennsylvania, USA.

Visiting Associate Professor (*Behavioral Science; Organizational Development*)

PETER MOSER Ph.D., M. Econ., University of St. Gallen, Switzerland

Visiting Faculty (*European Integration and International Trade Policy*)

ARNE DEUSSEN, PhD, University of Geneva, Switzerland, Master (Lic.oec.HSG), University of ST.Gallen, Switzerland

Adjunct Faculty (*Management of Change*)

GERARD TOCQUER, Ph.D., University of Nice-Sophia Antipolis, France, M.A (Marketing), University of Sherbrooke, Canada, C.P.D., Cornell University, Ithaca USA

Adjunct Faculty (*Service Innovation, Service Culture and Branding*)

JARUNEE WONGLIMPIYARAT, Ph.D (Tech Management) University of Manchester U.K, M.Sc. (Tech and Innovation Management) University of Sussex, U.K

Adjunct Faculty (*Tech and Innovation, Technology Commercialization*)

PHASIN SUEBSUBANUNT, Ph.D. (Business Admin.), Henley Management College, Brunel (West London) University, UK
MBA, School of Management, AIT, Thailand

Adjunct Faculty (*Finance, Investment*)

RAGNAR THOR GRUNDTVIG SØEGAARD, Ph.D London School of Foreign Trade, England, Master of Business Administration, University of Gothenburg, Sweden

Adjunct Faculty (*Finance*)

SOMROTE KOMOLAVANIJ, Ph.D, M.S., University of Texas, USA

Adjunct Faculty (*Business Statistics, Economy, QC, Operations Research*)

TRITOS LAOSIRIHONGTHONG, Ph.D., (Management of Technology) School of Management, AIT, Thailand

Adjunct Faculty (*Manufacturing Strategy and Supply Chain Management*)

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*)

LALIT M JOHRI, BSc(Hons), MSc, MBA, PhD, Univ of Delhi, India.

Adjunct Faculty (*International Business; International Joint Ventures; Marketing; Negotiations; Strategic Management*)

MARK NEAL, B.A (Hons.) Sociology, university of Reading, U.K, Ph.D (Mgmt), The Business School, Bournemouth University, U.K

Adjunct Faculty (*Cross-Cultural Management, Gender and Organization Leadership*)

URS BUMBACHER, M.A, Ph.D (Economics & Business Admin.), Univ. of Basel, Switzerland.

Adjunct Faculty (*International Business*)

TRUONG QUANG, MPA, National Institute of Administration, Vietnam; Ph.D (Social Sciences), Drs. (Political Science), Vrije Universiteit, The Netherlands.

Adjunct Faculty (*Organizational Behavior, HRM*)

LOGAN MULLER, Ph.D (Sustainability), Kennedy Western University, USA.

Adjunct Faculty (*International Business*)

RUDOLF GRUENIG, Ph.D (BA), University of Bern, Switzerland.

Adjunct Faculty (*Strategic Management*)

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*)

ALLAN WILLIAM, B.Ed., Univ. of Tasmania; MSc., Ph.D (Organization Development) MITASH Univ., USA.

Adjunct Faculty (*Organization Behavior, Leadership & Business Performance*)

ROBERT S. KIETEL, BA, Univ. of Colorado; Ph.D, De La Salle University, The Philippines.

Adjunct Faculty (*HRM, Leadership*)

Sponsor Participants

Total Contracted Amount (THB) 2,518,950

Executive MBA-BKK Program, May 2008

Duration 1-May-08 - 31-Dec-09

Project Investigator Nicholas J. Dimmitt

Sponsor Professional managers/administrators of private/public sector

Total Contracted Amount (THB) 9,000,000

IEMBA Program Vietnam

Duration 1-Jan-04 - 31-Dec-09

Project Investigator Frederic William Swierczek

Sponsor AIT Operation

Total Contracted Amount (THB) 36,000,000

Part of the ProSPER.NET Joint Project on Integrating Sustainability in Business School Curricula

Duration 1-Nov-08 - 30-Nov-09

Project Investigator Mark Neal

Sponsor Ministry of Environment Japan/UNU-IAS

Total Contracted Amount (THB) 1,683,000

Public Management Executive development Program

Duration 1-May-09 - 30-Sep-09

Project Investigator Sununta Siengthai

Sponsor DRIRD Ministry of Interior Thailand

Total Contracted Amount (THB) 1,421,400

28.8 On-going Grants and Sponsored Research**DBA Program in Bangkok 2006**

Duration 31-Oct-06 - 31-Dec-13

Project Investigators Indra Pandey, Nicholas

Dimmitt, Freidric Swierczek, Rian Beise-zee, Nazrul

Islam, Do Ba Khang, Sundar Venkatesh, Sununta

Siengthai, Lalit Johri

Sponsor Participants

Total Contracted Amount (THB) 15,552,000

DBA Program in Bangkok 2007

Duration 1-Feb-07 - 31-Jan-14

Project Investigator Indra Pandey, Nicholas Dimmitt,

Freidric Swierczek, Rian Beise-zee, Nazrul Islam, Do

Ba Khang, Sundar Venkatesh, Sununta Siengthai,

Lalit Johri

Sponsor Participants

Total Contracted Amount (THB) 19,440,000

DBA Program in Bangkok 2008

Duration 1-Jan-08 - 31-Dec-10

Project Investigator Nicholas Dimmitt, Do Ba Khang,

Sundar Venkatesh, Sununta Siengthai, Nazrul Islam,

Lalit Johri

Sponsor Participants

Total Contracted Amount (THB) 16,848,000

DBA Program in HCMC 2007

Duration 1-Feb-07 - 31-Jan-14

Project Investigator Indra Pandey, Nicholas Dimmitt,

Freidric Swierczek, Rian Beise-zee, Do Ba Khang,

28.7 Grants and Sponsored Research Completed in 2009**Executive MBA Program Bangkok**

Duration 1-Jan-08 - 30-Jun-09

Project Investigators Nicholas Dimmitt, Do Ba Khang, Nazrul Islam

Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Lalit Johri, Illka Kauranen
Sponsor Participants
Total Contracted Amount (THB) 14,000,000

DBA Program in HCMC 2009

Duration 20-Jan-09 - 31-Dec-12
Project Investigator Barbara Igel
Sponsor Professional managers
Total Contracted Amount (THB) 7,425,000

DBA Program in HN 2007

Duration 1-Jul-07 - 30-Jun-10
Project Investigator Indra Pandey, Nicholas Dimmit, Freidric Swirczek, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Illka Kauranen
Sponsor Participants
Total Contracted Amount (THB) 12,250,000

DBA Program in Sri Lanka 2006

Duration 31-Oct-06 - 31-Dec-13
Project Investigator 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 Taiwan 2007

Duration 1-Nov-07 - 31-Dec-10
Project Investigator 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

Executiv MBA program in HRM 2009 intake

Duration 1-Jan-09 - 31-Dec-10
Project Investigator Sununta Siengthai
Sponsor SIDA
Total Contracted Amount (THB) 14,912,000

Executive MBA BGK Program August 09

Duration 1-Aug-09 - 31-Jul-11
Project Investigator Nicholas J Dimmitt
Sponsor Multi donors
Total Contracted Amount (THB) 11,416,000

International Executive MBA for Vietnam for Hanoi #10.1 & 10.2

Duration 1-Aug-09 - 31-Dec-11
Project Investigator Do Ba Khang
Sponsor Multi donors
Total Contracted Amount (THB) 14,875,005

International Executive MBA for Vietnam for HCMC

#6.1HCMC#6.2DN#3VT#2
Duration 1-Aug-09 - 31-Dec-11
Project Investigator Do Ba Khang
Sponsor Multi donors
Total Contracted Amount (THB) 46,627,384

International Executive MBA Vietnam :Hanoi

Duration 1-Aug-08 - 31-Dec-10
Project Investigator Do Ba Khang
Sponsor Multi donors
Total Contracted Amount (THB) 21,250,008

International Executive MBA Vietnam :HCMC, DN, VT

Duration 1-Aug-08 - 31-Dec-10
Project Investigator Do Ba Khang
Sponsor Multi-donors
Total Contracted Amount (THB) 32,075,384

Methodologies and tools for food consumer market research

Duration 1-Jul-09 - 01-Jun-10
Project Investigator Rian Beise Zee
Sponsor Food and Agriculture Organization of United Nations
Total Contracted Amount (THB) 1,382,276

28.9 Publications

Refereed Journals

Anne-Wil Harzing, Joyce Balduenza, Wilhelm Barner-Rasmussen, Cordula Barzantny, Anne Canabal, Anabella Davila, Alvaro Espejo, Rita Ferreira, Axele Giroud, Kathrin Koester, Yung-Kuei Liang, Audra Mockaitis, Michael J. Morley, Barbara Myloni, Joseph O.T. Odusanya, Sharon Leiba O'Sullivan, Ananda Kumar Palaniappan, Paulo Prochno, Srabani Roy Choudhury, Ayse Saka-Helmhout, Sununta Siengthai, Linda Viswat, Ayda Uzuncarsili Soydas, Lena Zander (2009) Rating versus ranking: What is the best way to reduce response and language bias in cross-national research? *International Business Review*, 18 (2009) 417-432.

Badir, Y., Tucci, C., and Buechel, B. 2009. The performance impact of intra-firm organization design on alliance's NPD projects. *Research Policy*, 38, 1350-1364.

Carlos, R. M., & Khang, D. B. (2009). A lifecycle-based success framework for grid-connected biomass energy projects. *Renewable Energy*, 34(5), 1195-1203

Hänninen, S., & Kauranen, I. (2009). Empirical assessment of technology dominance in technology programmes. *International Journal of Technoentrepreneurship*, 2(2), 156-167.

Hoang, D. T., B. Igel and T. Laosirihongthong (2009): Total Quality Management (TQM) Strategy and Organizational characteristics: Evidence from a Recent WTO Member, *TOTAL QUALITY MANAGEMENT & BUSINESS EXCELLENCE JOURNAL*, (accepted for publication)

Jaratin L., Venkatesh, S. and Thumwimon, S.: Determinants of Dividend Payout in Thailand", *UBU Journal*, Volume 11, No.3

Kantabutra, S. and Tang, J.C.S.: "Efficiency Analysis of Public Universities in Thailand", *Journal Tertiary Education and Management*, Volume 16, Issue 1 March 2010 pages 15 – 33.

Khongmalai, O. and Tang, J.C.S: "Empirical Evidence of Corporate Governance in Thai State-owned Enterprises", *Journal of Corporate Governance*, June 2009 (Still in the process.)

Kraus, S., & Kauranen, I. (2009). Strategic management and entrepreneurship: Friends or foes? *International Journal of Business Science and Applied Management*, 4(1), 37-50.

Limpibuntern, T., & Johri, L. M. (2009). Complementary role of organizational learning capability in new service development (NSD) process. *Learning Organization*, 16(4), 326-348.

Meepadung, N., Tang, J. C. S., & Khang, D. B. (2009). IT-based banking services: Evaluating operating and profit efficiency at bank branches. *Journal of High Technology Management Research*, 20(2), 145-152.

- Ritthisoonthorn, P., Ahmed, K. and Donyaprueth, K., "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, forthcoming 2009.
- S. Iamratanakul, R. Shankar, and Y. Badir, 2009. Technology and Innovation Management in the Service Sector, in **INFORMS International Conference on Service Science**, Clear Water Bay, Kowloon, Hong Kong August 6-8.
- Siengthai, S., Zaleska, K.J., and Kantabutra, K. (2009) "Closing the Performance Evaluation Gap in SMEs in Thailand: What Matters?" in *Academy of Taiwan Business Management Review*, Vol .5, No.1, April 2009.
- Supyuenyong, V., Islam, N. and Kulkarni, U.; (2009); Influence of SME Characteristics on Knowledge Management Processes: The Case Study of enterprise Resource Planning Service Providers; *Journal of Enterprise Information Management*; vol. 22, No. 1/2, 2209 pp.361-375
- Vanichchinch, A. and B. Igel (2009): The Impact of Total Quality Management on Supply Chain Management in Thai Automotive, **Industry International Journal of Production Research**, TAYLOR & FRANCIS, (accepted).
- Vanichchinch, A. and B. Igel (2009): Total Quality Management and Supply Chain Management: Similarities and Differences, **The TQM Magazine**, Vol.21, No.3
- Winai Wongsurawat, "[Does Grade Inflation Affect the Credibility of Grades? Evidence from US Law School Admissions](#)", *Education Economics*, 17 (4), December 2009
- Wonglimpiyarat, J. (2009), 'Banking strategies in launching the e-payment innovations', *International Journal of Electronic Business*, Vol. 7(4), pp, 428-443, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'Charting the Innovation Index', *International Journal of Technology, Policy and Management*, Vol. 9(4), pp. 331-341, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'Commercialisation Strategies of Technology: Lessons From Silicon Valley', *Journal of Technology Transfer*, pp. 1-12, Springer Science Business Media, LLC.
- Wonglimpiyarat, J. (2009), 'Entrepreneurial financing for venture and innovation development', *International Journal of Foresight and Innovation Policy - Special Issue*, Vol. 5(4), pp. 234-243, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'Financing innovative businesses through venture capital', *International Journal of Entrepreneurship and Innovation Management - Special Issue*, Vol. 9(4), pp. 380-395, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'Security and Sustainability Strategies in Energy Innovation Systems', *International Journal of Business Continuity and Risk Management*, Vol. 1(1), pp. 78-90, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'Strategies for technology commercialization - Silicon Valley as model of venture capital financing', *International Journal of Technology, Policy and Management*, Vol. 9(3), pp. 222-234, Inderscience Publisher.
- Wonglimpiyarat, J. (2009), 'The influence of capital market laws and Initial Public Offering (IPO) process on venture capital', *European Journal of Operational Research*, Vol. 192(1), pp. 293-301, Elsevier Science.

