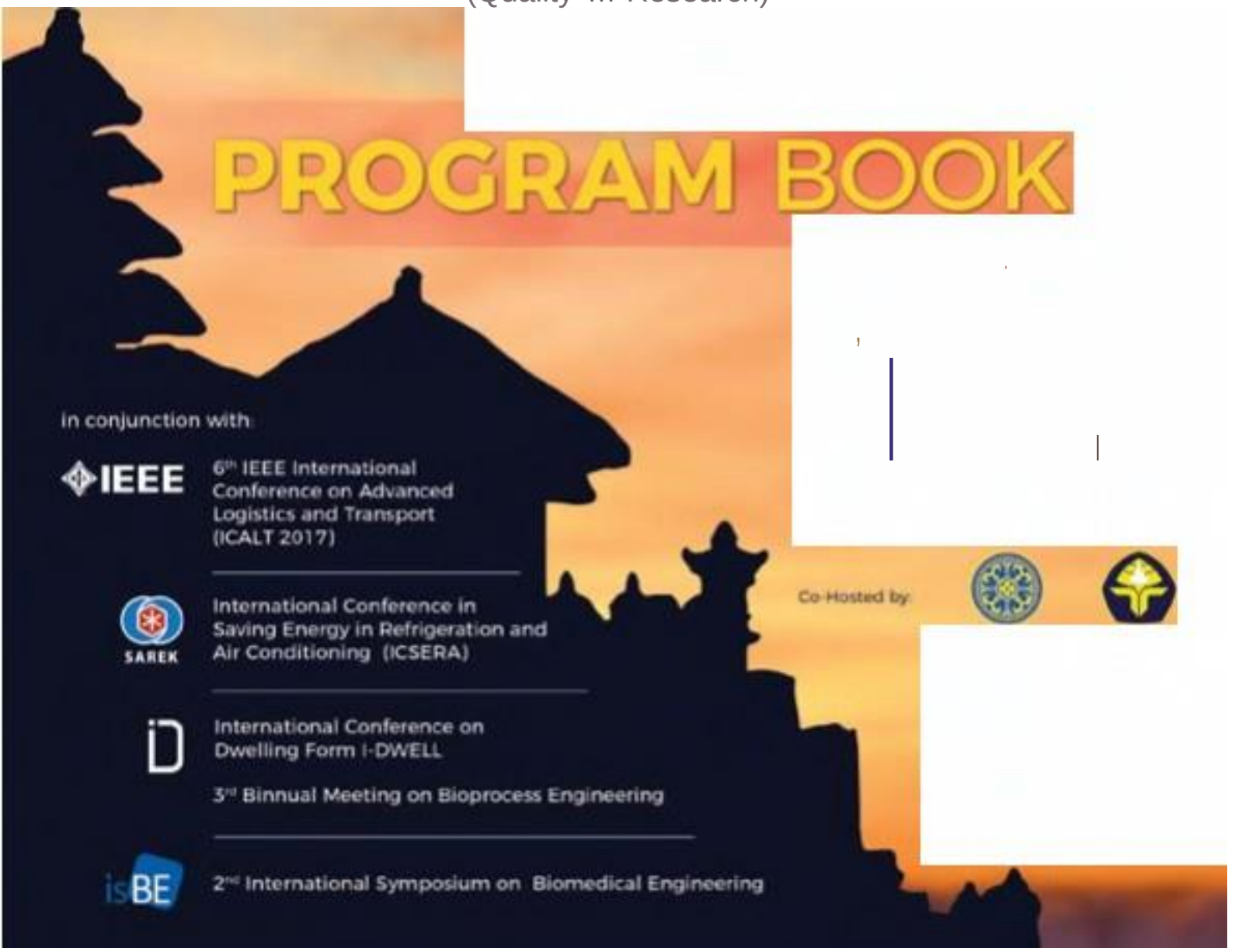
THE 15th INTERNATIONAL CONFERENCE on QiR

(Quality m Research)



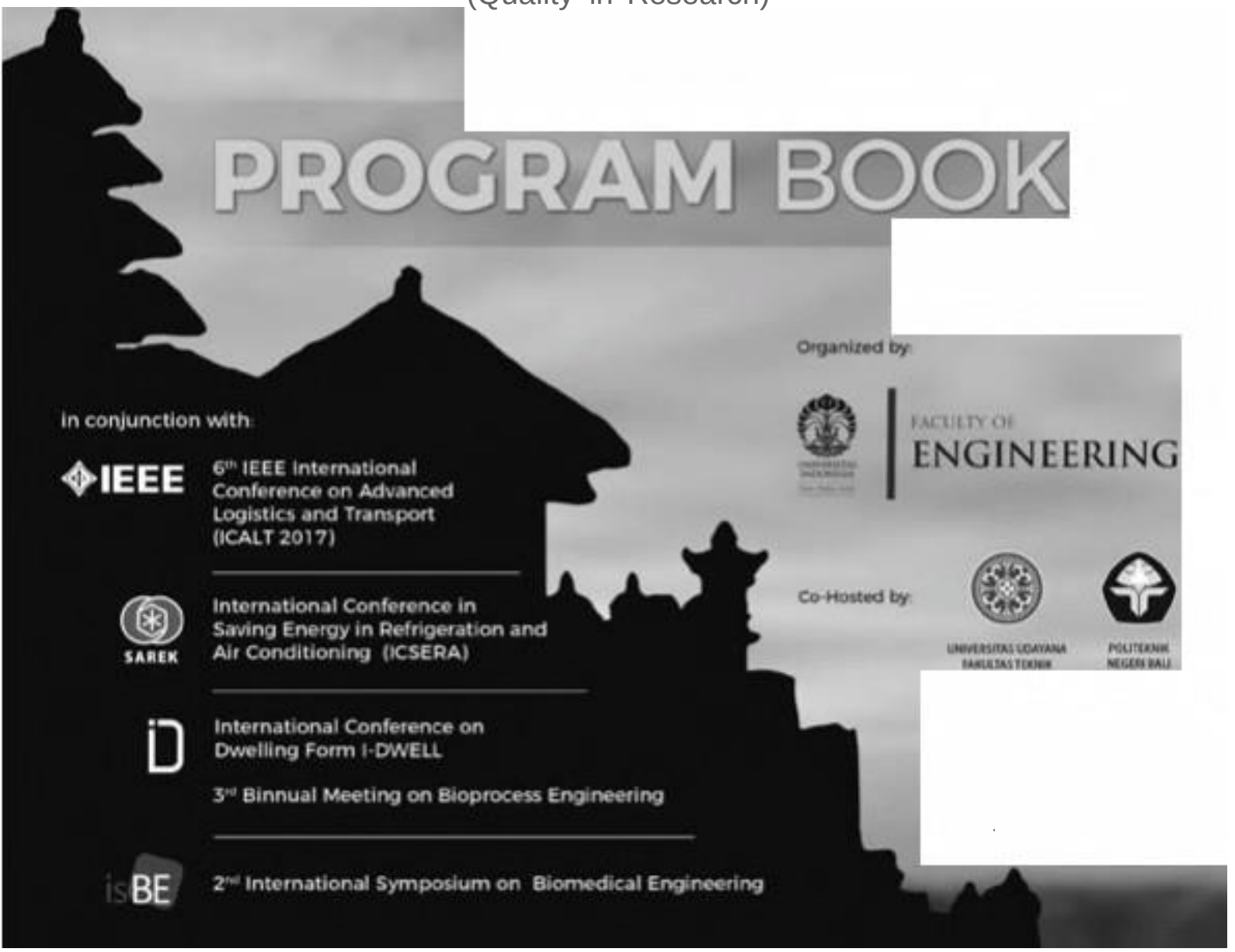
SAMUDRA MONTAZ

RELIABLE SINCE 1974

Fax: (62-21) 8973607
E-mail: montaz@indosat.net.id

THE 15th INTERNATIONAL CONFERENCE on QiR

(Quality in Research)



STARBORN CHEMICAL

COMPANY PROFILI

WHO WE ARE

Established In Jakarta On 2003, PT. LUAS BIRUS UTAMA Is 100% Local Owned Company Which Providing Chemical Services Bringing Its Trade Mark Of STARBORN CHEMICAL.

