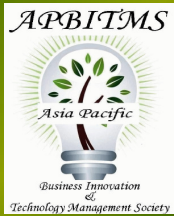
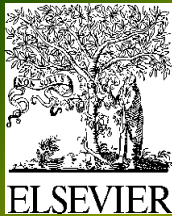


*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*



**(ELSEVIER) Programme and Abstract Proceedings**  
of 2011 International Spring Conference on  
Asia Pacific Business Innovation and Technology Management  
(APBITM Spring 2012)  
Jan 13-15, 2012 JomTien Palm Beach Resort and Hotel, Pattaya City, Thailand

Full papers to appear in Elsevier PROCEDIA  
indexed by ScienceDirect and Scopus

Conference Chairs: Anthony SF Chiu  
Kampanad Bhaktikul  
Tatre Jantarakolica  
Korbkul Jantarakolica

Proceedings Editors: Anthony SF Chiu  
Ming-Lang Tseng

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*



Message from the President of the  
**Asia Pacific Business Innovation and Technology Management Society**  
on the occasion of the  
**2012 International Spring APBITM Conference**  
Jan 13-15, 2012 in Pattaya, Thailand

*Professor Dr. Anthony SF CHIU\**

*EI Chair of Industrial Management Engineering*

*De La Salle University, Philippines*

*International Expert, UNIDO / UNEP / UNCRD / UN ESCAP*

Greetings and warm welcome to the 2012 International Spring APBITM Conference! My fellow colleague in the business innovation and technology management scientific community.

APBITMS is very thankful to all authors, participants, and partners to this conference, especially that there has been news for several months about the flooding right to the North of this beautiful Pattaya City, Thailand. Indeed, this city is also the haven for the Bangkok residents who fled the Northern flooding regions during the October – November period in 2011. Many of the residents came down to Pattaya as this place is safe from the flood.

We are equally grateful to have three Thai universities who joined in co-chairing this conference – Mahidol University, Thammasat University, and Rajamangala University of Technology Rattanakosin. I am grateful to them because all the three universities were all affected by the floodings in Bangkok City during the preparatory stages, and all the co-chairpersons work by internet with APBITMS secretariat HQ regularly without any delay.

Our featured plenary speakers have strong research strength using business innovation and technology management tools in all areas of emerging issues nowadays; namely: energy, water, tourism, and resource economy. We look forward to learning from them the new research directions and we wish that our long coffee breaks are duly designed for discussions among participants for our future research collaborations.

*Business Innovation  
&  
Technology Management Society*

\*Prof. Chiu is author to Sustainable Consumption and Production (SCP) position papers and policy option papers for Asia Pacific as input to the United Nations CSD18/19 and Rio +10 / Rio+20 Head of States Summits. Dr. Chiu believes in innovative business model and technology advancement / management as enabling conditions for a sustainable future.

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*



## **Plenary Speech on Adaptation on Technology and Innovation under Flood 2011, Thailand**

*Assoc.Prof. Kampanad Bhaktikul PhD (Civil &  
Envi Eng, The Univ of Edinburgh)*

*Dean, Faculty of Environment & Resource Studies*

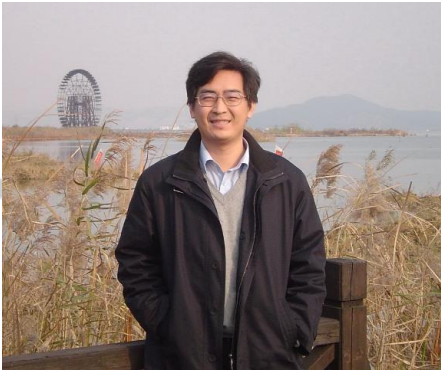
*Mahidol University*

*Co-Chair, APBITMS Intl Spring Conf 2012*

Professor Kampanad assumed the deanship of the Mahidol University recently, and is one of the successful and youngest educational leaders in the country. He holds a PhD from the University of Edinburgh, UK and a MSc in Technology Management degrees. Dean Kampanad authored more than ten books and softwares, and hundred of technical papers in the area of his research expertise, covering the *development of improved methods for modeling complex water resources systems; real time equitable water allocation and water scheduling in complex irrigation systems under scarcity period using Genetic Algorithms and other adaptive systems, water-related disasters, and climate change adaptation.*

Dean Kampanad served as the President of Thai Water Partnership Foundation and Steering Committee member of Southeast Asian Global Water Partnership till 2008. He led the writing of Climate Change Adaptation Initiative Report, MRC in 2009. He also served as the President of the Mahidol University Faculty Senate in the same year.