Refereed Books/Chapters

Andrews, Tim G. and Siengthai, S. (eds.) (2009) *Changing Face of Management in Thailand*, Routledge, U.K.

Siengthai, S.; Decha Dechawatanapaisal; and Natenapha Wailerdsak (2009) "The Future Trends of HRM in Thailand" in Tim Andrews and Sununta Siengthai (eds.) (2009) *The Changing Face Of Management in Thailand*, published by Routledge, U.K.

Wonglimpiyarat, J. (2009), *Innovation Policies and VC Management to Support Entrepreneurial Financing*, in M.V. Bradshaw and P.T. Carrington (Eds.), *Entrepreneurship and its Economic Significance, Behavior and Effects*, New York: Nova Science Publishers, Inc., ISBN: 1606926691: 9781606926697.

Conference Proceedings

Iamratanakul, S. Shankar, R. and Dimmitt, N. (2009). Improving Project Portfolio Management with Strategic Alignment. *Proceedings of Portland International Center on Management of Engineering and Technology 2009 Conference*. Portland, Oregon.

Islam, M.Z. and Siengthai, S. "Factors Affecting Firm Performance in DEPZ, Bangladesh," A paper prepared and presented at the 8th Asian Academy of Management International Conference on "Global Economic Meltdown: Managing change for Sustainability", held in Kuala terenggaun, Malaysia, Dec. 18 – 20, 2009.

Islam, Md. Zohurul and Siengthai, S. (2009) "Quality of work life and organizational performance: Empirical evidence from Dhaka Export Processing Zone". A paper presented at the ILO Conference on Regulating for Decent Work, July 7 – 11, 2009.

S. Iamratanakul, R. Shankar, and Y. Badir, 2009. Technology and Innovation Management in the Service Sector, in **INFORMS International Conference on Service Science**, Clear Water Bay, Kowloon, Hong Kong August 6-8.

Other Publications

Book Review by Venkatesh, S.: Business Analysis and Valuation-IFRS Edition, by Krishna Palpeu, Paul Healy, Victor Bernard, and Erik Peek", International Journal of Accounting, Volume 33, Issue 4.

Wonglimpiyarat, J. (2009), Development of the Venture Capital System for Thailand. In: The National Science Technology and Innovation Policy Office, Ministry of Science and Technology, *Directional Plan to raise the National Capacity in Technology and Innovation Development of the Private Sector*, ISBN 978- 974- 643- 383-9.

28.10 Doctoral Students' Dissertation

International Business

Assessing the Process of Organizational Change in Vietnam Private Enterprises

By Truong Thi Lan Anh
Supervisors: Dr. Sununta Siengthai / Dr. Fredric W. Swierczek

Collaborative Leadership Tasks, Organizational Learning Capability and Organizational Performance in the Context of New Service Development Process of Telecommunication Service Providers in Thailand

By Tharinee Limpibunterng
Supervisor: Prof. Lalit M. Johri

Corporate Governance and Performance of State-Owned Enterprises

By Orapan Khongmalai
Supervisor: Prof. John C S Tang

Efficiency and Service Quality of Public Universities in Thailand

By Saranya Kantabutra
Supervisor: Prof. John C S Tang

Illegal Migrants in Thailand: A Focus on Deportation Effectiveness

By Wittaya Prayongphan
Supervisor: Dr. Nicholas Dimmitt

Tourism Experts' and Residents' Attitudes, Perception and Support for Sustainable Tourism Development: A Case Study of Bangkok, Thailand

By Virut Kitnuntaviwat
Supervisor: Prof. John C. S. Tang

Management of Technology

The Influence of Knowledge Management Practices on Organizational Performance in SMEs: A Case of the Enterprise Application Service Providers in Thailand

By Varintorn Subyuenyong
Supervisor: Prof. Nazrul Islam

The Relationship between Quality Management and Supply Chain Management: An Analysis of the Automotive Industry in Thailand

By Assadej Vanichchinchai
Supervisor: Dr. Barbara Igel

28.11 Masters Students' Theses, Research Studies and Projects

Research Study: Consumers' Perceptions of Internet Banking in Sri Lanka

By E.A.C.P. Karunarathne
Supervisor: Dr. Donyaprueth Krairit

Research Study: Does Internationalization Affect the Quality of Corporate Governance?: A Study of Thai Companies

By Kush Srivastava
Supervisor: Dr. Sundar Venkatesh

Research Study: Do Vertically

Integrated Firms Perform Better?: A Case Study of Textile Sector of Pakistan

By Safia Nosheen
Supervisor: Dr. Sundar Venkatesh

Research Study: Effective Management Approaches for Small and Micro Community Enterprises (SMCEs) in Thailand

By Kamon Ruengdet
Supervisor: Dr. Winai Wongsurawat

Research Study: New Business Opportunities in the Mobile Telecommunication Market of Bangladesh

By Pranay Kumar Das
Supervisor: Prof. Ilkka Kauranen

Research Study: Relevance of MBA for Functional Managers in Information Management

By U.A.A.Saumya Udayangani Amarasinghe
Supervisor: Dr. Donyaprueth Krairit

Research Study: The New Business Models of Social Investment

By Julien Farrugia
Supervisor: Dr. Yuosre Badir

Research Study: The New Business Models of Social Investment

By Magdalena Roberte Angela Thurin
Supervisor: Dr. Mark Neal

Project: A Global Market Potential & Marketing Communication Road Map for a Fuel Cell Based Proprietary Generator Company in Copenhagen

By Saumar Jyoti Deka
Supervisor: Dr. Donyaprueth Krairit

Project: An Analysis of IT Consultancy & Entry Strategy in Norwegian Market: The Case of Start-up Company

By Shristi Shah
Supervisor: Dr. Donyaprueth Krairit

Project: A Management Analysis, Issues and Personal Development in the Investment Divisions of the "Bank of Cyprus"

By Christos Shionis
Supervisor: Dr. Mark Neal

Project: A Report on Solar Energy: Marketing and Financials of a Solar Photovoltaic Power Plant

By Karan Arora
Supervisor: Prof. Ilkka Kauranen

Project: A Retrospective Analysis Around the Closed-Loop Marketing and CRM-System of Five Prior-Merger Projects at a Technology Company

By Patrick Danny Roskam
Supervisor: Dr. Donyaprueth Krairit

Project: A SWAT Analysis of Competitiveness of Heat-Exchangers and Coil Business

By Sanisa Sirivejayan
Supervisor: Prof. John C S Tang

Project: Attracting Investments in a Third World Country: The Case of Ethiopia

By Anais Mangin
Supervisor: Dr. Yuosre Badir

Project: Being a Follower in a FMCG Business: The Strategy of Henkel

By Ludovic De Valon
Supervisor: Dr. Do Ba Khang

Project: Being a Project Management Partner for a Cost Reduction Mission during Engineering and Implementation Phase

By Aldric Paul Henry Luyt
Supervisor: Dr. Donyaprueth Krairit

Project: Designing a Testing Tool for Marketing of the Software Testing Department of Patni Inc.

By A.V.K. Rama Krishna
Supervisor: Prof. Ilkka Kauranen

Project: Developing a Method for Collecting and Analysing Data on Board Composition and Compensation Using a Sample of South East Asian Companies

By Muzaffar Mirzaev
Supervisor: Dr. Sundar Venkatesh

Project: Facilitating and Implementing B2B Software Services in Consumer Goods Companies: A Case of Cognizant Technology Solutions Limited

By Ajay Srivastava
Supervisor: Dr. Rian Beise-Zee

Project: Lead Generation and Nurturing in the Public Sector

By Piyush Kumar
Supervisor: Dr. Rian Beise-Zee

Project: Market Research and Internationalization of Intelligent Recruitment Software

By Jyotshna Malla
Supervisor: Dr. Donyaprueth Krairit

Project: Outcome Evaluation of an ICT Development Project: An Empirical Investigation of the Ministry of Industry, Thailand

By Saisiri Suwunnasing
Supervisor: Dr. Sununta Siengthai

Project: Relationship Marketing in Banking Industry: A Case Study of ANZ Royal Bank (Cambodia) Ltd.

By Long Borareaksmeay
Supervisor: Dr. Rian Beise-Zee

Project: The Marketing Mix and Communication in the Pharmaceutical Industry: A Case Study of Medico Trading(s) PTE., Ltd., Cambodia

By Hay Daranilene
Supervisor: Dr. Nicholas J. Dimmitt

International Business

Research Study: Clean Development Mechanism in Thailand: Environment Analyses and Company Cases of an Emerging Industry

By Vincent Cornu
Supervisor: Prof. Ilkka Kauranen

Research Study: Free Trade Agreements: Opportunities and Challenges-India-Thailand

By Deepesh Kumar Jain
Supervisor: Prof. John C.S. Tang

Research Study: The Study of Organizational Citizenship Behavior (OCB) and Job Satisfaction in Thai Retail Industry

By Wannee Saepung
Supervisor: Dr. Sununta Siengthai

Project: The Impact of Sustainable Development and Fair Trade on Business Environment: A Marketing Approach

By Avinzac Lionel
Supervisor: Prof. Ilkka Kauranen

International Business – Management of Technology

Modifying the Organizational Structure and Operational Aspects of the Maintenance Department at the Ha Tien 1 Cement Joint Stock Company

By Tran Quang Huy

Supervisor: Dr. Winai Wongsurawat

Project: A Brand Strategy for the Peace Tour Companies in Vietnam Tourism

By Dang Vu Tri Dung
Supervisor: Dr. Fredric W. Swierczek

Project: A Business Model of Dong Nai Radio & Television Station

By Truong Thi Hoang Mai
Supervisor: Dr. Do Ba Khang

Project: A Business Strategy for GSK Vietnam

By Pham Thi Duyen
Supervisor: Dr. Fredric W. Swierczek

Project: A CDMA to GSM Technology Migration Project at the HT Mobile Communications Center

By Pham Thi Kieu Van
Supervisor: Dr. Do Ba Khang

Project: A Comparative Study of a Company's Financial Investment Activities in HSX's Listed Companies - Statistical Financial Figure Perspective

By Nguyen Anh Trung
Supervisor: Dr. Sundar Venkatesh

Project: Acquiring Technological Capabilities in Wastewater Treatment Services for Sustainable Development and Developing Different Applications in Environmental Services

By Tran Quang Thoa
Supervisor: Prof. Nazrul Islam

Project: A Cross-Cultural Study of Chinese Managers and Vietnamese Professionals

By Tran Thi To Uyen
Supervisor: Dr. Fredric W. Swierczek

Project: A Development Project for a Retail Solution Supply Service

By Duong Thi Phuong Lien
Supervisor: Dr. Fredric W. Swierczek

Project: A Development Strategy for the Mekong Housing Bank

By Nguyen Hong Quan
Supervisor: Dr. Fredric W. Swierczek

Project: A Differentiation Strategy for EVN Mobile

By Tran Anh Tuan

Supervisor: Dr. Fredric W. Swierczek

Project: A Marketing Development Plan for a Product and Service Business of Siemens Water Technologies in Thailand

By Thipaporn Phetchai

Supervisor: Dr. Nicholas J. Dimmitt

Project: Analysis and Assessment of the Existing Human Resource Training and Development Activity of Hatien 1 Cement J.S. Company

Le Canh Phuc

Dr. Sununta Siengthai

Project: Anchor Brand Audit and Potential for Future Growth in North Vietnam

By Vu Thi Tuyen

Supervisor: Dr. Rian Beise-Zee

Project: An Expansion Strategy for Dong Nai Port Joint-Stock Company

By Nguyen Ngoc Tuan

Supervisor: Dr. Fredric W. Swierczek

Project: A Sales and Marketing Strategy for Tan Hiep Phat Group, Vietnam

By Tran Van Trung

Supervisor: Dr. Fredric W. Swierczek

Project: A Strategic Development Model for the Embedded System Division of Global Cybersoft (VN), JSC

By Ho Nguyen Dat

Supervisor: Dr. Winai Wongsurawat

Project: A Strategy for the Future of EVNTELECOM

By Dang Tung Son

Supervisor: Dr. Fredric W. Swierczek

Project: Applying FMCG Distribution Model into OTC Distribution System: A Case of Vien Dong Pharmaceutical Group