Through More Than 10 Years Experience In Oil & Gas And Petrochemical Industries, PT. LUAS BIRUS UTAMA Nowadays Is The Most Progressing Local Company In The Provision Of Chemical Services.

Our Extensive Knowledge In Water Treatment Chemistry Differentiate Us Against Our Competitor, While We Instituted Our Operation Thorough QHSE Awareness & Compliance

CONFERENCE ORGANIZER
CONFERENCE ORGANIZER

ADVISOR
- Prof. Prof. Dr. Ir. Dedi Priadi, DEA.,
- Dr. Ir. Muhamad Asvial, M.Eng.
- Ir. Hendri DS Budiono, M.Eng
- Dr. Badrul Munir, ST., M.Eng.Sc
- Jos Istiyanto, S.T., M.T., Ph.D.
- Dr. Ir. Wiwik Rahayu,DEA.
- Prof. Dr. Akhmad Herman Yuwono, M.Phil., Eng.

GENERAL CHAIR
Ardiyansyah, PhD., Universitas Indonesia

CO-CHAIR
Dr. Eny Kusrini, Universitas Indonesia

INTERNATIONAL ADVISORY BOARD
- Prof. Muhammad Anis, Universitas Indonesia
- Prof. Rosari Saleh, Universitas Indonesia
- Prof. Dedi Priadi, Universitas Indonesia
- Prof. Hiroshi Murase, Nagoya University, Japan
- Prof. Manabu Tanaka, Director of JWRI
- Prof. Kazuhiro Ito, Professor at JWRI
- Assoc. Prof. Yosuke Kawahito, Associate Professor at JWRI
- Prof. Afshin Ghajar, Oklahoma State University
- Prof. Josaphat Tetuko Sri Sumantyo, Chiba University
- Prof. Pega Hrnjak, University of Illinois at Urbana Champaign
- Prof. Greet Vanden Berghe, KU Leuven
- Prof. Joong Kee Lee, KIST, Korea
- Prof. Pekka Leviäkangas, University of Oulu
- Prof. Marie-Anne Guerry, Vrije Universiteit Brussel
- Prof. Rainer Leisten, University of Duisburg Essen
- Prof. Hamid Ullah – Universiti Teknologi Brunei

STEERING COMMITTEE
- Dr. Tri Tjahjono, Universitas Indonesia
- Prof. Yulianto S. Nugroho, Universitas Indonesia
- Prof. Benyamin K., Universitas Indonesia
- Prof. Winarto, Universitas Indonesia
- Dr. Ing. Dalhar Susanto, Universitas Indonesia
- Prof. Widodo Wahyu Purwanto, Universitas Indonesia
- Prof. Isti Surjandari Prajitno, Universitas Indonesia
- Prof. Suardana, Universitas Udayana
- I Made Rajendra, M.Eng, Politeknik Negeri Bali

SCIENTIFIC PUBLICATION PARTNER
- Dr. Nyoman Suwartha
- Dr. Mohammed Ali Berawi

TECHNICAL PROGRAM COMMITTEE
- Dr. Cindy Rianti Priadi
- Sugeng Supriadi, Ph.D
- Dr. Basari
- Chairul Hudaya, Ph.D
- Wahyuaji N. Putra, MT
- Dr.-Ing. Yulia Nurliani Lukito

CONFERENCE ORGANIZER
CONFERENCE ORGANIZER

ADVISOR

- Dr. Bambang Heru Susanto
- Komarudin, Ph.D
- I Dewa Gede Ary Subagia, PhD
- Dr. Wayan Nata Septiadi
- Dr. I Nyoman Suamir

Secretariat and Registration
Herra Astasusmini, SE
Agnes Sagita Nauli, S.I.A.
Indah Sari Dewi

Treasurer
- Evy Surpiningsih, S.Pd., MM
- Nuri Nugraini, Amd

Programme and Protocol
Tikka Anggraeni, M.Si.

Design and Documentation
- Rengga Wibisono, S.Sos.
- Muhammad Badi

Web and Information System
- I Gede Dharma Nugraha, S.T., M.T.
- Boma Anantasatya Adhi, ST., M.T.
- Ruki Harwahyu, S.T., M.T., M.Eng.
- Ardiansyah, ST., M.Eng.
- Gunawan Heri Saputra, Amd

Exhibition and Sponsorship
- Dr. Ir. Nahry., MT.
- Dr. Adi Surjosatyo, M.Eng.
- Dr. Muhammad Suryanegara
- Kemas Ridwan Kurniawan, ST., MSc., PhD.
- Dr. Tania Surya Utami, S.T., M.T.
- Ir. Erlinda Muslim, MEE.

Venue and Facilities
- Jumiardi, S.Ars
- Hadi Mulyadi

Meal
- Yunita Dewi Hapsari
- Indri Feriani

Conference Organizing Committee :
Faculty of Engineering Universitas Indonesia
Dekanat Building 3th Floor Kampus UI, Depok 16424, Indonesia
Phone : +62-21- 7863503, Fax : +62-21 – 7270050
Email : qir@eng.ui.ac.id,
Website : http://qir.eng.ui.ac.id
www.eng.ui.ac.id

#6' PERTAMINA AVIATION

Head Office: Pet,ta Air Offn, A 8"ildlng • 2nd Floor
.l.lion Abdul Muis No. 52·56 A
J.lurtaPusat 10160-ltldoneoia
Phone:-K>2213440069fax:+62213440010

http#www.pertamina.com/•lliation

PREFACE

WELCOME FROM THE RECTOR OF UNIVERSITAS INDONESIA

It is both a pleasure and honor for me to welcome you all to the 15th International Conference on QiR (Quality in Research) 2017 in Nusa Dua, Bali, Indonesia.
Universitas Indonesia strives to be one of the leading research universities and the most outstanding academic institution in the world. UI is distinctive among research universities in its commitment to the academic invention and research activities through various scientific programs. QiR 2017 is our main academic conference in the field of engineering and technology which has been successfully held for the last two decades. It is our hope that this world class scientific program would showcase our scientists and researchers achievements and provide forums for scientific exchanges in their respective fields.

The theme this year of 'Science, Technology and Innovation for Sustainable World', is very relevant with the fact that the globalization today results in very competitive atmosphere in all aspects. However, this flourishing competition should consider the harmony and balance between human needs and the environment quality for creating favorable sustainable future. Scientists and researchers, hand in hand with industrial experts are creating and developing new sustainable technologies that enable us to make products and services more efficient, design better buildings, produce safer cars, keep people healthier and building smarter cities.