*Business Innovation  
&  
Technology Management Society*



**Plenary Speech on  
China's Circular Economy**

*Assoc.Prof. Shi, Lei PhD  
Tsinghua University, Beijing, China*

Dr. Shi is a young and energetic researcher in the China's No. 1 university – Tsinghua University, Beijing. He has led several research projects in the area of eco-industrial park (EIP) in the context of circular economy of China, at the key laboratory of Tsinghua and advising various local government units (LGUs) in China. His research pilot projects include Fujian Province (2005-2006); Anyang High-tech Industrial Park, Henan Province (2005-2006); Yixing High-tech Industrial Park, Jiangsu Province (2005-2006), Quzhou Chemical Industrial Park (2000-2001); municipal projects include Handan City, Hebei Province (2006); Gongyi City, Henan province (2005-2006); Yima City, Henan province (2004-2006); Beijing, (2004); Guiyang, Guizhou Province (2002-2003), Jiangsu Province (Industrial Sector, 2002-2003); Liaoning Province (2004-2005); Beilun and Baotou (Mongolia) 2008-2009, to name a few.

Shi Lei received and has been responsible in managing project grants of Tsinghua University that are from the United Nations, National China's government, local government, German GIZ, World Bank. His 2007 research on the Material Flow Accounting (MFA) of aluminum across entire China was funded by the Aluminum Industry Association, and generated great benefits to the private business sector.

Professor Shi is not only known nationally but internationally. He has led research teams to the Gordon series at Queen's College of Oxford University, UK for several consecutive years. He co-chaired International Society for Industrial Ecology (ISIE) conference in Toronto, Canada; currently led the organizing committee for two very big industrial ecology events to be held in China and Korea in 2012 and 2013.

*Business Innovation  
&  
Technology Management Society*



## **Plenary Speech on Renewable Energy**

*Prof. Joseph Khedari PhD*

*Director, Rattanakosin College for Sustainable Energy and Environment  
Rajamangala University of Technology Rattanakosin*

As an honorary consultant to the Senate of Thailand (Standing Committee on Energy, the Sub-Standing Committee on Energy Strategy of Thailand, Sub-Standing Committee on Renewable Energy of the Senate of Thailand) from 2009-2011; Professor Khedari is a Thai-hearted resident and a national of France. Joseph obtained his Doctorat Nouveau Régime in Sciences for Engineer, Energy, Honor; and Habilitation A Diriger Des Recherches En Sciences (the highest French graduate diploma) at the Université de Nice-Sophia Antipolis.

Prior to joining Rajamangala University of Technology Rattanakosin to establish the College for Sustainable Energy and Environment; Dr. Khedari founded the Building Scientific Research Center (BSRC) of King Mongkut's University of Technology Thonburi (1993-2004); and served in various positions at the Federation of Thai Industries, Kasertsat University, South-East Asia University etc.

Professor Khedari has published more than 400 publications in various national and internationally renewed journals and conference proceedings in various fields.

*Business Innovation  
&  
Technology Management Society*

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*



## **Plenary Speech**

### **Innovation and Sustainable Tourism**

*Prof. Walter Jamieson PhD*

*Professor and Director*

*Service Innovation Program, College of Innovation*

*Thammasat University*

**Professor Walter Jamieson** has more than 35 years of experience as a consultant, teacher, trainer, facilitator and researcher in more than 20 countries. As a team leader and a team member, he has participated in over 130 research and consultancy projects. He has been involved in the development and delivery of a number of courses for professional and general audiences at many international locations. He has published and presented widely and is solely or jointly responsible for over 250 publications, papers, presentations and outreach lectures.