By Truong Quang Ai

Supervisor: Dr. Mark Neal

Project: A Sales Management Strategy for Osram Vietnam

By Nguyen Thi Dieu Dao

Supervisor: Dr. Fredric W. Swierczek

Project: Assessment of the First Nuclear Power Plant Project in Vietnam

By Nguyen Thi Van Ly

Supervisor: Dr. Fredric W. Swierczek

Project: Attracting Foreign Direct Investment to Hau Giang Province, Vietnam

Le Diem Trang

Dr. Do Ba Khang

Project: Brand Building in Vietnamese State-Owned Companies: Problems and Solutions

By Ngo Phuong Lan

Supervisor: Dr. Winai Wongsurawat

Project: Branding Strategy for Asia Brewery Joint Stock Company

By Le Van Huy

Supervisor: Dr. Rian Beise-Zee

Project: Building Human Resource for the Environmental Consultancy Department of the Sonadezi Service Joint-Stock Company

By Nguyen Ngoc Dang Khoa

Supervisor: Dr. Sununta Siengthai

Project: Business Plan: Growing Jatropha Trees for Producing and Commercializing Biodiesel Made from Jatropha Seeds in Vietnam

By Nguyen Dai My

Supervisor: Dr. Winai Wongsurawat

Project: Business Strategy for the Development of Vietnam Cement Corporation

By Nguyen Huu Quang

Supervisor: Dr. Fredric W. Swierczek

Project: Capacity Analysis at the Interventional Cardiology Department, Chao Ray Hospital

By Vo Thanh Nhan

Supervisor: Dr. Do Ba Khang

Project: Cash Flow Management Solution for Ha Tien 1 Cement Joint Stock Company

By Vien Vo Thanh Binh

Supervisor: Dr. Sundar Venkatesh

Project: Communication of Bvlgari Brand in Vietnam Market

By Bui Thi Anh Thu

Supervisor: Dr. Nicholas J. Dimmitt

Project: Competitive Strategy of PTSC Marine's Fleet

By Vu Van Tuat

Supervisor: Dr. Fredric W. Swierczek

Project: Competitive Strategy to

Enhance An Binh Securities Company (ABS)

By Trinh Mai Huong

Supervisor: Dr. Fredric W. Swierczek

Project: Corporate Communication – from Communication Facilitator to Business Enabler: A Case Study on ITC Limited, India

By Riddhi Ghosh

Supervisor: Dr. Nicholas J. Dimmitt

Project: Cost Analysis for Cement Production in Ha Tien 1

By Huynh Cao Toan

Supervisor: Dr. Do Ba Khang

Project: Cross-Cultural Communication Management in a Multi-National Firm-Conflicts and Resolution: A Case Study of the Next Generation

By Ha Thi Hang

Supervisor: Dr. Nicholas J. Dimmitt

Project: Customer Satisfaction in a Construction Consultancy During a High Growth Period: The Case of APA VE Vietnam

By Nguyen Phuoc Thi Tuy Ha

Supervisor: Dr. Rian Beise-Zee

Project: Customer's Buying Behavior: A Case Study of Medical Equipment Products in Vietnam

By Do Thi Thanh Thuy

Supervisor: Dr. Rian Beise-Zee

Project: DAP Fertilizer Production Project by PVFCCO in Morocco

By Le Hoang Anh

Supervisor: Dr. Do Ba Khang

Project: Dealing with Employee Turnover: A Case Study of the Research and Development Center for Petroleum Safety and Environment

By Do Son Huong

Supervisor: Dr. Sununta Siengthai

Project: Designing a Business Model for a Trading and Distributing Company: The Case of SCT Vietnam, HCMC, Vietnam

By Tran Thuy Oanh

Supervisor: Dr. Winai Wongsurawat

Project: Developing "A Car Care" Business Model: A Case Study of

ANHMINH Auto Service Center

By Nguyen Thi Thanh Huyen
Supervisor: Dr. Rian Beise-Zee

Project: Developing a Marketing Strategy for the New Training Programs at Dongnai Pedagogic College

By Nguyen Van Nam
Supervisor: Dr. Fredric W. Swierczek

Project: Developing a New Industrial Zone in Dongnai Province: A Case Study of Long Thanh Share Holding Company

By Tran Thanh Hai
Supervisor: Dr. Winai Wongsurawat

Project: Developing Competitiveness and a Strategic Plan for Expansion in the Multi-National DPS Company

By Tran Nguyen Ngoc Hong Tam
Supervisor: Dr. Mark Neal

Project: Developing Customer Feedback at Dong Nam College of Economics and Technology (DNC)

By Huynh Van Trong
Supervisor: Dr. Fredric W. Swierczek

Project: Developing Environmental Protection Services at the SDV Shareholding Company

By Luong Minh Hien
Supervisor: Dr. Fredric W. Swierczek

Project: Development Strategy for Baoviet Securities Company

By Hoang Cong Tuan
Supervisor: Dr. Sundar Venkatesh

Project: Economy Downturns and Middle Level Management's Responsiveness in Magnecomp Precision Technology PCL

By Dharma Santhosh Kumar
Supervisor: Dr. Nicholas J. Dimmitt

Project: Effective Marketing Communications to Attract More Tourists to Vietnam: The Case of Vietravel Company - Vietnam

By Dang Thi Diem Trang
Supervisor: Dr. Winai Wongsurawat

Project: Employee Loyalty Retention and Motivation: A Case of Bien Hoa Sugar Joint Stock Company

By Trinh Thi Kim Thuan
Supervisor: Dr. Sununta Siengthai

Project: Employees Satisfaction and Motivation in Dotranco, Vietnam

By Nguyen Huu Hanh
Supervisor: Dr. Sununta Siengthai

Project: Engaging and Retaining Employees: The Case of Vietnammobile, Hanoi

By Nguyen Thi Duc Van
Supervisor: Dr. Willi Zimmermann

Project: Enhancing the Competitiveness in HR Management at the Success Investment Consultant Construction Company (SICC)

By Nguyen Van Hoa
Supervisor: Dr. Sununta Siengthai

Project: Enhancing the Competitive Performance of VDC

By Dang Thi Thuy Binh
Supervisor: Dr. Fredric W. Swierczek

Project: Enhancing the International Cooperation in Educational Development: A Case Study of Seameo Retrac

By Le Thi Hang
Supervisor: Dr. Nicholas J. Dimmitt

Project: Enhancing the Management of Working Capital in Dongnai Construction Consulting Joint-Stock Company

By Tran Mai Huy
Supervisor: Dr. Sundar Venkatesh

Project: Enhancing Work Motivation in a Trading Organization in HCMC, Vietnam: The Representative Office of Connell Bros. Company, Ltd. (CBCVN)

By Nguyen Duy Kim Hang
Supervisor: Dr. Sununta Siengthai

Project: Exploring Customer Satisfaction: A Case Study of Ho Chi Minh City Power Company

By Nguyen Phu Vinh
Supervisor: Dr. Nicholas J. Dimmitt

Project: How the Medical and Regulatory Affairs Department can Help BSP Vietnam with the 30+ Project?

By Trinh Thu Van
Supervisor: Dr. Sundar Venkatesh

Project: How to Recruit and Retain

the Best Employees for Dongnai Pedagogic College

By Vo Thi Mong Thu
Supervisor: Dr. Sununta Siengthai

Project: How to Retain and Motivate Talents?: A Case Study of ELCOM

By Le Thi Thu Huong
Supervisor: Dr. Fredric W. Swierczek

Project: How to Retain and Recruit the Best Employees for Dongnai Secondary Vocational School of Economics

By Nguyen Anh Dung
Supervisor: Dr. Sununta Siengthai

Project: Human Resource Development for Productivity Improvement in the Power Transmission Company No.3

By Ho Van Huong
Supervisor: Dr. Sununta Siengthai

Project: Human Resource Management as a Strategic Success Factor: A Case Study of Amata Vietnam

By Nguyen Van Tuan
Supervisor: Dr. Sununta Siengthai

Project: Human Resource Management in Nexia Acpa

By Le Minh Thang
Supervisor: Dr. Fredric W. Swierczek

Project: Human Resource Problems in Dong Nai Industrial Zones

By Nguyen Tri Phuong
Supervisor: Dr. Donyaprueth Krairit

Project: Human Resources Development for Electricity of Vietnam (EVN) in the Transformation Context

By Nguyen Van Binh
Supervisor: Dr. Fredric W. Swierczek

Project: Human Resources Planning in the Shipping Industry

By Vincent Albuquerque
Supervisor: Dr. Sundar Venkatesh

Project: Human Resources Motivation and Management System Development

By Nguyen Huu Minh
Supervisor: Dr. Nicholas J. Dimmitt

Project: Human Resource Strategy for the Cement Production

*Department of the Ha Tien 1 Cement
Joint Stock Company*

By Nguyen Duy Khang
Supervisor: Dr. Sununta Siengthai

*Project: Human Resource Strategy of
Local Incorporation in Standard
Chartered Bank*

By Banh Thu Nguyet
Supervisor: Dr. Sununta Siengthai

*Project: Implementing an Enterprise
Resource Planning (ERP) System to
Integrate Data Sources and Process
at the Hunter Douglas Vietnam*

By Nguyen Minh Tuan
Supervisor: Dr. Winai Wongsurawat

*Project: Implementing the Balanced
Scorecard for Improving Performance
at the Saigon Paper Corporation*

By Le Hoanh Cu
Supervisor: Dr. Fredric W. Swierczek

*Project: Improvement and
Development of Employees for Firm
Business Strategy for Sonadezi Bien
Hoa - The Parent Company Situation
and Solution*

By Nguyen Thi Hong Ly
Supervisor: Dr. Sununta Siengthai

*Project: Improving Competitiveness
in Strongman Co., Ltd. and Always
Co., Ltd.*

By Hsueh Yung Chih
Supervisor: Dr. Fredric W. Swierczek

*Project: Improving Competitiveness
of Xuan Viet Company in the Tea
Export Section*

By Cao Tuan Vu
Supervisor: Prof. John C S Tang

*Project: Improving Competitiveness
through Effective Human Resource
Management Practices at
IMEXPHARM*

By Nguyen Thi Thu Hong
Supervisor: Dr. Sununta Siengthai

*Project: Improving Customer Service
to Maintain the Leading Position of
Hongkong Land (Hanoi)*

By Cao Thi Ly Anh
Supervisor: Dr. Winai Wongsurawat

*Project: Improving Ericsson's IT
System*

By Pham Hai Trieu
Supervisor: Dr. Yuosre Badir

*Project: Improving Foreign Direct
Investments (FDI) in Tra Vinh
Province*

By Nguyen Ngoc Tu
Supervisor: Prof. John C S Tang

*Project: Improving Ha Tien 1
Cement Joint Stock Company's
Working Conditions for Preventive
High Turnover of Finance and
Accounting Department's Staff*

By Tran Thi Ly
Supervisor: Dr. Mark Neal

*Project: Improving the Human
Resource Management at Sonadezi
College*

Tran Thi Hai Anh
Dr. Sununta Siengthai

*Project: Improving Inventory
Management at Ho Chi Minh City
Power Company*

By Nguyen Dang Viet Cuong
Supervisors: Dr. Ravi Shankar/Dr. Do Ba Khang

*Project: Improving Production
Planning and Monitoring Objectives
and Performance by Using Enterprise
Resource Planning in Scancom
Vietnam Ltd.*

By Ho Hoang Thuy Van
Supervisor: Dr. Barbara Igel

*Project: Improving Project
Performance for Corporate
Development of Bien Hoa Industrial
Zone (Sonadezi)*

By Vo Huynh Trung Hung
Supervisor: Dr. Do Ba Khang

*Project: Improving Quality of
Finished Products: A Case Study of
Vinh Tan Quarry Department in Ha
Tien1 Cement Joint Stock Company*

By Mai Thanh Son
Supervisor: Dr. Barbara Igel

*Project: Improving Sales and Order
Process of Alstom Power Service in
Vietnam*

By Pham Hung
Supervisor: Prof. John C S Tang

*Project: Improving Service Marketing
of Sales and Marketing Enterprise in
Ha Tien 1 Cement Joint Stock
Company*

By Le Anh Duc

Supervisor: Dr. Rian Beise-Zee

*Project: Improving the Capability of
the Laboratory and Quality Control
Department to Enhance Product
Quality at the Ha Tien 1 Cement Joint
Stock Company*

By Hoang Thi Minh Thuan
Supervisor: Dr. Winai Wongsurawat

*Project: Improving the Center of
Information Technology and
Languages at Sonadezi College*

By Nguyen Thi Xuan Hanh
Supervisor: Dr. Sununta Siengthai

*Project: Improving the
Competitiveness of Lac Hong
University*

By Nguyen Trung Duong
Supervisor: Dr. Nicholas J. Dimmitt

*Project: Improving the Distribution
Network of Construction Materials at
Siam Cement Trading Company
Limited in Vietnam*

By Pham My Que
Supervisor: Dr. Huynh Trung Luong

*Project: Improving the Effectiveness
of Cost Management and Production
Capacity in a Furniture Manufacturer
(Hoa Binh Company)*

By Tran Thi Ngoc Anh Tu
Supervisor: Dr. Sundar Venkatesh

*Project: Improving the Effectiveness
of Sales Management in an
International Construction Material
Company*

By Phan Thanh Duc
Supervisor: Dr. Fredric W. Swierczek

*Project: Improving the Effectiveness
of the Marketing Department: A
Case Study of NBB Investment Joint
Stock Company*

By Tran Quang Trinh
Supervisor: Dr. Fredric W. Swierczek

*Project: Improving the Effectiveness
of the Production Department: A
Case Study of Viet Phu Hung
Manufacturing and Trading
Corporation*

By Nguyen The Hoan
Supervisor: Dr. Winai Wongsurawat

*Project: Improving the Efficient Port
Operations in Dong Nai Port Joint-*

Stock Co.