I extend my sincere thanks to the Faculty of Engineering Universitas Indonesia, supporting parties and institutions for their participation and contributions in QiR 2017. I would also thank our colleagues from Universitas Udayana and Politeknik Negeri Bali for their gracious support and hospitality. Additionally, I extend a hearty thank you to the members of the organizing committees for dedicating their valuable time so that each one of us enjoys an exceptional conference program over the next several days. May we have a successful, stimulating, fruitful and rewarding conference.

Prof. Dr. Ir. Muhammad Anis, M.Met.
Rector
Universitas Indonesia

PREFACE

WELCOME FROM THE DEAN OF FACULTY OF ENGINEERING UNIVERSITAS INDONESIA

Welcome to the 15th International Conference on QiR (Quality in Research) 2017. The Faculty of Engineering Universitas Indonesia is delighted to host our flagship international academic event this year back in Bali, Indonesia. This two-day, biennial conference is presented together with our co-hosts Universitas Udayana and Politeknik Negeri Bali with the hope that this would be able to provide an international media for exchange of the knowledge, experience and research as well as the review of progress and discussion on the state of the art and future trend of prospective collaboration and networking in broad field of science, technology and innovation.

The main theme for this year conference, "Science, Technology and Innovation for Sustainable World" is consistent with the mission of our faculty to be a leading institution with the initiatives that responds to local, national and global societal needs. In that context, the Faculty of Engineering Universitas Indonesia is performing state-of-the arts research and development in engineering and architecture areas which results in technology and innovation which contribute to sustainable development at both national and global level. QiR 2017 provides platforms and forums to disseminate our scientific achievements and exchange information with our counterparts from Indonesia and all over the world. This event will allow for further research and education collaborations between Universitas Indonesia and its partners worldwide.

I would like to express my deepest appreciation to our sponsors, supported parties and various contributors for their never ending supports of this conference. I would also like to convey my gratitude to all of our distinguished speakers for making the time to share their knowledge with us. To our fellow researchers and/or practitioners from Indonesia and overseas, welcome and enjoy your stay in this Nusa Dua, Bali. I would also like to invite all participants in expressing our appreciation to all members of the QiR 2017 organizing committee for their hard work in making this conference success.

Prof. Dr. Ir. Dedi Priadi, DEA
Dean Faculty of Engineering
Universitas Indonesia

PREFACE

WELCOME FROM THE QiR 2015 ORGANIZING COMMITTEE

On behalf of the organizing committee, it is a great pleasure for us to welcome you to the 15th International Conference on Quality in Research (QiR) 2017 to be held in Bali, Indonesia on July, 24 – 27, 2017. This biennial event is co-organized with the Faculty of Engineering Universitas Udayana and Politeknik Negeri Bali.

The main theme for this year conference is "Science, Technology and Innovation for Sustainable World". Under this theme the conference focuses on the innovative research and contribution in science and technology toward achieving sustainable world. In line with this theme, it is our utmost pleasure to hold the QiR 2017 in conjunction with the 6th IEEE-International Conference on Advanced Logistics and Transport (ICALT), the 2nd International Symposium on Biomedical Engineering (ISBE 2017), International Conference in Saving Energy in Refrigeration and Air Conditioning (ICSERA) and the 3rd Biannual Meeting on Bioprocess Engineering.

The QiR 2017 brings together national and international academicians, researchers, executives, government, industrial and business officials, practitioners and leaders to present and discuss a vast range of engineering, architectural designs and community development based on green and smart technology. It is our hope and aim that this conference would be able to provide an international media for exchange of the knowledge, experience and research as well as the review of progress and discussion on the state of the art and future trend of prospective collaboration and networking in broad field of science, technology and innovation. Furthermore, QiR 2017 benefits industry sector, since it would create a close contact between and among the audiences. The audiences mostly come from different job and activities: therefore this is a great potential and opportunity to meet each other, creating fruitful discussions and broaden business relationship.

QiR has been growing, since its first event two decades ago, into our flagship academic event with international reputation. This year, we have received almost 1000 submissions from more than 26 countries. Along with our events in conjunction, more than 500 oral and poster presentations is scheduled with expected 700 participants gather in the event.
On behalf of QiR 2017 committee, we would like to thank all of our speakers, participants, contributors, partners and professional associations for their generous contributions. We also would like to acknowledge the support from our International Advisory Board members and distinguished reviewers. Last but not least, a special thanks to our local co-organizer, Universitas Udayana and Politeknik Negeri Bali.
We wish all of you a productive and rewarding conference, also a pleasant and memorable stay in Nusa Dua, Bali, Indonesia.
Thank you and we hope to see you again in QiR 2019.

Ardiyansyah, Ph.D.
General Chair of QiR 2017 Organizing Committee

KEYNOTE SPEAKER

- Dr. Thomas J. Goldsby | Ohio State University, USA.
- Prof. Jackie Yi-Ru Ying | Institute of Bioengineering and Nanotechnology in Singapore
- Prof. Dr. Drs. Benyamin Kusumoputro, MSc. | Universitas Indonesia, Indonesia

INVITED SPEAKER

- Dr. Bambang Trigunarsyah, Ph.D., PMP. | King Fahd University of Petroleum and Minerals, KSA
- Prof. Dr. rer. nat. habil Uwe Lahl | Technische Universitat Darmstadt (TUD), Germany
- Dr. Guillermo Rein | Imperial College London, United Kingdon
- Prof. Jae Dong Chung, B.S., M.S., Ph.D | Sejong University, South Korea
- Prof. Dr. Yifan CHEN, FIET, SMIEEE | University of Waikato, New Zealand
- Prof. Dr.-Ing Ir. Kalamullah Ramli, M.Eng. | Universitas Indonesia, Indonesia
- Prof. Dr. Ir. H.J. (Erik) Heeres | University of Groningen, Netherland
- Prof. Nishikawa Hiroshi | Joining and Welding Research Institute Osaka University, Japan
- Ashok K. Das, B.Arch., M.A., M.Arch., Ph.D | University of Hawai'i Manoa, USA
- Professor Margaret Petty | Queensland University of Technology, Australia
- Professor Kousuke Hiromori | Tohoku University, Japan
- Professor Masafumi Yohda | Tokyo University of Agriculture and Technology, Japan
- Dr. Mark Harrison | Queensland University of Technology, Australia
- Prof. Joe da Costa | The University of Queensland, Australia
- Dr. Volkan Degirmenci | University of Warwick, United Kingdom
- Prof. Marie-Anne Guerry | Vrije Universiteit Brussel, Belgia
- Prof. Pekka Leviakangas | University of Oulu, Finland
- Peter Simmonds | ASHRAE Instructor

ACKNOWLEDGEMENT

The 15th International Conference on QiR (Quality in Research) Organizing Committee wishes its gratitude and appreciation to :

Prof. Dr. Ir. Muhammad Anis M.Met., Rector of Universitas Indonesia
for consenting to be the guest of honour

All invited speakers session, moderators and conference speakers, for their participation.
All conference Sponsors, Supporters, Exhibitors and advertisers for their generous support.
All participants and others who have in one way or another contributed towards the success of this conference.