Specializing in human resource development, hospitality management, innovation in the hospitality industry, tourism planning and development, and heritage resource management, Prof. Jamieson has been a member of faculty and management at five international universities in United States, Canada, Thailand and Japan. Prior his appointment at Thammasat University, he was Dean of the School of Travel Industry Management at the University of Hawaii.

He has enjoyed a multidisciplinary education with degrees from University of Birmingham, England, Edinburgh College of Art/Heriot-Watt University, Scotland, and York University, Canada.

Prof. Jamieson strongly believes in bringing the academic and industry worlds together and currently serves as Sustainable Tourism and Development Specialist, AECOM Singapore Pte. Ltd., and Senior Advisor, International Education, Dusit International. He has worked with the United Nations World Tourism Organization, ESCAP and UNESCO.

*Business Innovation  
&  
Technology Management Society*

(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"

## Conference Committees

2012 (Spring) APBITM organized by



Asia Pacific Business Innovation and Technology Management Society



Mahidol University



Thammasat University



Rajamangala University of Technology, Rattanakosin

### 2012 (Spring) APBITM Conference Chair

#### Conference Chair

Anthony SF Chiu

Professor, De La Salle University, Philippines

President, APBITM Society

#### APBITM Society

Jackie ML Tseng

Executive Director

Jerry CH Liao

Deputy Executive Director

#### Co-Chair

Kampanad Bhaktikul

Faculty of Environment and Resources

Mahidol University, Thailand

Tatre Jantarakolica

Faculty of Economics

Thammasat University, Thailand

Korbkul Jantarakolica

College of Innovation Management

Rajamangala University of Technology

Rattanakosin, Thailand

#### Journal Editorial Board

Lawrence WW Lan

Jackie ML Tseng

Adam YH Lin

Kaye Aviso

Jerry CH Liao

#### Organizing Committee

Jackie ML Tseng (apbitms@gmail.com)