By Dinh Cuong Lan
Supervisor: Dr. Donyaprueth Krairit

Project: Improving the Healthcare Technology Management System in Vietnam

By Nguyen Tu Hieu
Supervisor: Dr. Fredric W. Swierczek

Project: Improving the Official Distribution System of Holcim Vietnam

By Do Hanh Phuc
Supervisor: Dr. Rian Beise-Zee

Project: Improving the Operation and Service of the Logistics and Purchasing Department of the Ha Tien 1 Cement Joint Stock Company

By Nguyen Truong Thuy Linh
Supervisor: Dr. Winai Wongsurawat

Project: Improving the Procurement and Tender Processes: The Case Study of Conson Joint Operating Company, Vietnam

By Dinh Dang Son
Supervisor: Dr. Winai Wongsurawat

Project: Improving the Productivity of the Production Department at Hatay Brewery Limited

By Doan Thi Thu Hang
Supervisors: Dr. Ravi Shankar/Dr. Do Ba Khang

Project: Improving the Project Supervision Department of Ha Tien Cement Joint Stock Company

By Tu Tuyen Pham
Supervisor: Dr. Donyaprueth Krairit

Project: Improving the Purchasing Process at Ha Tien 1 Cement Joint Stock Company

By Nguyen Van Chang
Supervisor: Dr. Mark Neal

Project: Improving the Retention System in Hugamex Company, Ho Chi Minh City

By Tran Thien An Hoa
Supervisor: Dr. Sununta Siengthai

Project: Increasing Employee Satisfaction at Seabank

By Tran Thi Thuy Chi
Supervisor: Dr. Fredric W. Swierczek

Project: Intervention Strategy Development for a Non-Profit

Organization: The Case of ANESVAD-Vietnam

By Tran Dinh Than
Supervisor: Dr. Do Ba Khang

Project: Long-Term Human Resource Development in CTC Company

By Hoang Thi Tu Anh
Supervisor: Dr. Fredric W. Swierczek

Project: Management Control System of Thailand Subsidiary - THAIGIA

By Keng Hao Hsu
Supervisor: Dr. Sundar Venkatesh

Project: Managing an Offshore Outsourcing Company

By Mai Xuan Hong
Supervisor: Dr. Fredric W. Swierczek

Project: Manpower Development for the First Nuclear Power Plant in Vietnam

By Pham Vu Toan
Supervisor: Dr. Fredric W. Swierczek

Project: Organizational Health Improvement for Rich Field to Remain the Number one Distributor in Vietnam

By Cao Khai Tam
Supervisor: Dr. Sununta Siengthai

Project: Operation Management and Competitiveness: An Analysis of the Ho Chi Minh Infrastructure Company

By Khuong Hoang Nguyen
Supervisor: Dr. Barbara Igel

Project: Performance Management for HR Operation: A Case Study of Qunimex

By Le Minh Phuong
Supervisor: Dr. Fredric W. Swierczek

Project: Performance Management in the Organization of Scancom Vietnam

By Nguyen Trung Nghia
Supervisor: Dr. Sununta Siengthai

Project: Performance Management Practices and Employee Retention at Archetype: A Strategic Perspective

By Pham Kim Em
Supervisor: Dr. Sununta Siengthai

Project: Problem Analysis of the Office Building Project at the Ho Chi Minh City Power Company

By Nguyen Minh Tung
Supervisor: Dr. Do Ba Khang

Project: Procurement Problem Analysis and Action Plan at UNDP Vietnam

By Tran Thi Hong
Supervisor: Dr. Do Ba Khang

Project: Project Cost Overrun at Ha Tien 1 Cement Joint Stock Company

By Vu Thi Phuong Thuy
Supervisor: Dr. Do Ba Khang

Project: Project Management Control of Johnson & Johnson (Thailand) Engineering

By Kuntorn Chaininwong
Supervisor: Dr. Nicholas J. Dimmitt

Project: Project Management in Ha Tien 1 Cement Joint Stock Company

By Nguyen Quoc Thang
Supervisor: Dr. Do Ba Khang

Project: Project Problems in Waste Water Treatment Plant Construction at a Water Environmental Improvement Project, Ho Chi Minh City

By Le Thanh Hao
Supervisor: Dr. Do Ba Khang

Project: Quality Improvement of Retail Banking Service: A Case Study of the Bank for Investment and Development of Vietnam

By Nguyen Thanh Tung
Supervisor: Dr. Do Ba Khang

Project: Recruiting and Retaining Key Staff at the Maidong Mechanical Company

By Vu Thuy Linh
Supervisor: Dr. Fredric W. Swierczek

Project: Reorganization and a New Business Model for Bangkok Fastening Company Limited

By Sutep Kongtoranin
Supervisor: Dr. Nicholas J. Dimmitt

Project: Reorganizing Sonadezi Construction Company

By Tran Anh Dung
Supervisor: Dr. Fredric W. Swierczek

Project: Restructuring the Construction Teams of the Dongnai Civil-Industrial Construction Joint-Stock Company No. 1

By Bi Long Son
Supervisor: Dr. Sununta Siengthai

Project: Retaining and Motivating Talents at the HiPT Group

By Pham Thi Thanh Thuy
Supervisor: Dr. Fredric W. Swierczek

Project: Retention Issues at LSPACK Company, Ltd.

By Do Thi Khac Binh
Supervisor: Dr. Sununta Siengthai

Project: Retention Issues at Plan in Vietnam

By Nguyen Hoang Minh
Supervisor: Dr. Fredric W. Swierczek

Project: Service Development in the Pink Dream Children's House

By Nguyen Viet Dai
Supervisor: Dr. Fredric W. Swierczek

Project: Service Operations Management at the Niit Binh Thanh Center

By Tran Thi Minh Huong
Supervisor: Dr. Sununta Siengthai

Project: Standardizing the Management Accounting System in Ha Tien 1 Cement Joint Stock Company

By Vy Thuy Van
Supervisor: Dr. Sundar Venkatesh

Project: Strategic Human Resources Management for Competitiveness of Bienhoa Industrial Zone (Sonadezi)

By Nguyen Long Bon
Supervisor: Dr. Sununta Siengthai

Project: Strategic Management for the Netherlands Red Cross in Vietnam

By Tran Tu Anh
Supervisor: Dr. Do Ba Khang

Project: Strategy Development of an Advanced Industry and Education

Equipment Company

By Nguyen Phu An
Supervisor: Dr. Fredric W. Swierczek

Project: Strengthening Governance in a World Bank-Funded Road Network Improvement and Third Rural Transport Projects in Vietnam

By Nguyen Bich Thuy
Supervisor: Dr. Do Ba Khang

Project: Sustaining a Performance Culture at Holcim, Vietnam

By Cao Thi Anh Hoa
Supervisor: Dr. Fredric W. Swierczek

Project: Talent Management - Designing & Implementing: A Case Study of PetroVietnam Exploration Production Corporation (PVEP)

By Nguyen Kien
Supervisor: Dr. Sununta Siengthai

Project: The Influence of Buying Center Patterns on the Procurement of Data Communication Services by Government Agencies

By Areewan Boonglam
Supervisor: Dr. Rian Beise-Zee

Project: The Management and Implementation of O.D.A. Projects Financed by WB & AFD at the Electricity of Vietnam

By Nguyen Thi Thuy Hoa
Supervisor: Dr. Do Ba Khang

Project: Training and Development in Ho Chi Minh City Power Company: Electricity of Vietnam

By Ngo Quang Phuoc
Supervisor: Dr. Sununta Siengthai

Project: World Bank-Funded Projects in the Health Sector of Vietnam: Performance, Outstanding Problems, and Recommendations for Improvement

By Nguyen Quynh Nga
Supervisor: Dr. Do Ba Khang

Management of Technology

Digital Divide: The Case of Internet Usage in Thailand

By Thitiya Kiatrabilie
Supervisor: Dr. Donyaprueth Krairit

Research Study: Export Credit Agency in the Market for Lemons: The Case of Export-Import Bank of Thailand

By Pachaneeya Chongsatja
Supervisor: Dr. Sundar Venkatesh

Research Study: Managing Unprofitable Customers: A Cross-Cultural Study of Various Disengagement Options

By Amin Nazifi
Supervisor: Dr. Rian Beise-Zee

Project: Excel-Based Program for Portfolio Optimization: A Pedagogical Tool

By Chatchai Limsangkomlert
Supervisor: Dr. Sundar Venkatesh

Project: Motivational Factors Among Thai Employees in Service Industries

By Ruchika Nalinvilawan
Supervisor: Dr. Winai Wongsurawat

Project: Strategic Opportunities for New Businesses in the Mobile Telephone Market of India

By Bandita Deka
Supervisor: Prof. Ilkka Kauranen

Project: The Impact of the Institute of Deposit Protection Act to the Net Assets Value of Banks: The Case Study of Bangkok Bank

By Ketwadee Bannakom
Supervisor: Dr. Winai Wongsurawat

Chapter 29: AIT EXTENSION

29.1 Introduction

AIT Extension is responsible for non-degree programs at AIT. As the continuing professional development and short-course training arm of the institute, we identify and respond to opportunities in the region for continuing professional education, short-course training and consultancy services, and in this way contribute to the realization of AIT's mission to develop highly qualified and committed 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

29.2 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 qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy.

29.3 Unit Governance



29.4 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
- Information and Communication Technologies
- Information and Communication Management
- Infrastructure Development and Public Utility Management

Most international training courses usually last from one to three weeks.

Customized Courses

AIT Extension specializes in designing, developing and implementing short courses to the specifications of 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.

29.5 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.

29.6 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.

29.7 Grants and Sponsored Trainings Completed in 2009

10th Fredskorpset Preparatory Course in Asia

Duration 1-Oct-08 - 18-Jan-09
Project Investigator Reynaldo Calabdan, Warindhorn Wachirasiri
Sponsor Fredskorpset, Norway
Total Contracted Amount (THB) 2,154,524

11th Fredskorpset Preparatory Course in Asia

Duration 23-Mar-09 - 30-Sep-09
Project Investigator Reynaldo Calabdan
Sponsor Fredskorpset, Norway
Total Contracted Amount (THB) 1,681,086

2nd Certificate Course in Management Consulting Essentials

Duration 19-Jan-09 - 30-May-09
Project Investigator Voravate Chonlasin
Sponsor CMCE Participants
Total Contracted Amount (THB) 1,113,875

Advanced Strategies in Public Procurement

Duration 9-Mar-09 - 30-Sep-09
Project Investigator Upul Kaluhetti Bramahnage
Sponsor SHEP Afghanistan
Total Contracted Amount (THB) 691,200

AIT-NCED Institutional AIT-RFLDC First regional exposure visit program on Agribusiness development and management

Duration 5-Nov-08 - 26-Aug-09
Project Investigator Mr Wichit Silpamaneephan
Sponsor GOB DANIDA & Indoneasia Govt
Total Contracted Amount (THB) 1,855,498

Arbitration Adjudication and Contract Management

Duration 1-Dec-08 - 30-Apr-09
Project Investigator Voravate Chonlasin
Sponsor NECORD
Total Contracted Amount (THB) 2,073,093

Central Bank Regulation and Supervision

Duration 30-Mar-09 - 02-Jul-09
Project Investigator Upul Kaluhetti Bramahnage
Sponsor Nepal Rastra Bank
Total Contracted Amount (THB) 714,000

Conflict Resolution and Peace Building

Duration 6-Jul-09 - 31-Oct-09
Project Investigator Bahul Raj Shrestha
Sponsor MOPR Nepal
Total Contracted Amount (THB) 452,250

Construction Management

Duration 17-Aug-09 - 03-Dec-09
 Project Investigator Wichit Silpamaneephan
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 2,104,344

Construction Management using IT

Duration 1-Dec-08 - 31-Mar-09
 Project Investigator Ms Thaniya Jirasathitpornpong
 Sponsor LGED Bangladesh
 Total Contracted Amount (THB) 829,480

Costing in an Electric Utility

Duration 27-Apr-09 - 30-Jul-09
 Project Investigator Rowena C Alcoba
 Sponsor Nepal Electricity Authority, Nepal
 Total Contracted Amount (THB) 726,600

Course on project Accounting and the Development of School and Provincial Accounting

Duration 27-Sep-08 - 31-Jan-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor SEMPII/Sri Lanka
 Total Contracted Amount (THB) 1,060,620

CSR Asia Summit 2008

Duration 2-Nov-08 - 04-Feb-09
 Project Investigator Mr Voravate
 Sponsor CSR Asia Participants & Sponsors
 Total Contracted Amount (THB) 1,718,550