PLATINUM SPONSOR

UNIVERSITAS INDONESIA

STARBORN

PERTAMINA AVIATION

SILVER SPONSOR

Queensland University of Technology

WASKITA

BANK BUKOPIN

SUPPORTED BY

REPJOt

TIMAH

PremiorOU

INFIHITIGROUP

HrocOOt.uQ

BNI

S1 Reguler

Progra,m Stud/:

Program Profesi

Pro,r.m $N6

International Undergraduate

fAll.tJU.U

St,dy

Ntrltlc

Teknik Mffifol

52 Magister

T..._ JC.on<pAer

Program Stvdl:
T-Sipi

Ttl<i.k

&.MMtf'tl

E"il-

TEKNIK

T8:I'ill; h:11.15-wi

Tfknik tnduW'f

P,,rtr,,., *Unlwnlty:*

&nformaai

Teknolgti Elu,nedik

Pend ftaran melatui
http://sbmptn.10.id

S1 P1ralal

S3 Doktor
Progr,m *Studh*
T — S.,,
TtlnkMI*t
tlr:nlk(W 0

Studl:

T . k .... &........W

UNIVERSITAS INDONESIA

THE NEXT LE
OF EXCELLE

BE A PIIIT OF IIIE I.EIIIN6 EIIIINEEAIN6 IISTI11JTIl)lj IN

UNIVERSITÄT DUISBURG ESSEN
MONASH University
QUT Queensland University of Technology
THE UNIVERSITY OF SYDNEY
THE UNIVERSITY OF QUEENSLAND AUSTRALIA
Curtin University

KEYNOTE SPEAKER

Thomas Goldsby
Ohio State University

Dr. Thomas J. Goldsby is a Harry T. Mangurian, Jr. Foundation Professor in Business and Professor of Logistics at The Ohio State University. He holds a B.S. in Business Administration from the University of Evansville, M.B.A. from the University of Kentucky, and Ph.D. in Marketing and Logistics from Michigan State University. He is the Co-Editor-in-Chief of the Journal of Business Logistics and former Editor of Transportation Journal. He serves as Associate Director of the Center for Operational Excellence (COE), a Research Fellow of the National Center for the Middle Market, and a research associate of the Global Supply Chain Forum, all housed at Ohio State's Fisher College of Business.
His research interests include logistics strategy, supply chain integration, and the theory and practice of lean and gile supply chain strategies. He has published more than 50 articles in academic and is the co-author of five books and is a proud recipients of: the Best Paper Award at the Transportation Journal (2012-2013), Bernard J. LaLonde Award at the Journal of Business Logistics (2007), and has twice received the Accenture Award for best paper published in the International Journal of Logistics Management (1998 and 2002). Dr. Goldsby has received recognition for excellence in teaching at Iowa State University, The Ohio State University, and The University of Kentucky.

Jackie Yi-Ru Ying
Institute of Bioengineering and Nanotechnology in Singapore

Prof. Jackie Yi-Ru Ying was born in Taipei in 1966. She earned a B.Eng. degree, graduating summa cum laude from Cooper Union in 1987. She then attended Princeton University, receiving her MA in 1988 and her PhD in 1991, both in chemical engineering. She spent a year as a Humboldt Fellow at the Institute for New Materials in Saarbrücken and researched nanocrystalline materials with Herbert Gleiter. Prof. Ying became a professor in the Department of Chemical Engineering at the Massachusetts Institute of Technology (MIT) in 1992. She was made a full professor in 2001; at 35 she was one of MIT's youngest full professors. She returned to Singapore in 2003 to serve as the first executive director of the Institute of Bioengineering and Nanotechnology, a division of the Agency for Science, Technology and Research (A*STAR). Her research concerns the biomedical and catalytic applications of nanostructured systems and materials.
She was elected to the Singapore Women's Hall of Fame in 2014. She was one of the recipients of the inaugural 2015 Mustafa Prize awarded by the Mustafa Science and Technology Foundation. She was also awarded the "Top Scientific Achievement" award for "her great scientific and technological contributions and achievements to the synthesis of well-designed advanced nanostructured materials and systems, nanostructured biomaterials and miniaturisedbiosystems for various interesting applications".

KEYNOTE SPEAKER

Benyamin Kusumoputro
Universitas Indonesia

Prof. Dr. Drs. Benyamin Kusumoputro, MSc is a Professor in Computer Intelligence in the Electrical Engineering Department, Faculty of Engineering Universitas Indonesia. He was born in Bandung on November 17th, 1957. He graduated from Bandung Institute of Technology in 1981 with a Bachelor Degree in Physics and was awarded a Master of Engineering Science in Optoelectronics and Laser Applications from Universitas Indonesia, and a Doctoral degree in Engineering from Electrical and Electronics Engineering Department, Bio- sensors, Tokyo Institute of Technology, Tokyo, Japan in 1993. His interest area of research includes: Development of Computational Intelligence and Methodology for Artificial Senses.
He is a member of Institute of Electrical Engineering of Japan (IEEJ), International Society for Optical Engineering (SPIE), International Association of Science and Technology for Development (IASTED), and World Scientific and Engineering Academy and Society (WSEAS). Some of the awards he has received are: Bronze Medal of Civil Servant, Government of Indonesia, 2005; University Research Achievement, Universitas Indonesia in 2005; and representing Universitas Indonesia in the National Outstanding Lecture Competition in 2016.

INVITED SPEAKER

Uwe Lahl
Technische Universitat Darmstadt (TUD)

Prof. Uwe Lahl was born on 20 March 1951. Prof. Uwe Lahl holds a doctorate (Dr.rer. nat.) and a professorial degree (PD, Habilitation). Since April 2014, he is Head of the Ministry of Transportation of the German federal state of Baden-Württemberg. Before, he was manager at the BZL Kommunikation und Projektsteuerung GmbH (2009 – 2014) and Head of the Directorate General for Environmental Health, Air Pollution Control, Safety of Installations and Transport, Chemical Safety at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2000-2009).

Since 2008, he is, too, associated Professor at Technical University of Darmstadt. In 2010, he started teaching at the University of Indonesia at the Faculty of Engineering in the Department of Environmental Engineering and became adjunct Professor at the University of Indonesia in 2011.

INVITED SPEAKER

Bambang Trigunarsyah
King Fahd University of Petroleum and Minerals

Dr. Bambang Trigunarsyah is an Associate Professor in the Construction Engineering and Management Department, King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia. He earned his BSc in Engineering (Civil) from Colorado School of Mines in the USA, a Master degree in Civil Engineering (Construction Management) from the University of Indonesia, and a PhD in Engineering Project Management from the University of Melbourne, Australia. Dr. Bambang Trigunarsyah research interests are in the area of: Construction management and economic, Constructability and operability of infrastructure project, Knowledge management in project based organization, Post-disaster reconstruction project management, Quality management in construction, and Infrastructure project delivery and infrastructure asset management.
Previously, Dr. Bambang Trigunarsyah was an Associate Professor and the Course Leaders for Master of Project Management and Master of Infrastructure Management in the School of Civil Engineering and Built Environment, Queensland University of Technology (QUT), Australia, from 2007 to 2013. He continues his association with QUT as an Adjunct Associate Professor. Dr. Bambang Trigunarsyah was the Head of the Civil Engineering Department at Universitas Indonesia (2004-2006) and an Associate Professor in Construction Project Management. Dr. Bambang Trigunarsyah started his full time tenure at Universitas Indonesia in 2001, following the completion of his PhD study from the University of Melbourne, Australia

Guillermo Rein
Imperial College London

Dr. Guillermo Rein studied Mechanical Engineering at University of California at Berkeley (MSc 2003, PhD 2005) and before then was at ICAI Universidad Pontificia Comillas (Ingeniero Industrial, 1999). Dr. Rein is editor in Thermal Energy at the Department of Mechanical Engineering of Imperial College and Editor-in Chief of the Journal Fire Technology. His research is centered on heat transfer, combustion and fire science.