Kitikorn Charmondusit

Yuan Ho Chen

Rong Hui Chen

#### Program Committee

Thomas CC Chen

Cecile Pana

Emee Tan

#### Secretariat HQ

Gary KJ Wu

Mar-Len Merces

**International Advisory Team**

Australia: David Ness, University of South Australia

China: Geng Yong, Chinese Academy of Sciences

Shi Lei, Tsinghua University

Wen CG, Tsinghua University

Zhu QH, Dalian University of Technology

H.K.: Richard Fung, City University of HK

Paul Forster, HKUST

Indonesia: Louie Divinagracia, University of Pelita Harapan

Pujawan Nyoman, Sepuluh Nopember Surabaya University

Japan: Tsuyosi Fujita, National Institute of Environmental Sciences

Korea: Hung Suck Park, Ulsan University

Malaysia: Zulnaidi Yaacob, Universiti Sains Malaysia

Philippines: Purba Rao, Asian Institute of Management

Eppie Clark, De La Salle University

Singapore: Harn Wei Kua, National University of Singapore

Sri Lanka: Peiris, Vidya Rupage Sena, NCPC

Sweden: Tomohiko Sakao, Linköping University

Switzerland: Suren Erkman, University of Lausanne

Netherlands: Frank Boons, Erasmus University

Thailand: Kitikorn Charmondusit, Mahidol University

Pisal Yenyaree, Thammasat University

Taipei: Remen Lin and Bob Yang, National Yunlin University of S&T

C.C. Tsai, National Ocean University of S&T

H.C. Wang, National Cheng Kung University

C.C. Lin, MingDao University

H.C. Huang, National Sport University

USA: Anthony Halog, University of Maine

Jennifer Howard Grenville, Univ. of Oregon

John Groth, Texas University

Joseph Sarkis, Clark University

**Proceedings Editorial Team**

Ming-Lang Tseng, Lung Hwa University, Taiwan

Anthony SF Chiu, De La Salle University, Philippines

Kuo-Jui Wu, De La Salle University, Philippines

Mar-Len Merces, De La Salle University, Philippines

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*

Date Time	Day 1 (January 13, 2012)	Day 2 (January 14, 2012)			Day 3 (January 15, 2012)		
	Friday	Saturday			Sunday		
	<b>0800-1045</b>	<b>Opening Ceremony and Plenary Talks</b>			<b>SU1-A BM/CM</b>	<b>SU1-B SUS</b>	<b>SU1-C Special</b>
0800-0830		Registration					
0830-0845					1043	1023	1112
0845-0900					1147	1014	1113
0900-0915		Address by APBITMS President			1156	1015	1114
0915-0930		Plenary Speech by Kampanad			1145	1018	1163
0930-0945		"Thailand Flood"			1063	1025	1164
0945-1000		Plenary Speech by Shi Lei				1071	1165
1000-1015		"Circular Economy"					
<b>1015-1045</b>		<b>Morning Tea Break</b>					
	<b>1045-1330</b>	<b>Plenary Speeches</b>			<b>SU2-A</b>	<b>SU2-B</b>	<b>SU2-C</b>
					<b>MKG/ E&amp;FM</b>	<b>TM</b>	<b>Special</b>
1045-1100		Address by Co-Chairs			1003	1053	1168
1100-1115		Plenary Speech by Joseph Khedari			1104	1055	1169
1115-1130		"Renewable Energy"			1125	1059	1170
1130-1145		Plenary Speech by Walter Jamieson			1139	1064	1171
1145-1200		"Sustainable Tourism"			1158	1065	1172
1200-1215		<b>Lunch</b>			1161	1083	#10
1215-1230							
<b>1230-1330</b>					<b>Lunch</b>		
	<b>1330-1545</b>	<b>SA1-A</b>	<b>SA1-B</b>	<b>SA1-C</b>	<b>SU3-A</b>	<b>SU3-B</b>	<b>SU3-C</b>
		<b>BM</b>	<b>TM</b>	<b>POM</b>	<b>HRM</b>	<b>SRV</b>	<b>KM/TM</b>
1330-1345	<b>JAPBITM Editorial Board Meeting</b>	1021	1017	1027	1030	1060	1082
1345-1400		1034	1020	1035	1031	1066	1116
1400-1415		1050	1039	1067	1049	1069	1123
1415-1430		1100	1042	1075	1051	1076	1115
1430-1445	<b>ProBITM Editorial Board Meeting</b>	1136	1045	1108	1061	1107	1149
1445-1500				1146	1077	1133	1046
1500-1515							
<b>1515-1545</b>		<b>Afternoon Tea Break</b>					
	<b>1545-1730</b>	<b>SA2-A</b>	<b>SA2-B</b>	<b>SA2-C</b>	<b>SU4-A</b>	<b>SU4-B</b>	<b>SU4-C</b>
		<b>E &amp; FM</b>	<b>KM</b>	<b>GM</b>	<b>HRM</b>	<b>POM/SCM</b>	<b>SUS</b>
1545-1600	<b>APBITMS</b>	1010	1013	1019	1119	1148	1110
1600-1615	<b>Board of Trustees Meeting</b>	1052	1033	1073	1127	1150	1152
1615-1630		1068	1040	1074	1134	1016	1176

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*

1630-1645		1117	1041	1120	1137	1062	
1645-1700		1126	1058	1122		1143	
1700-1715		1130	1160	1128			
1715-1730							
1730-1830	<b>Registration</b>				<b>Free Time</b>		
1830-2100	<b>Welcome Dinner</b>	<b>Gala Dinner</b>					

**Note:**

MOT: Management of Technology

SCM: Supply Chain Management

HRM: Human Resource Management

POM: Production & Operations Management

CSR: Corporate Social Responsibility

MCM: Marketing & Corporate Management

SRV: Service

STM: Strategic Management

ACT: Accountancy



*Asia Pacific*

*Business Innovation  
&  
Technology Management Society*

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*

# *APBITMS*



*Asia Pacific*



*Business Innovation  
&  
Technology Management Society*

*(ELSEVIER) The 2012 International Spring Conference on Asia Pacific Business Innovation & Technology Management  
January 13-15, 2012, JomTien PalmBeach (Hotel & Resort), Pattaya, Thailand  
Theme: "Creativity, Innovation, Technology Management and Green Design"*

Organized by:

Asia Pacific Business Innovation and Technology Management Society  
Mahidol University  
Thammasat University  
Rajamangala University of Technology Rattanakosin