Design and development of Instruction materials using Desktop and Multimedia tools

Duration 13-Jul-09 - 30-Dec-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor SIDA/SAREC
 Total Contracted Amount (THB) 245,391

Education Policy Planning and Implementation

Duration 16-Feb-09 - 29-May-09
 Project Investigator Kanlaya Muangsan
 Sponsor National Education Commission Sri Lanka
 Total Contracted Amount (THB) 306,000

Education Strategic planning

Duration 24-Nov-08 - 31-Jan-09
 Project Investigator Mr Upul Kaluhetti Brahmanage
 Sponsor MOE Sri Lanka
 Total Contracted Amount (THB) 1,872,500

Effective educational Management and Leadership

Duration 29-Jun-09 - 01-Oct-09
 Project Investigator Warindhorn Srina
 Sponsor NCED, Nepal
 Total Contracted Amount (THB) 477,360

Effective implementation of e Governance

Duration 2-Mar-09 - 06-Nov-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor Government of India
 Total Contracted Amount (THB) 608,100

Effective implementation of programs for NTC

Duration 26-Jul-09 - 04-Aug-09
 Project Investigator Rowena C Alcoba
 Sponsor NTC
 Total Contracted Amount (THB) 602,000

Effective measures for Energy Conservation

Duration 24-Aug-09 - 30-Nov-09
 Project Investigator Worawan Sumroetrum
 Sponsor AOTS EBARA
 Total Contracted Amount (THB) 321,600

Effective Regulation of Infrastructure Utilities

Duration 20-Jul-09 - 29-Oct-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor Nigerean Electricity Regulatory Commission
 Total Contracted Amount (THB) 962,000

Enabling Effective District Leadership for Reproductive health in Pakistan

Duration 19-Jul-09 - 23-Oct-09
 Project Investigator Worawan Sumroetrum
 Sponsor LEAD Pakistan
 Total Contracted Amount (THB) 1,205,341

Facilitation of ICT applications in Computer Learning centers

Duration 3-Aug-09 - 12-Nov-09
 Project Investigator Reynaldo, Warindhorn
 Sponsor SEMP Sri Lanka
 Total Contracted Amount (THB) 1,802,340

Facilitation of School based assesment Implementation

Duration 20-Jul-09 - 29-Oct-09
 Project Investigator Kanlaya Muangsan
 Sponsor SEMP Sri Lanka
 Total Contracted Amount (THB) 1,738,800

Finance and Performance Management

Duration 9-Mar-09 - 18-Jun-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor SHEP Afgan, Govt of Sri Lanka, Bdes, and Nepal
 Total Contracted Amount (THB) 1,275,000

Finance and Performance Management Batch II

Duration 26-Jul-09 - 04-Aug-09
 Project Investigator Rowena C Alcoba
 Sponsor TTT
 Total Contracted Amount (THB) 405,600

Financial Management Accounting and Audit

Duration 7-Sep-09 - 17-Dec-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor MOE Sri Lanka
 Total Contracted Amount (THB) 1,267,200

Financial Management Auditing and Accounting in Central Bank

Duration 25-May-09 - 25-Aug-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor Nepal Rastra Bank
 Total Contracted Amount (THB) 714,000

Financial management Batch I

Duration 15-Jun-09 - 21-Sep-09
 Project Investigator Phyu sin
 Sponsor TTT
 Total Contracted Amount (THB) 405,600

Financial Management Planning and Projection

Duration 15-Jun-09 - 24-Sep-09
 Project Investigator Phyu sin
 Sponsor Government of Bangladesh
 Total Contracted Amount (THB) 984,600

Financial Management, Accounting, Planning and Projections

Duration 26-Oct-09 - 04-Feb-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor Govt of Sri Lanka
 Total Contracted Amount (THB) 720,200

General / Office Management Skills using IT Applications

Duration 30-Aug-09 - 11-Dec-09
 Project Investigator August S Prajogo
 Sponsor Multi donors
 Total Contracted Amount (THB) 478,750

General Banking and Management of Central Banks

Duration 8-Jun-09 - 10-Sep-09
 Project Investigator Phyu sin
 Sponsor Nepal Rastra Bank
 Total Contracted Amount (THB) 743,400

Geo Technical and Landslide Investigation for Highway Projects

Duration 30-Mar-09 - 07-Sep-09
 Project Investigator Wichit Silpamaneephan
 Sponsor Department of Road Nepal
 Total Contracted Amount (THB) 988,500

Hospital Management Tertiary care

Duration 11-May-09 - 30-Sep-09
 Project Investigator Voravate Chonlasin
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 1,081,500

Human Resources Management

Duration 11-May-09 - 13-Aug-09
 Project Investigator Phu Sin
 Sponsor Nepal Rastra Bank
 Total Contracted Amount (THB) 775,600

ICT Applications in Schools and Community

Duration 17-Aug-09 - 12-Nov-09
 Project Investigator Reynaldo Calabdan, Warindhorn Srina
 Sponsor SEMP Sri Lanka
 Total Contracted Amount (THB) 1,802,340

ICT Applications in Training Center

Duration 19-Jan-09 - 31-Mar-09
 Project Investigator Augus S Prajogo
 Sponsor NCED
 Total Contracted Amount (THB) 850,612

Implementing Selective ERP Applications and Management

Duration 1-Mar-09 - 30-Sep-09
 Project Investigator Augus S Prajogo
 Sponsor Bangladesh Central Bank
 Total Contracted Amount (THB) 973,500

In Country Training: Seminar on Leadership and Work Ethics

Duration 3-Mar-09 - 04-Mar-09
 Project Investigator Bahul Raj Shrestha
 Sponsor Government of Maldives
 Total Contracted Amount (THB) 272,000

Irrigation System Management

Duration 25-May-09 - 03-Sep-09
 Project Investigator Wichit Silpamaneephan
 Sponsor Government of Punjab, Pakistan
 Total Contracted Amount (THB) 1,087,983

IT Applications in Management

Duration 15-Dec-08 - 28-Feb-09
 Project Investigator Ms Thaniya Jirasathitpornpong
 Sponsor Multi donors
 Total Contracted Amount (THB) 702,900

IT Applications in Project Management

Duration 1-Sep-08 - 31-Jan-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor Multi-donors
 Total Contracted Amount (THB) 1,022,474.00

IT Applications in Project Management

Duration 2-Mar-09 - 18-Jun-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor Government of India
 Total Contracted Amount (THB) 1,267,800

IT Network Security

Duration 6-Jul-09 - 22-Oct-09
 Project Investigator Augus S Prajogo
 Sponsor Ministry of finance and planning and Ministry of education Sri Lanka
 Total Contracted Amount (THB) 319,200

Laboratory Procedures for agricultural Sciences

Duration 2-Mar-09 - 18-Jun-09
 Project Investigator Khin Ma Gyi
 Sponsor USAID
 Total Contracted Amount (THB) 892,500

Local Curriculum planning and Management

Duration 8-Dec-08 - 21-Mar-09
 Project Investigator Ms Kanlaya Muangsan
 Sponsor ESAT-DANIDA, Nepal
 Total Contracted Amount (THB) 918,720

Management and Implementation of Selective ERP Applications

Duration 8-May-09 - 23-Aug-09
 Project Investigator Augus S Prajogo
 Sponsor Bank of Bangladesh
 Total Contracted Amount (THB) 1,746,600

MATT-2:2nd Regional Exposure Visit Program (Batch 15th)

Duration 25-Jan-09 - 31-May-09
 Project Investigator Voravate Chonlasin
 Sponsor DFID
 Total Contracted Amount (THB) 5,400,314

MATT-2:2nd Regional Exposure Visit Program (Batch 19th)

Duration 23-Aug-09 - 04-Dec-09
 Project Investigator Voravate Chonlasin
 Sponsor DFID
 Total Contracted Amount (THB) 5,559,945

Municipal Administrative systems and Application of ICT

Duration 14-Jun-09 - 21-Sep-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor World Bank
 Total Contracted Amount (THB) 701,000

Municipality Administrative Systems and Applications of ICT (Batch II)

Duration 16-Aug-09 - 31-Dec-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor LGED Bangladesh
 Total Contracted Amount (THB) 759,000

Network Security

Duration 8-Mar-09 - 19-Jun-09
 Project Investigator Augus S Prajogo
 Sponsor DFID
 Total Contracted Amount (THB) 961,800

Operation and Management of Science Laboratory

Duration 1-Dec-08 - 30-Apr-09
 Project Investigator Voravate Chonlasin
 Sponsor Government of Sri Lanka
 Total Contracted Amount (THB) 695,838

Planning and Budgeting Practises in Thailand

Duration 15-Dec-08 - 31-Mar-09
 Project Investigator Voravate Chonlasin
 Sponsor BAPPENAS
 Total Contracted Amount (THB) 412,500

PRMP:2nd Course on Contract Administration and Alternative dispute resolution

Duration 7-Sep-09 - 13-Dec-09
 Project Investigator Voravate Chonlasin
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 1,013,375

PRMP:Contract Administration and Alternative dispute resolution

Duration 4-May-09 - 30-Sep-09
 Project Investigator Voravate Chonlasin
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 1,484,313

Project Management

Duration 11-May-09 - 27-Aug-09
 Project Investigator Rowena C Alcoba
 Sponsor UNICEF/MRRD, CIDA, World Bank
 Total Contracted Amount (THB) 1,477,200

Project Monitoring and evaluation

Duration 24-Nov-08 - 30-Sep-09
 Project Investigator Ms Worawan Sumroetrum
 Sponsor UNDP BD
 Total Contracted Amount (THB) 1,465,094

Quality assurance in Education

Duration 20-Apr-09 - 30-Jul-09
 Project Investigator Parichard Nuntavong
 Sponsor Ministry of Education Sri Lanka
 Total Contracted Amount (THB) 1,172,500

School/Training, Curriculum Development and use of Technology

Duration 1-Jun-09 - 27-Aug-09
 Project Investigator Reynaldo Calabdon, Kanlaya Muangsan
 Sponsor NCED, Nepal
 Total Contracted Amount (THB) 1,209,375

Seminar and Study Visit on Urban Poverty Alleviation

Duration 23-Mar-09 - 30-Jun-09
 Project Investigator Voravate Chonlasin
 Sponsor GTZ Nepal
 Total Contracted Amount (THB) 750,400

Seminar and Study Visit Program on Wildlife Protected Area Management

Duration 29-Sep-08 - 12-Jan-09
 Project Investigator Sirinthip Pongsuvina
 Sponsor Department of Wildlife Conservation, Sri Lanka
 Total Contracted Amount (THB) 1,386,832.00

Solid and Clinical Waste Management

Duration 4-May-09 - 30-Sep-09
 Project Investigator Khin Ma Gyi
 Sponsor ADB
 Total Contracted Amount (THB) 1,053,705

Sri Lanka Educators Programme on education for social cohesion and peace

Duration 10-Nov-08 - 31-Jan-09
 Project Investigator Mr Raynaldo
 Sponsor GTZ Srilanka
 Total Contracted Amount (THB) 868,750

Study Visit Program on IT Application in Project management

Duration 6-Aug-09 - 14-Nov-09
 Project Investigator Augus S Prajogo
 Sponsor LGED Bangladesh
 Total Contracted Amount (THB) 905,812

System Management and Capacity Improvement of Technical Education Batch II

Duration 24-Nov-08 - 27-Feb-09
 Project Investigator Ms Kanlaya Muangsan
 Sponsor NPIU Govt of Nepal
 Total Contracted Amount (THB) 544,170

Team Building and Management

Duration 8-Jun-09 - 30-Sep-09
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor ADB (DDC Bangladesh)
 Total Contracted Amount (THB) 826,000

Training for engineering Technicians

Duration 17-Mar-09 - 19-Jun-09
 Project Investigator Khin Ma Gyi
 Sponsor MNIT Jaipur India
 Total Contracted Amount (THB) 489,100

Training of Trainers for Aquacultural Development

Duration 23-Mar-09 - 30-Jun-09
 Project Investigator Khin Ma Gyi
 Sponsor DANIDA
 Total Contracted Amount (THB) 787,000

Training Program on Toxic and Hazardous Waste Management

Duration 20-Oct-08 - 30-Aug-09
 Project Investigator Sirinthip Pongsuvinai
 Sponsor University of Balochistan, Pakistan
 Total Contracted Amount (THB) 646,800

Trends in Teaching and Learning in the 21st Century Schools (Batch 4)

Duration 1-Dec-08 - 31-Mar-09
 Project Investigator Ms Warindhorn Srina
 Sponsor Rex Publishing Phillipines
 Total Contracted Amount (THB) 339,185

Trends in Teaching and Learning in the 21st Century Schools (Batch 5)

Duration 2-Feb-09 - 08-May-09
 Project Investigator Warindhorn Wachirasri
 Sponsor Rex Publishing Phillipines
 Total Contracted Amount (THB) 625,175

UNDP - LOGOTRI Capacity Building program in Thailand

Duration 5-Jul-09 - 15-Oct-09
 Project Investigator Parichard Nantavong
 Sponsor UNDP Afghanistan
 Total Contracted Amount (THB) 837,492