Over the last 15 years, he has been best known in three areas: 1) how polymers and wood ignite and how to avoid it; 2) how engineers can design better structures that resist fires; and 3) how wildfires spread in the forest and how to manage them. Dr. Guillermo Rein is known in the building sector for changing the way UK fire engineers design modern infrastructure. His work has been recognized internationally with a number of research awards (e.g. Lund Award, Wildfire Early Career Award, Hinshelwood Prize, and Distinguished Paper in the Combustion Symposium). Dr. Guillermo Rein has been featured in several international media (e.g. Financial Times, BBC Radio, and New York Times) for his expertise.

INVITED SPEAKER

Jae Dong Chung
Sejong University

Prof. Jae Dong Chung received his Bachelor of Science in 1990 from Seoul National University and continued on to finished his Master of Science in 1992 and Ph.D in August 1996 from the same university. He is currently a Professor at the Department of Mechanical Engineering, Sejong University Korea. His research fields include (1) thermal energy storage and transport; (2) Refrigeration Driven by Low Temperature Energy Sources: Desiccant Cooling, Adsorption Cooling; (3) Phase Change; (4) Nano-scale Heat Transfer.
In 2016, Prof. Jae Dong Chung received the Best Paper Award by Minister of Land, Infrastructure and Transport. He was also awarded as Outstanding Academic Award by Society of Air Air-conditioning and Refrigerating Engineers of Korea in 2014, and also Best Paper Award by Minister of Ministry of Trade Industry and Energy in 2014. Prof Jae Dong Chung also joined professional association i.e. The Korean Society of Mechanical Engineering, Thermal Division as an Director of General Affairs since 2009 until present, Chairperson of the division of Low Temperature Facilities Engineering in SAREK, Vice president of B1 commission of IIR from 2015 until present, International Journal of Air-Conditioning and Refrigeration as an Editor from 2009 until present, Journal of Mechanical Science and Technology as an Associate Editor from 2008 until present and so forth.

Yifan Chen
University of Waikato

Dr. Yifan Chen is a Professor of Engineering and the Associate Dean of External Engagement for the Faculty of Science and Engineering and the Faculty of Computing and Mathematical Sciences in the University of Waikato, Hamilton, New Zealand. His current research interests include electromagnetic medical imaging and diagnosis, transient communication with application to healthcare, touchable communication and computation with application to targeted drug delivery and contrast-enhanced medical imaging, fundamentals and applications of nanoscale and molecular communications, and channel modelling for next-generation wireless systems and networks.
He is the Coordinator of the European FP7 "CoNHealth" project on intelligent medical ICT, an elected Working Group Co-leader of the European COST Action TD1301 "MiMed" project on microwave medical imaging, an Advisory Committee Member of the European Horizon 2020 "CIRCLE" project on molecular communications, a Voting Member of the IEEE Standards Development Working Group 1906.1 on nanoscale and molecular communications, an Editor for IEEE ComSoc Best Readings in Nanoscale Communication Networks and IEEE Access Special Section in Nano-antennas, Nano-transceivers, and Nano-networks/Communications, and a Vice Chair of the IEEE Nano-scale, Molecular and Quantum Networking Emerging Technical Subcommittee. He is a Fellow of IET and a Senior Member of IEEE.

INVITED SPEAKER

Kalamullah Ramli
Universitas Indonesia

Prof. Kalamullah Ramli is a Professor in Computer Engineering since July 1, 2009. He finished his Master in Telecommunication Engineering at University of Wollongong, NSW, Australia, in 1997. He then continued his Doktorarbeit on Computer Networks in year 2000 at Universitaet Duisburg-Essen, NRW, Germany, and obtained his Dr.-Ing. in year 2003. His research interests include embedded system, network and information security, computer and communications, and intelligent transportation system. Prof. Kalamullah Ramli was the Director General of Post and ICT Operations of the Ministry of Communication and Information Technology (2013 - 2016). Prof. Kalamullah Ramli has many collaboration work between universities from German, Italy and Malaysia. One of his collaboration received an "AsiaLink" grant from the European Comission between 2005 - 2007 to deliver an initiative named "Improving Mobility of Student between Europe and ASEAN" which resulted in a prototype model of Credit Transfer System Platform between ASEAN and Europe. Based on this experience he was elected as one of the speaker on ASAIHL Conference on December 2008 in Jakarta. This ASAIHL is managed by ASEAN Universities to implement a platform for Credit Transfer System between Universities in ASEAN.

H.J. (Erik) Heeres
University of Groningen

Prof. Dr. Ir. H.J. Heeres was born in 1963. He graduated in 1990 from the University of Groningen, with a thesis on the development of novel homogeneous lanthanide catalysts for the conversion of unsaturated hydrocarbons. Afterwards, he performed a post-doctoral research at the University of Oxford, in the group of J.M. Brown on asymmetric catalysis from 1990 to 1991. In 1995 he graduated from Technical University Twente in Chemical Engineering and achieved a Master Degree. From 1991 to 1999, he was employed at Shell Research, in Amsterdam and Pernis, and worked on a range of applied catalysis topics. He joined the chemical reaction engineering department of the University of Groningen, in 1999, as an assistant professor. Four years later, he was appointed full professor in green chemical reaction engineering.
His research interest concerns on the development of efficient catalytic technology for acid- and metal-based catalytic biomass conversions, with an emphasis on biofuels (catalytic pyrolysis, pyrolysis oil upgrading), platform chemicals (levulinic acid, hydroxymethylfurfural) and performance materials from biomass (starch modifications). The group is actively involved in national and international consortia (for example, the European Union 6th framework project Biocoup) dealing with catalytic pyrolysis oil upgrading. Prof. Dr. Ir. H.J. Heeres is the (co-) author of 185 papers in international peer reviewed journals (h-index 44) and 12 patents in the field of applied catalysis and chemical reaction engineering. Heeres is also a member of the KoninklijkeHollandscheMaatschappij der Wetenschappen and an associate editor of the Journal of fuel processing technology.

INVITED SPEAKER

Nishikawa Hiroshi
Joining and Welding Research Institute Osaka University

Nishikawa Hiroshi was born at Japan in 1973. He is an Associate Professor at Joining Welding Research Institute, Osaka University from 2007 until present. Nishikawa Hiroshi finished his Bachelor Engineering in 1997 at Department of Welding and Production Engineering, Osaka University and continued to finish his Master of Engineering in 1999 at Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University. On 2002, he achieved his Doctoral of Engineering from the same university.

Ashok K. Das
University of Hawai'i Manoa

Ashok K. Das, Ph.D received his Bachelor of Architecture from the School of Planning and Architecture, New Delhi India in 1996. He continued to finish his master degree in Environmental Planning and Management at Kansas State University, Manhattan and received his Master of Art and Master of Architecture in 2001. In 2008, he started pursuing his doctoral degree in Urban Planning at University of California, Los Angeles. His research interests revolve broadly around issues of urban poverty in developing countries, primarily in South and Southeast Asia. His current research areas are: (1) community participation and empowerment, (2) slum upgrading, basic services and low-income housing, (3) integrated community-based microfinance for urban poverty alleviation, (4) local planning and governance for disaster preparedness and risk education, and (5) the role of civil society and NGOs in urban planning and development. Currently Ashok is an Assistant Professor at the Department of Urban and Regional Planning, University of Hawai'i. He is also an Affiliate Faculty at the Center for Southeast Asian Studies at the same university. Since 2009, Ashok has been involved with the Cleanopolis Energy System India Private Limited (CESIPL) as an Adviser. He was invited as an expert to a discussion on "Rural-urban linkages and drivers of inequality in Asia" in May 2017 with representatives, directors and vice presidents of the Ford Foundation to explore ways for its global philanthropic mission to transcend the rural-urban dichotomy.