University Management and Administration (Batch 2)

Duration 19-Jan-09 - 28-Apr-09
 Project Investigator Kanlaya Muangsan
 Sponsor University of Balochistan, Pakistan
 Total Contracted Amount (THB) 933,636

Vocational Training Rural Poverty Reduction

Duration 30-Mar-09 - 02-Jul-09
 Project Investigator Worawan Sumroetrum
 Sponsor Thua Thien Hue Rural Development Program Vietnam
 Total Contracted Amount (THB) 524,996

WebPage Development and Deployment

Duration 23-Mar-08 - 31-Jan-09
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor SIDA/SAREC
 Total Contracted Amount (THB) 360,015.00

Zoo Management

Duration 26-Oct-09 - 04-Feb-10
 Project Investigator Worawan Sumroetrum
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 1,476,375

29.8 On-going Grant and Sponsored Trainings

Advance Competencies for Trainers (Training)

Duration 9-Nov-09 - 25-Feb-10
 Project Investigator Kanlaya Muangsan
 Sponsor Govt of India & PRMP Pakistan
 Total Contracted Amount (THB) 1,038,464

AIT- NCED Institutional Linkage for Capacity building program

Duration 12-Dec-09 - 24-Mar-10
 Project Investigator Kanlaya Muangsan
 Sponsor ESAT-DANIDA, Nepal
 Total Contracted Amount (THB) 1,035,200

AIT-NCED Institutional Linkage for Capacity building program

Duration 1-Aug-08 - 31-Mar-10
 Project Investigator Mr Raynaldo
 Sponsor ESAT DANIDA Nepal

Total Contracted Amount (THB) 2,730,000

Design and development of Instructional materials using Desktop, Web and Multimedia tools

Duration 2-Nov-09 - 31-Jan-10
 Project Investigator Thaniya Jirasathitpornpong
 Sponsor Multi donors
 Total Contracted Amount (THB) 537,900

Education Planning Budgeting and Monitoring

Duration 23-Nov-09 - 04-Mar-10
 Project Investigator Upul Kaluhetti Bramahnage
 Sponsor MOE Sri Lanka
 Total Contracted Amount (THB) 759,000

Hospital management in Tertiary Health Care Batch 2 & 3)

Duration 28-Sep-09 - 20-Feb-10
 Project Investigator Voravate Chonlasin
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 2,716,000

Human Resource Management

Duration 7-Dec-09 - 11-Mar-10
 Project Investigator Phyu sin
 Sponsor Nepal Telecom, NTC
 Total Contracted Amount (THB) 544,500

IT Network Security

Duration 5-Oct-09 - 21-Jan-10
 Project Investigator Augus S Prajogo
 Sponsor Bangladesh Bank
 Total Contracted Amount (THB) 1,166,320

Leading Change and Organizational Renewal

Duration 2-Nov-09 - 04-Feb-10
 Project Investigator Rowena C Alcoba
 Sponsor Bangladesh Bank, PIM, and University of Kelanlya
 Total Contracted Amount (THB) 544,375

MATT-2:3rd Regional Exposure visit Program (Batch 21)

Duration 29-Nov-09 - 11-Mar-10
 Project Investigator Voravate Chonlasin
 Sponsor DFID
 Total Contracted Amount (THB) 5,057,920

Monitoring and Evaluation of Infrastructure development Project

Duration 28-Sep-09 - 07-Jan-10
 Project Investigator Worawan Sumroetrum
 Sponsor PRMP, Pakistan
 Total Contracted Amount (THB) 1,193,016

Prawn Hatchery Operations and Management

Duration 4-Oct-09 - 30-Apr-10
 Project Investigator Wichit Silpamaneephan
 Sponsor DoF DANIDA Bangladesh
 Total Contracted Amount (THB) 883,476

Professional Training Course on Training for Trainers” sponsored by Government of India

Duration 9-Nov-09 - 12-Feb-10
Project Investigator Warindhorn Srina
Sponsor Government of India
Total Contracted Amount (THB) 962,400

Sustainable Urban Poverty Reduction Project Management

Duration 21-Dec-09 - 29-Mar-10
Project Investigator Worawan Sumroetrum
Sponsor UNDP Bangladesh
Total Contracted Amount (THB) 1,349,681

Project Planning and Quality Assurance

Duration 23-Nov-09 - 25-Feb-10
Project Investigator Phyu sin
Sponsor Nepal Telecom
Total Contracted Amount (THB) 544,500

Chapter 30 : INTERNET EDUCATION AND RESEARCH LABORATORY (intERLab)

30.1 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 the 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.

30.2 Mission

To become one of the leading Internet regional centers of excellence; establishing 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.

30.3 Unit Governance

Prof. Kanchana Kanchanasut
IntERLab Director

30.4 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

30.5 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*]

Visiting Faculty

NOEL CRESPI, GET/INT, France; Ing. Dipl (ENST), MSc, PhD.

Visiting Professor. [*SIP; 3G Services; IP Multimedia Subsystem And Context Awareness B3G Core network and Service Architectures*]

YASUO TSUCHIMOTO, Keio University, Japan, PhD in Media and Governance, Keio University, Japan Master of Media and Governance, Keio University, Japan Bachelor of Arts in Environmental Information from Keio University, Japan

Visiting Assistant Professor. [*Computer Networks; Internet Education; Multimedia communication and Overlay network Adjunct Researchers*]

Affiliates

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

Assistant Professor School of Engineering and Technology [*Areas of Communication Theory; Optical networks; Resource Allocation Problems and Array Processing*]

TEERAPAT SANGUANKOTCHAKORN, 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

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*]

SURAT LERTLUM, Doctor of Technical Science in Computer Science, Asian Institute of Technology (AIT), Thailand, Master of Science in Computer Science, The George Washington University, Washington D.C., U.S.A., Bachelor of Science in

Computer Science Engineering, Norwich University, Northfield, Vermont, U.S.A.

Research Scientist

Chulachomkiao Royal Military Academy [*Low-resolution (NOAA AVHRR) forest classification includes thermal band; Highresolution (Landsat TM) forest classification includes thermal band; Multiresolution forest classification includes thermal band; Object-Oriented data model for multi-resolution / multitemporal remote sensing and GIS data sets*]

Short-term Visiting Researcher

ANIS LAOUTI, HIPERCOM/INRIA and **Assistant Professor**, TelecomSud, France

[*Mobile Ad Hoc Network, Peer-to-Peer system*]

HAJIME TAZAKI, Jun Murai Laboratory Keio University and WIDE Project

[*IP routing architecture for mobility environment: IP Mobility architecture*]

Research Staff

KHANDAKAR RASHEDUL AREFIN, Master of Engineering in Information and Communication Technologies (ICT), Asian Institute of Technology, Thailand, Bachelor of Engineering in Computer Science and Engineering, Khulna University of Engineering and Technology, Khulna, Bangladesh.

Research Associate [*Mobile Ad Hoc Network*]

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*]

30.6 Grants and Sponsored Research Completed in 2009

Advance Routing: BGP Multihoming workshop

Duration 1-Jul-09 - 30-Nov-09
Project Investigator Kanchana Kanchanasut
Sponsors Multi donors
Total Contracted Amount (THB) 400,000

Asia Pacific Networking Group (APNG) Secretariat

Duration 1-Nov-08 - 31-Dec-09
Project Investigator Kanchana Kanchanasut, Wit Hmone Tin Latt
Sponsor Asia Pacific Networking Group
Total Contracted Amount (THB) 500,000

Asian Internet Engineering Conference 2008

Duration 1-Jul-08 - 31-Mar-09
Project Investigator Kanchana Kanchanasut
Sponsors Multi donors
Total Contracted Amount (THB) 900,000

DNSSEC Hands on Workshop

Duration 1-Jan-09 - 30-Sep-09
Project Investigator Kanchana Kanchanasut
Sponsors Various
Total Contracted Amount (THB) 600,000

ICT Policy for National University of Laos

Duration 30-Jun-07 - 31-Dec-09
Project Investigator Kanchana Kanchanasut, Wit Hmone Tin Latt
Sponsor Swedish International Development Agency
Total Contracted Amount (THB) 2,201,308

Interconnectivity between Mobile Ad Hoc and Fixed Infrastructure Networks for Multimedia Disaster Emergency Communications

Duration 1-Jan-08 - 30-Oct-09
Project Investigator Kanchana Kanchanasut, Teerapat S.
Sponsor NECTEC
Total Contracted Amount (THB) 1,900,000

Multicast Workshop

Duration 1-Oct-08 - 30-Nov-09
Project Investigator Kanchana Kanchanasut, Wit Hmone Tin Latt
Sponsor Training participants
Total Contracted Amount (THB) 300,000

Technical Support for National University of Laos

Duration 1-Jun-07 - 31-May-09
Project Investigator Kanchana Kanchanasut
Sponsor Swedish International Development Agency
Total Contracted Amount (THB) 1,507,358

TEIN3 HRD Programme for 2009

Duration 1-Dec-08 - 01-Dec-09
Project Investigator Kanchana Kanchanasut
Sponsor TEIN3
Total Contracted Amount (THB) 2,500,000

30.7 On-going Grants and Sponsored Research

Asian Internet engineering Conference 2009

Duration 1-Jul-09 - 31-Mar-10
Project Investigator Kanchana Kanchanasut
Sponsor Multi donors
Total Contracted Amount (THB) 1,000,000

Asian Internet Engineering Conference 2010

Duration 15-Dec-09 - 15-Mar-11
Project Investigator Kanchana Kanchanasut
Sponsors Multi donors
Total Contracted Amount (THB) 900,000

CanalAVIST (Initial Phase)

Duration 1-Dec-07 - 31-Dec-10
Project Investigator Kanchana Kanchanasut
Sponsor DANTE
Total Contracted Amount (THB) 729,440

Development of Emergency Networks Training and Tools Kit

Duration 1-Feb-09 - 31-Jan-11
Project Investigator Kanchana Kanchanasut
Sponsor ISIF Asia
Total Contracted Amount (THB) 990,000

Epidemic Protocol for Car Talk

Duration 1-Aug-09 - 01-Sep-10
Project Investigator Kanchana Kanchanasut
Sponsor National Electronics and Computer Technology Center, Thailand
Total Contracted Amount (THB) 1,970,000

IT Training for National University of Laos (NUOL)

Duration 1-Jun-07 - 31-Dec-10
Project Investigator Kanchana Kanchanasut
Sponsor Swedish International Development Agency
Total Contracted Amount (THB) 3,063,745

The TEIN 3 Human Resource Program for 2010

Duration 1-Dec-09 - 01-Dec-10
Project Investigator Kanchana Kanchanasut
Sponsors Multi donors
Total Contracted Amount (THB) 2,000,000

UniChannel: Distance Education Infrastructure on UniNet

Duration 1-Aug-08 - 30-Jun-10
Project Investigator Kanchana Kanchanasut
Sponsors Researchers/engineers
Total Contracted Amount (THB) 2,000,000

Wireless Internet :Emergency Networks Workshop

Duration 1-Sep-09 - 31-Jan-10
Project Investigator Kanchana Kanchanasut
Sponsors RISTEK, NECTEC, ISOC, NSRC, and Network the World.Org
Total Contracted Amount (THB) 750,000

Chapter 31: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS

31.1 Grants and Sponsored Research Completed in 2009

GMSARN Case Study Research and Training

Duration 1-Sep-04 - 31-Dec-09
Project Investigator Weerakorn Ongsakul
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 1,022,500

Wetlands Alliance Program

Duration 1-Jan-06 - 31-Dec-09
Project Investigator Nicholas Innes-Taylor
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 123,520,311

Wetlands Alliance Program-Secretariat

Duration 1-Jan-08 - 31-Dec-09
Project Investigator Hans Guttman
Sponsor Swedish International Development Cooperation Agency, Sweden
Total Contracted Amount (THB) 10,200,000

Workshop on "Doing Business in Africa"

Duration 1-Sep-07 - 31-Dec-09
Project Investigator Vilas Wuwongse
Sponsor Ministry of Foreign Affairs (MFA) Thailand
Total Contracted Amount (THB) 2,194,280

31.2 On-going Grants and Sponsored Research

Capacity Building of Faculty of Engineering, Balkh University, Afghanistan

Duration 1-Jan-08 - 30-Jun-10
Project Investigator Naveed Anwar
Sponsor Balkh University, Ministry of Higher Education, Islamic Republic of Afghanistan
Total Contracted Amount (THB) 42,979,260

Training Workshop Thematic Research on Gender mainstreaming and Economic empowerment

Duration 6-Feb-09 - 30-Nov-10
Project Investigator Jayant K Routray
Sponsor UNIFEM
Total Contracted Amount (THB) 1,650,000

Wetland Alliance Aqua Outreach Program

Duration 1-Jun-09 - 31-Dec-11
Project Investigator Theo Ebbers
Sponsor SIDA
Total Contracted Amount (THB) 11,086,333

Wetland Alliance Secretariat

Duration 1-Jun-09 - 31-Dec-11
Project Investigator Hans Guttman
Sponsor SIDA
Total Contracted Amount (THB) 11,086,333

Chapter 32: AIT CENTER – VIETNAM

32.1 Introduction

Asian Institute of Technology-Vietnam (AIT-VN) was established in 1993 under the agreement between the Government of Vietnam and AIT. Asian Institute of Technology-Vietnam takes pride in being the first international institution in Vietnam and the first Center of AIT out of its headquarters in Thailand.