INVITED SPEAKER

Margaret Petty
Queensland University of Technology

Prof. Margaret Maile Petty studied Art History at the University of Oregon, Eugene to obtain her Bachelor of Art with Summa Cum Laude in 2000. After graduation, she continued her study for a Master Degree at The Bard Graduate Center, New York City and obtained her Master of Art in 2002. Before she received her Doctoral Degree in Architectural History at Victoria University of Wellington in 2016, she took the doctoral course work and qualifiying exams at The Bard Graduate Center, New York City in 2005. Currently she is Professor and Head of the School of Design in the Creative Industries Faculty at Queensland University of Technology, Australia. Her research broadly investigates the discourse, production, and consumption practices of the modern built environment, with a particular focus on artificial lighting and interiors. She has published broadly in academic journals such as the JSAH, Journal of Design History, Home Cultures, Interiors, and PLAT and is co-editor of Cities of Light: Two Hundred Years of Urban Illumination (Routledge, 2015), as well as Architectures of Display: Department Stores and Modern Retail (Ashgate, 2017). She is co-founder and member of the Advisory Board of DesignCo, Society of Architectural Historians (SAH), Society of Architectural Historians of Australia and New Zealand (SAHANZ) and International Committee on the History of Technology (ICHOTEC).

Kousuke Hiromori
Tohoku University

Kousuke Hiromori is a Ph.D candidate in the Department of Chemical Engineering, Tohoku University. He was awarded a Bachelor of Science and Master of Science both from Chemical Engineering, Tohoku University. His Thesis topic is: Recovery of Vitamin E from Rice Bran Deodorizer Distillate Using Ion-Exchange Resins.

Kousuke Hiromori has also won ICRBO 2016 Best Poster Presentation Award and Incentive Student Award of the Society of Chemical Engineers' Japan in 2017. His list of publication includes: " Novel simple process for tocopherols selective recovery from vegetable oils by adsorption and desorption with an anion-exchange resin (published in Food Chemistry, 2016), Development of Novel Process for Efficiently Seperating and Purifying Tocotrienols (published in Japan Society for Food Engineering Journal, 2016).

INVITED SPEAKER

Masafumi Yohda
Tokyo University of Agriculture and Technology

Professor Masafumi Yohda received his Bachelor Degree in 1982 from The University of Tokyo and continued to finished his Master Degree in 1984 and Ph.D. in 1987 from the same university. He is a Professor at Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology from 2003 until now.

Currently, he serves as the Vice Dean of Institute of Global Innovation Research, Tokyo University of Agriculture and Technology. His research interests including Biochemistry, Molecular Biology, Biophysics, System Engineering and Environmental Science. In 1999, Professor Masafumi Yohda was rewarded for the excellent paper award of Journal of Bioscience and Bio Engineering. He joins many professional memberships such as The Japanese Biochemical Society as a Councilor, Protein Society of Japan as a Director, The Society of Biotechnology as a Director, Manager of East Japan Branch, The Chem-Bio Informatics Society as Director.

Mark Harrison
Queensland University of Technology

Dr. Mark Harrison obtained an undergraduate degree in biochemistry from the University of Queensland in 1992. He completed his PhD (2001) at the University of Queensland, researching the molecular mechanisms by which cells transport, store, and detoxify essential metal ions. He then undertook post-doctoral work at Newcastle University (Newcastle-upon-Tyne, UK) researching the biological chemistry of metalloproteins and their role in essential metal ion homeostasis. Dr. Mark Harrison returned to Australia in 2003 and was awarded a 3 year Queensland State Government Smart State Fellowship in 2004 to produce enzymes in a model plant. The development of this technology in sugarcane was a key part of the $3.8 million research collaboration between Syngenta, one of the world's largest integrated agribusiness companies, and QUT.

Dr. Mark Harrison is a biochemist with extensive basic, applied, and commercial research experience. He is a Senior Research Fellow and foundation member of the QUT Centre for Tropical Crops and Biocommodities (https://www.qut.edu.au/research/our-research/institutes-centres-and-research-groups/centre-for-tropical-crops-and-biocommodities). Dr. Mark Harrison also provides consulting services to the Australian food and bio-industrial sector. Research in his group is focused on the conversion of agricultural wastes and residues into more valuable food, feed, fibre, fine chemical, and fuel products, (https://research.qut.edu.au/biorefining/).

INVITED SPEAKER

Joe da Costa
The University of Queensland

Prof. Joe da Costa is an Australian Research Council (ARC) Future Fellow and a Professor in the School of Chemical Engineering at the University of Queensland, Brisbane Australia. He is also the Director of the FIM2Lab – Functional Interfacial Materials and Membranes Laboratory. Prof. Joe da Costa has over 30 years working experience in industrial, consultancy and academic roles in Brazil, England, and Australia. Currently, he leads several research projects in the area of H2, CO2, O2, ethanol separation and desalination using inorganic membranes and membrane reactors, in addition to catalysts for wastewater processing. Prof. Joe da Costa has over 250 international publications including 13 book chapters, and he is an editorial board member of Nature's Scientific Report open source journal. Also, he held a prominent leadership position as a member of the Independent Scientific Panel advising the Queensland Government on underground coal gasification, and a member of the International Panel of Experts assessing the Brazilian programs of Centers of Excellence. His work has been cited over 6800 times, and his h-index is 44. He is a Chartered Professional Engineer in the Colleges of Mechanical Engineering and Chemical Engineering of the Institution of Engineers Australia.

Volkan Degirmenci
University of Warwick

Dr Volkan Degirmenci is an Assistant Professor in School of Engineering in the University of Warwick, UK. Dr. Degirmenci obtained his PhD in Chemical Engineering from Middle East Technical University, Ankara, Turkey, in 2007. Then he joined to the Molecular Heterogeneous Catalysis research group at Eindhoven University of Technology, Netherlands as a postdoctoral fellow in 2008. Next he moved to UK to the Queen's University Belfast in 2012 where he was promoted to Assistant Professor in Chemical Engineering.

Recently he joined the School of Engineering at University of Warwick in 2015. The research interests of Dr. Degirmenci are in the field of heterogeneous catalysis and reactor design with a focus on microporous and mesoporous materials. The topics of his recent research are directed towards the development of sustainable processes for biomass conversion, in-situ spectroscopy for the understanding of the reaction mechanisms and structure-activity relations in heterogeneous catalysis.

INVITED SPEAKER

Marie-Anne Guerry
Vrije Universiteit Brussel

Prof. Marie-Anne Guerry pursues her Doctoral Degree in mathematical sciences on 1985 at Vrije Universiteit Brussel and received her PhD in 1992. At the moment, Prof. Marie-Anne Guerry is a Professor at the Department of Business Technology and Operations, Vrije Universiteit Brussel since 2012. Her research expertise are Markov modeling, manpower planning and career studies.

Prof. Marie-Anne Guerry is an active reviewer for Linear Algebra and its Application, Elsevier (since 2009), British Journal of Applied Science & Technology (since 2013), Applied Mathematical Modelling, Elsevier (since 2013), TOP Journal of Operations Research, Springer Publishing Company (since 2014), Central European Journal of Operations Research, Springer Publishing Company (since 2014), Applied Stochastic Models in Business and Industry, John Wiley & Sons (since 2014), Personnel Review, Emerald (since 2015) and many more.