Vision

Our vision is to become a unique and prestigious regional institution that offers responsive, work-relevant higher educational programs and outreach services for sustainable growth of Vietnam and the region as it integrates into global economy.

Mission

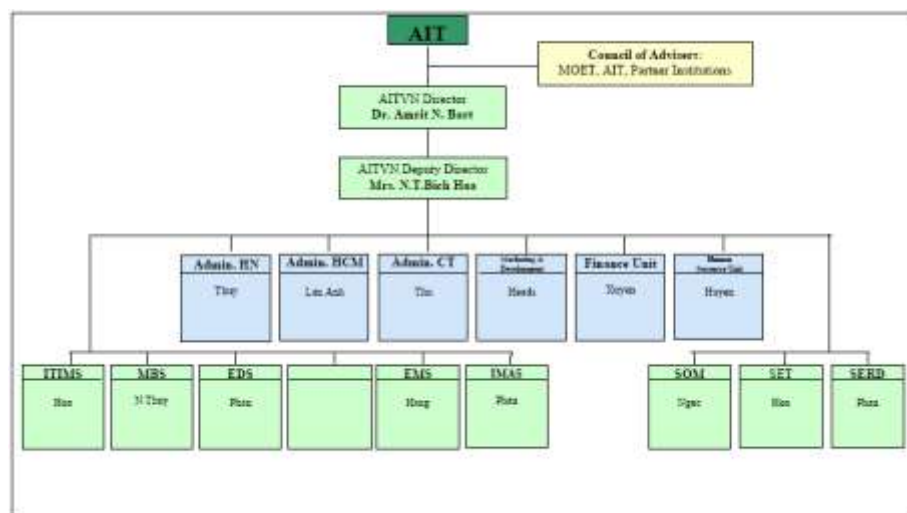
The mission of AITVN is to become a leading international educational institution of higher learning in Vietnam and the region.

32.2 Governance

32.3 Services

AITVN offers academic services (in collaboration with Schools):

- Two-stage Masters, Doctors Programs
- Master Programs in Vietnam: Master of Business Administration Program for Executives; Doctor of Business Administration
- Professional Masters Programs
- International Masters of Advanced Studies



AITVN offers professional training programs:

- Short-term training courses specialized in Management and Business, Environment and Development, Language and Training, Advanced Technologies, etc.
- Customized training courses
- Seminars
- Outreach (consultancy) services

32.4 Fields of Postgraduate Education (On-Going)

- Information Technology (IT)
- Environment Technology Management (ETM)
- International Executive Master/Doctor of Business Administration (iEMBA/DBA)
- Industrial System Engineering Management (ISE)
- Telecommunications and ICT (TC and ICT)
- Construction, Engineering and Infrastructure Management (CEIM)
- Geo-Engineering and Management
- Geo-exploration and Petroleum Engineering
- Environmental Engineering & Management

32.5 AIT-VN's Training Programs

Training for Professional Development

AITCV offers short training courses in 16 fields of professional skills nationwide. The programs are designed and conducted by AIT trainers, international experts and alumni. Newly acquired skills from those short courses are immediately applicable in improving performance at work.

Short-Term Training Courses

- Training Skills
- Interpersonal Communication Skills
- Language skills
- Administration and Secretarial
- Human Resource Development
- Management Development
- Marketing, Sales and Customer Services
- Supply Chain Management
- Industrial Engineering and Management
- Basic Management of Development Project
- Knowledge of Development Project Management

- Environmental and Natural Resources Management
- Urban Environmental Management
- Agribusiness Management
- Interpersonal Skills for Development Project Officers
- Finance Management

Tailor-made Courses

Upon request, AITVN organizes 'tailor-made' training courses and training combined with study tours for organizations in Vietnam and overseas. Training contents, venues and time are made to match the requirements of the recipient.

Training and study tour program has recently been one of AITVN's trademark. We closely cooperate with universities and other institutions in Australia, Belgium, Bangladesh, China, Malaysia, Indonesia, Norway, Singapore, Taiwan and Switzerland. These training programs have been widely appreciated by the participants indicated by increasing repeat requests.

32.6. Academic Programs in cooperation with AIT Schools in 2009

In cooperation with:

SOM

IEMBA Program Vietnam

Duration Aug-00 - 31-Dec-09
 Project Investigator Frederic William Swierczek
 Sponsor AIT Operation
 Total Contracted Amount (THB) 36,000,000

SET

Professional Master in Project Management Hanoi August 2008

Duration 1-Sep-08 - 31-Dec-09
 Project Investigator BHW Hadikusumo Chotchai Charoenngam
 Sponsor PetroVietnam and Corporations in Vietnam
 Total Contracted Amount (THB) 3,802,900

Professional Master in Project Management Ho Chi Minh City August 2008

Duration 1-Sep-08 - 31-Dec-09
 Project Investigator BHW Hadikusumo Chotchai Charoenngam
 Sponsor PetroVietnam and Corporations in Vietnam
 Total Contracted Amount (THB) 3,802,900

Professional Master in Project Management Vung Tau August 2008

Duration 1-Sep-08 - 31-Dec-09
 Project Investigator BHW Hadikusumo Chotchai Charoenngam
 Sponsor PetroVietnam and Corporations in Vietnam
 Total Contracted Amount (THB) 6,964,900

Professional Masters in Geo-exploration & Petroleum Geo-engineering, HCMC

Duration 1-Sep-08 - 31-Dec-09
 Project Investigator Pham Huy Giao, Noppadol Phien Wej
 Sponsor Oil and Gas Company, Vietnam
 Total Contracted Amount (THB) 3,233,400

IHEID

International Executive Masters in Development Studies (IMAS)

Duration: 2003-2012
 Project Investigator: Daniel Fino
 Sponsor: SDC- Bern, Canton de Geneva
 Total Contracted Amount (USD) : USD 130,000 (operation cost in Vietnam only)

32.7 On-going Grants and Sponsored Projects

In cooperation with:

SOM

DBA Program in HCMC 2007

Duration 1-Feb-07 - 31-Jan-14
 Project Investigator Indra Pandey, Nicholas Dimmit, Fredric Swierczek, Rian Beise-zee, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Lalit Johri, Illka Kauranen
 Sponsor Participants
 Total Contracted Amount (THB) 14,000,000

DBA Program in HCMC 2009

Duration 20-Jan-09 - 31-Dec-12
 Project Investigator Barbara Igel
 Sponsor Professional managers
 Total Contracted Amount (THB) 7,425,000

DBA Program in HN 2007

Duration 1-Jul-07 - 30-Jun-10
 Project Investigator Indra Pandey, Nicholas Dimmit, Fredric Swierczek, Do Ba Khang, Sundar Venkatesh, Sununta Siengthai, Nazrul Islam, Illka Kauranen
 Sponsor Participants
 Total Contracted Amount (THB) 12,250,000

International Executive MBA for Vietnam for Hanoi #10.1 & 10.2

Duration 1-Aug-09 - 31-Dec-11
 Project Investigator Do Ba Khang
 Sponsor Multi donors
 Total Contracted Amount (THB) 14,875,005

International Executive MBA for Vietnam for HCMC #6.1HCMC#6.2DN#3VT#2

Duration 1-Aug-09 - 31-Dec-11
 Project Investigator Do Ba Khang
 Sponsor Multi donors
 Total Contracted Amount (THB) 46,627,384

International Executive MBA Vietnam :Hanoi

Duration 1-Aug-08 - 31-Dec-10
 Project Investigator Do Ba Khang
 Sponsor Multi donors
 Total Contracted Amount (THB) 21,250,008

International Executive MBA Vietnam : HCMC, DN, VT

Duration 1-Aug-08 - 31-Dec-10
 Project Investigator Do Ba Khang
 Sponsor Multi-donors
 Total Contracted Amount (THB) 32,075,384

SET

Professional Masters Degree Program in IE&M HoChiMinh City

Duration 1-Jan-09 - May-10
 Project Investigator: Vorats Kachivichyanukul, Huynh Trung Luong, Eric Bohez, Pisut Koomsap
 Sponsor: Multi donors
 Total Contracted Amount (THB) 4,506,700

Professional Master in Project Management Hanoi August 2009

Duration 1-Sep-09 - 31-Dec-10
 Project Investigator BHW Hadikusumo Chotchai Charoenngam
 Sponsor PetroVietnam and Corporations in Vietnam
 Total Contracted Amount (THB)

Professional Master in Project Management HCMC August 2009

Duration 1-Sep-09 - 31-Dec-10
 Project Investigator BHW Hadikusumo Chotchai Charoenngam
 Sponsor PetroVietnam and Corporations in Vietnam
 Total Contracted Amount (THB)

Professional Master in Geo-Engineering and Management August 2009

Duration 1-Jan-09 – May 2010
 Project Investigator Pham Huy Giao
 Sponsor Multi Donors
 Total Contracted Amount (THB) 4,338,985

Professional Masters in Geoexploration & Petroleum Geoen지니어ing, HCMC

Duration 1-Sep-09 - 31-Dec-10
 Project Investigator Pham Huy Giao, Noppadol Phien Wej
 Sponsor Oil and Gas Companies, Vietnam
 Total Contracted Amount (THB)

IHEID**International Executive Masters in Development Studies (IMAS)**

Duration: 2003-2012
 Project Investigator : Daniel Fino
 Sponsor: SDC- Bern, Canton de Geneva
 Total Contracted Amount: 4.,160,000 (THB)

32.8 AITVN Short term Courses Completed in 2009**By Education Management Section****English Skills for Interpreters**

Duration: 8 - 19 June 2009
 Total Amount (USD): 7,200

Report Writing Skills for Project Officers

Duration: 22 - 26 June 2009
 Total Amount (USD): 5,500

Proposal Writing for Development Project

Duration: 20 - 24 July 2009
 Total Amount (USD): 6,500

Translation Skills

Duration: 21 - 26 September, 2009
 Total Amount (USD): 5,400

Report Writing Skills for Project Officers

Duration: 16 to 20 November 2009
 Total Amount (USD): 3,000

Bridging Program for SET Master Studies in Can Tho

Duration: September 14– October 23
 Total Amount (USD): 3,000

Leadership Skills for MOLISA

Duration: 19-21 February 2009
 Total Contracted Amount (USD): 3,666

Report Writing Skills for Project Officers

Duration: 18-20/3/2009
 Total Contracted Amount (USD): 3,795

Basic Training of Trainers

Duration: 23-27 March 2009
 Total Contracted Amount (USD): 4,220

English Skills for Interpreters

Duration: 4-9 May, 2009
 Total Contracted Amount (USD): 6,641

Introduction to Vietnamese and Vietnamese history and culture for Macquarie university volunteers

Duration: 30 June, 10 & 14 July 2009
 Total Contracted Amount (USD): 750

Presentation skills for VNPT Youth Union

Duration: 17 July, 2009
 Total Contracted Amount (USD): 800

SET Bridging Course- Hanoi & HCMC

Duration: 6 July - 16 August (HN) 13 July to 23 August 2009 (HCMC)
 Total Contracted Amount (USD): 8,000

Bridging for EMBA Hanoi & Vung Tau

Duration: 20 July - 25 September (HN) 27 July to 29 August (Vung Tau)
 Total Contracted Amount (USD): 32,200

Effective Presentation Skills

Duration: 6 to 7 August 2009
 Total Contracted Amount (USD): 2,300

English for Effective communication for Petro Southwest Gas Project in Can Tho

Duration: October 5 – December 16
 Total Contracted Amount (USD): 6,000

Training Management

Duration: 16 to 19 November 2009
 Total Contracted Amount (USD): 5,000

Training of Trainers

Duration: 30 November - 1 December 2009
 Total Contracted Amount (USD): \$2,423

Leadership Skills for MOLISA

Duration: 24 - 25 December, 2009
 Total Contracted Amount (USD): 2,450

English Language Testing service

Duration: January – December 2009
 Total Amount (USD): 2,469

By Management Business Section**Human Resource Management**

Duration 05 – 09 January 2009
 Total Amount (USD): 3,500

Management and Leadership Skills

Duration 04 – 06 March 2009
 Sponsor National Assembly Office
 Total Contracted Amount (USD) 6,058

Project Financial Management and Project Management

Duration 16 – 20 March 2009 and 23 – 27 March 2009
 Sponsor ETV2 Project
 Total Contracted Amount (USD) 13,954

Negotiation Skills

Duration: 26 February 2009
 Total Contracted Amount (USD) 650

Communication Skills

Duration 01 – 02 April and 06 – 07 April 2009
 Total Contracted Amount (USD) 4,200

Kaizen, 5S, Kanban and Teamwork and Team Building

Duration 13 – 19 June 2009
 Total Contracted Amount (USD) 8,870

Office Administration

Duration 7 – 10 July 2009
 Total Contracted Amount (USD) 3560

Advanced Office Administration

Duration 23 – 26 June 2009
 Total Contracted Amount (USD) 6,722

Leadership Skills

Duration 20 – 22 July 2009
 Total Contracted Amount (USD) 4,000

Advanced HRM

Duration 17 – 20 August 2009
 Total Contracted Amount (USD) 4,000

Effective Writing and Work Management Skills

Duration 27 – 31 July and 5 – 8 August 2009
 Sponsor National Assembly Office

Total Contracted Amount (USD) 12,840

Basic HRM

Duration 21 – 25 September 2009
Total Contracted Amount (USD) 6,650

Training program for BIDV

Duration July – October 2009
Total Contracted Amount (USD) 61,479

Telephone Skills

Duration 16 – 17 September and 18 – 19 September 2009
Sponsor Toyota Vietnam
Total Contracted Amount (USD) 6,130

Work Planning and Time Management

Duration 28 – 29 October 2009
Total Contracted Amount (USD) 3,820

Advanced Office Admin

Duration 28 – 30 Dec ember 2009
Total Contracted Amount (USD) 6,800

HRM of Volunteers in Faith Base Organization

Duration 26 – 30 October and 2 – 6 November 2009
Sponsor NAV
Total Contracted Amount (USD) 10,344

By Environment & Development Section

Leadership Skills

Duration: 5-7 May 2009, 12-14 May 2009 & 19-21 May 2009
Total Amount (USD): 6,180

Effective Communication Skills

Duration: 25-27 May. 2009, 1-3 June 2009
Total Amount (USD): 4,120

Gender Mainstreaming

Duration:1-5 June 2009
Total Amount (USD): 6,384

Workshop-Promotion for Sanitation in Water Resources Management

Duration:25-26 June 2009
Total Amount (USD): 8,440

Organization Development

Duration: 19-22 June 2009
Total Amount (USD): 3,846

National Consultant - UNDP/GEF Con Dao Marine and Coastal Biodiversity Conservation Project

Duration: June 2009
Total Amount (USD): 2,878

Clay Brick & Tile Tech , Best Practice sharing

Duration: 12-18 July 2009
Total Amount (USD): 8,984

Operation of Wastewater Treatment Plant

Duration: 6-10 July 2009
Total Amount (USD): 4,497

Training-cum-Study Tour on "Community-Based Sustainable Development

Duration: 12-18 July 2009
Total Amount (USD): 22,267

Participation Mobilization and Policy Advocacy

Duration: 22-24 July 2009, 27-31 July 2009
Total Amount (USD): 14,100

Study tour on “ Field & Lab Tests for Highway Engineers

Duration: 9-13 August 2009
Total Amount (USD): 5,416

Public Participation in Environmental Planning and Management

Duration: 24-27 August 2009
Total Amount (USD): 7,728

Cooling in the Brewery Plant

Duration: 5-9 October. 2009
Total Amount (USD): 4,850

UNDP National Climate Change Expert

Duration: September. 2009
Total Amount (USD): 4,600

Workshop on Bio-energy, Rural Development and Poverty Reduction for SNV

Duration: 15 October 2009
Total Amount (USD): 3,400

Workshop on Impact Monitoring and Social Work in Vietnam

Duration: 3-4 December 2009
Total Amount (USD): 1,639

Effective Marketing and Selling Skills

Duration: 30 Nov-2 December 2009 & 7-9 December 2009
Total Amount (USD): 3,648

Marketing Strategy for Agricultural Products

Duration: 21-23 December 2009 & 28-30 December 2009
Total Amount (USD): 3,648

Consultancy Service on Bio-energy Study

Duration: September -November 2009
Total Amount (USD): 3,400

Participatory Monitoring and Evaluation of Development Project

Duration: 20-24 April 2009
Total Amount (USD): 2,800

Environment Planning & Management

Duration: 15-18 June 2009
Total Amount (USD): 2,400

Planning for Natural Resources Management

Duration: 22-24 June 2009
Total Amount (USD): 1,620

Environmental Economics

Duration: 17-20 August 2009
Total Amount (USD): 2,400

Management & Implementation of Development Projects

Duration: 14-18 September 2009
Total Amount (USD): 8,000

Participatory Monitoring and Evaluation of Development Project

Duration: 2-6 November 2009
Total Amount (USD): 2,400

By Information and Technology and Industrial Management Section

Automation Technology

Duration: 5-7 January 2009
Total Contracted Amount (USD): 14,400

Risk Management in Vung Tau

Duration: 12-16 January 2009
Total Contracted Amount (USD): 12,000

Training cum Study Tour for Ministry of Rural Development – Bangladesh

Duration: 12-21 January 2009 & 1-12 February 2009
Total Contracted Amount (USD): 42,220

Warehouse Management & Control

Duration: 26-28 February 2009
Total Amount (USD): 1,500

**Seminar cum Study Visit Program:
Impact of Environment & Climate
Change on Rural Infrastructure**

Duration: 23 Mar – 1 Apr 2009
Total Contracted Amount (USD): 17,000

Production Planning & Scheduling

Duration: 25-27 Mar 2009 & 16-17 July 2009
Total Amount (USD): 3,900

Material Inventory Management

Duration: 2-4 Apr 2009
Total Amount (USD): 1,200

Maintenance Planning & Control

Duration: 22-24 Apr 2009
Total Amount (USD): 2,100

**Data Analysis & Presentation using
Excel**

Duration: 14-16 Apr 2009
Total Amount (USD): 3,420

Supply Chain Management

Duration: 2-6 Jun 2009
Total Amount (USD): 3,500

**Setting up & Organizing Distribute
Networks**

Duration: 27-28 Jun 2009
Total Contracted Amount (USD): 1,620

**Training cum Study Visit: Training
on Project Management & IT
Application**

Duration: 29 Jun – 11 Jul 2009
Total Contracted Amount (USD): 24,200

**Data Analysis & Presentation using
Excel**

Duration: 13-15 August 2009
Total Amount (USD): 1,550

Effective Presentation Skills

Duration: July 2009
Total Contracted Amount (USD): 3,000

**Seminar cum Study Visit Program:
Project Management & Monitoring
& Evaluation in HCMC & Hanoi**

Duration: 3-14 August 2009
Total Contracted Amount (USD): 20,615

Maintenance Planning & Control

Duration: 26-28 August 2009 & 20-22 October
2009
Total Contracted Amount (USD): 4,500

**Consultancy Selling Skills & Setting
up & Organizing Distribution
Networks Advanced**

Duration: Sep-Oct 2009
Total Contracted Amount (USD): 3,000

**Material Inventory Management &
Control**

Duration: 10-12 September 2009
Total Amount (USD): 1,380

Production Planning & Control

Duration: 17-19 September 2009
Total Amount (USD): 1,350

**Data Analysis & Presentation using
Excel**

Duration: 24-26 September 2009
Total Amount (USD): 3,300

**Training cum Study Visit Program:
Rural Road Access & Community
Market**

Duration: 24 Sep – 4 Oct 2009
Total Contracted Amount (USD): 16,360

Warehouse Management & Control

Duration: 28-30 Sep 2009
Total Amount (USD): 1,500

**Data Analysis & Presentation using
Excel**

Duration: 8-10 Oct 2009
Total Amount (USD): 2,400

**Building Business Management for
Top Management of VICEM**

Duration: Oct-Dec 2009
Total Contracted Amount (USD): 38,739

Effective Contract Negotiation

Duration: 28-29 Nov 2009
Total Amount (USD): 1,700

**Vietsopetro, Organizational
Structure & Restructure cum Study
Tour**

Duration: 14-24 Dec 2009
Total Contracted Amount (USD): 18,900

32.9 On-going Activities

By Education Management Section

EMBA Bridging Ha Tien 1

Duration: 16 November, 2009 - 8 February
2010
Total Contracted Amount (USD) 10,000

**English Communication Skills (ECS)
Ha Tien 1**

Duration: 16 November 2009 – March 2010
Total Contracted Amount (USD) 9,320

**Upgrading English for MPM Master
Studies**

Duration: 18 December, 2009 - 27 March,
2010
Total Contracted Amount (USD) 5,400

Chapter 33: OVERVIEW OF RESEARCH ACTIVITIES FOR 2009

Overall during the period January to December of 2009 there were **574** sponsored and contracted projects which were conducted by the faculty and staff from within the Field of Studies (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 **611** 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	71	115	186	121	164	12	21	318
ACECOMS	7	6	13	-	2	-	-	2
CS/IM	10	7	17	1	9	-	-	10
CEIM	2	3	5	7	2	-	1	10
GGE	8	13	21	12	31	-	-	43
IME	7	7	14	23	35	2	6	66
Mech/Mic	6	12	18	16	37	3	-	56
RSGIS	6	22	28	16	7	1	7	31
StE	9	10	19	5	2	-	1	8
TC	1	2	3	10	20	-	-	30
TrE	5	8	13	10	5	-	-	15
WEM	10	24	34	21	14	6	6	47
ICT	-	1	1	-	-	-	-	-
OTM	-	-	-	-	-	-	-	-
SERD	51	88	139	104	77	29	29	239
ASE	6	4	10	10	12	1	2	25
AARM	1	7	8	8	8	1	2	19
E	9	12	21	10	-	-	-	10
EEM	11	28	39	38	18	5	3	64
FEBT	5	10	15	13	13	-	16	42
GDS	2	12	14	2	7	3	3	15
NRM	7	2	9	12	5	5	2	24
PPT	2	2	4	2	-	1	-	3
RRDP	2	2	4	5	-	2	-	7
UEM	6	9	15	4	14	11	1	30
ABM	-	-	-	-	-	-	-	-
GTD	-	-	-	3	14	1	1	19
SOM	5	15	20	26	4	3	2	35
intERLab	9	9	18	-	-	-	-	-
AIT Ext	78	15	93	-	-	-	-	-
Inst-wide	4	4	8	-	-	-	-	-
AITVN	93	17	110	-	-	-	-	-
TOTAL	311	263	574	254	259	45	53	611

For the same period January to December of 2009 there was a total of **79** Doctoral Dissertations which were undertaken by the faculty from within the Field of Studies (FoS) of the three schools, SET, SERD and SOM. The total Masters Student Research for the same period stood at **638** 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	
SET	28	259	75	42	376
ACECOMS	-	1	-	-	1
CS/IM	-	34	19	-	53
CEIM	1	26	1	42	69
GGE	2	20	-	-	20
IME	5	19	1	-	20
Mech/Mic	4	32	1	-	33
RSGIS	7	18	2	-	20
StE	3	10	-	-	10
TC	3	32	10	-	42
TrE	-	10	26	-	36
WEM	3	27	2	-	29
ICT	-	15	13	-	28
OTM	-	15	-	-	15
SERD	43	168	15	-	183
ASE	7	14	2	-	16
AARM	3	14	-	-	14
E	2	12	2	-	14
EEM	9	27	3	-	30
FEBT	5	24	-	-	24
GDS	2	14	-	-	14
NRM	2	13	3	-	16
PPT	3	12	-	-	12
RRDP	5	11	5	-	16
UEM	5	23	-	-	23
ABM	-	4	-	-	4
SOM	8	2	13	64	79
TOTAL	79	429	103	106	638

Chapter 34: AIT Masters Theses Competition 2009

The AIT Masters Theses Competition was held on the 14th of May 2008. There were seven competition categories (see below) and students with excellent grades in their theses were nominated to represent their respective fields of study. Theses presentations have been judged according to the relevance; originality; scientific/society contribution; general knowledge of the field; future potential for innovation; and presentation skills. A total of 44 students participated in the competition. There were 18 judges from industry, developmental agencies, international organizations, universities, etc. A number of spin of activities and possibilities including employment, projects, interaction with other organizations, press coverage, etc. from the competition.

The winners of the respective categories were the following:

Category	Name / Title of Presentation	Advisor
Resources	Mr Mohammad Al-Amin Sadek: "Feasibility of Improving Tillage Performance by Using Nano surfaces on Tillage Tools"	Dr Hemantha P Jayasuriya
Civil Engineering	Mr DPC Laknath: "Assessment of fishery harbor for livelihood improvement: A case study of Hikkaduwa Harbor, Sri Lanka"	Dr Sutat Weesakul
ICT	Mr Kanthaiah Sivapragasam Vijayalayan: "Channel assignment in wireless mesh networks-Emended election based transmission timing mechanism for coordinated distribution scheduling in IEEE 802.16 mesh networks"	Prof Kazi M Ahmed
Development	Ms Miruza Mohamed: "Vulnerability of Maldives Islands to Climate Change and Extreme Weather Events: A Study of Perception, Impacts and Adaptation"	Dr LAS Ranjith Perera
Information Systems	Mr Niti Wiromrat: "Gas Sensors Based on Zinc Oxide Nanorods"	Dr Joydeep Dutta
Management	Ms Yiarayong Klangboonkrong: "Enhancing Navigation Safety from the Perspective of Knowledge Management: The Case of a Shipping Company in Thailand"	Dr Barbara Igel
Energy/Environment	Mr Cesar Ortinero: "Improvement of Nucleic Acid-Based Detection Techniques through the Use of Nanoparticles"	Dr Oleg V Shipin