Pekka Leviakangas
University of Oulu

Prof. Pekka Leviakangas (born in 1962, PhD in technology) has several experiences as an expert in civil service, business and research. He is currently the Principal Scientist at VTT Technical Research Centre of Finland Ltd. In 2012-2016 he acted as Associate Professor at Curtin University in the School of Built Environment, Programme Director of the Australasian Centre for Building Information Modelling and Research Professor at University of Oulu in industrial engineering and management. His previous positions include Chief Research Scientist, Team Leader and Customer Manager at VTT, Vice-President of Jaakko Pöyry Group subsidiary (JP-Transplan), Corporate Analyst of Finnish Railways (VR-Group Ltd), R&D Manager of Finnish National Road Administration's South-eastern region, and private consultant. He was an adjunct professor of Tampere University of Technology in the department of Logistics and Business Information for 2008-2014. His own research covers innovation management, value analysis, impact analysis, service sciences, project finance, investment, financial and socio-economic analysis, restructuring issues and new technology deployment. His primary research area has been on transport sector, but his activities have extended to other fields such as bioeconomy, climate change, meteorology, education, construction and infrastructure management.

INVITED SPEAKER

Peter Simmonds
ASHRAE Instructors

Peter Simmonds is managing director/principal of Building and Systems Analytics LLC. Peter has been involved in the design and operation of tall, supertall and megatall buildings around the world for more than 30 years. An ASHRAE member since 1989, Peter has twice chaired Technical Committee 9.12 Tall Buildings, and is a member of TC 2.1 Thermal Comfort and Human Physiology, and TC 7.5 Smart Building Systems. He also serves on the Standards Committee and is Secretary of the College of Fellows.

Peter has authored or coauthored more than 60 technical papers, articles and books. Most recently, he was the author of the new ASHRAE Design Guide for Tall, Supertall and Megatall Building Systems (2015). He was also a co-author of the ASHRAE/REHVA Active and Passive Beam Application Design Guide (2014).

He has one Bachelor of Science degree in Mechanical Engineering and another in Research and Development from Reading Technical College in England; a Master's degree from Hogere Technische School, Den Bosch, The Netherlands; and a Ph.D. from Technical University of Delft, The Netherlands.

4.6M-AN

U N T
TERBATAS

DEKAT DENGAN
AKSES TOL

LOKASI STRATEGS
DI PUSAT BSNIS
ALAM SUTERA

PRESENTATION GUIDELINE

ORAL PRESENTATION

Please note that the time allocated to each oral presentation is 15 minutes including questions and answers.
PowerPoint slides for presentation on a LCD video projector are recommended.

Oral presentation rooms will be equipped with the following items:

- Notebook computer running WINDOWS operating system, with MS Office 2007, Acrobat Reader 8.0
- An LCD video projector

We recommend that presenters bring their presentation file in a format compatible with one of the above applications, and stored in a USB thumb drive (flash disk).

Alternatively, they can use their own notebook computer. If you choose to use your own notebook computer, we recommend that you bring a backup copy of the presentation in a CD-ROM or a USB thumb drive

All presenters can upload their presentations files into the computer in their presentation files into the computer in their assigned presentation room during Welcome Drink on 24 July, 3-5 pm, or on the morning of their presentation from 08.00 hrs onwards, or during the tea breaks. An assistant will be in the room to help you.
Note:

- AC Voltage is 220 V in Indonesia
- The connector from the LCD projector to your computer is limited to a D-sub 15 pin male connection

POSTER PRESENTATION

Presenters must bring the poster.
You will be provided with a poster board to mount/display your poster. The maximum permitted dimensions for your poster is A1 size.

Posters MUST be in Portrait format. Your poster code will be indicated on the board.

Please note that the width of poster board may not be exceeded under any circumstances.

You will be provided with the material to mount your poster onto the board

Poster Size-A1 size
594 x 841 mm2

Setting Up and Removing Posters
Presenters are responsible for the dismantling of their posters. Posters left behind after 19.00 hrs will be disposed of and are not the responsibility of the organizer.

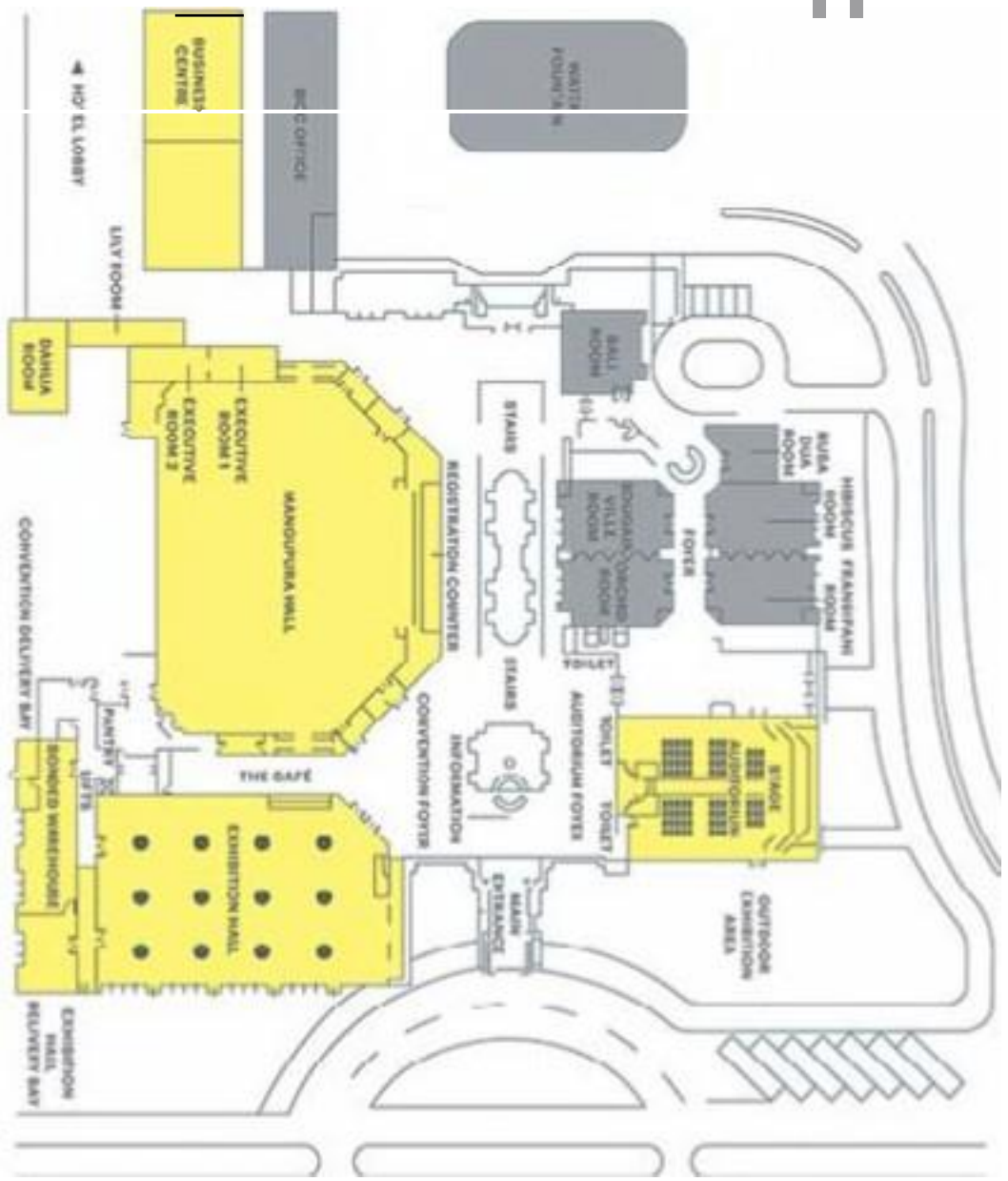
PLACE & DATE OF THE EVENT

Date : 24 – 27 July 2017
Location : BICC the Westin, Nusa Dua, Bali.

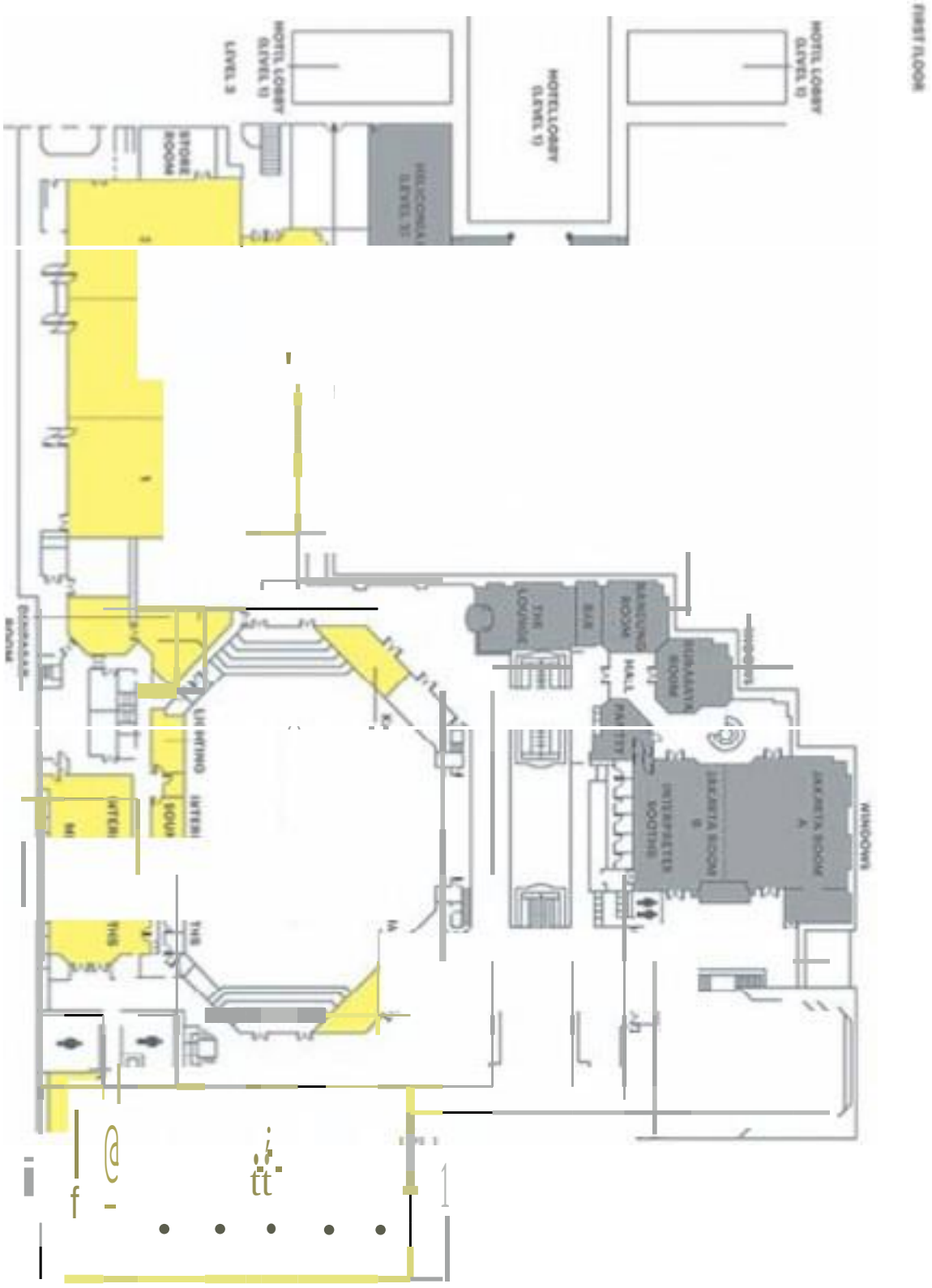
The Arrangement of the QiR 2017 Conference can be seen at the table below

Date	Time	Program
24 July	03.00-05.00 p.m	Registration and Welcome Cocktails
25 July	Full Day	Exhibition
	08.30-10.15 am	Opening Ceremony
	10.15-10.30 am	Coffee break
	10.30-11.15 am	Plenary Lecture 1 Prof. Benyamin Kusumoputro
	11.15-12.00 pm	Plenary Lecture 2: Prof. Thomas Goldsby
	01.00-03.00 pm	Parallel Session
		Each parallel session will be started with presentation by Invited Speakers
	03.00-03.30 pm	Poster Session Day 1
		Coffee break
	03.30-06.00 pm	Parallel Session
	06.00-07.00 pm	Poster Session Day 1
	07.00-09.00 pm	Banquette Dinner
26 July	Full Day	Exhibition
	08.30-10.00 am	Parallel Session
		Each parallel session will be started with presentation by Invited Speakers
	10.00-10.30 am	Poster Session Day 2
		Coffee break
	10.30-12.00 pm	Parallel Session
	12.00-01.00 pm	Lunch
		Poster Session Day 2
	01.00-02.00 pm	Plenary Lecture 3 Prof. Jackie Y. Ying
	01.00-03.00 pm	Parallel Session
	03.00-03.30 pm	Coffee break
	07.00-09.00 pm	Dinner and Closing Ceremony
27 July	08.00am-08.00 pm	Social Tour

ACTIVITY LOCATOR



ACTIVITY LOCATOR



TIMAH

Kantor Pusat
Jl. Jenderel **Sudirman 51**
Pangkal Pinang 33121,
Bangka, Indonesia

Tel. +62 717 425 8000
Fax. +62 717 4258080

Kantor Perwakilan Jakarta
Jl. Medan Merdeka Timur 15
Jakarta Pusat
Jakarta. Indonesia

Tel.+622123528000
Fax. +62 21 2352 8080

www.timah.com

SESSION LOCATOR

Room	25-Jul-17								
	08.30-10.15 am	10.15-10:30 am	10.30-11:15 am	11.15-12:00 am	12:00-01:00 pm	01:00-03:00 pm	03:00-03:15 pm	03:15-06.00 pm	06:00-07:00 pm
Ballroom Mangupura	Opening Ceremony	Coffee break	Plenary Lecture 1: Prof. Benyamin Kusumoputro	Plenary Lecture 2: Prof. Thomas Goldsby		MAT Plenary MAT 1B		CHE 2A	
Dahlia Room					Lunch break	IE Plenary IE 1	Coffee break	IE 2	
Bougenville Room						ISBE		ISBE	
Orchid Room									
Hibiscus Room									
Frangipani Room						MAT 1A		MAT 2	
Medan Room						E Plenary E 1		E 2	
Bandung Room						ME 1A		ME 2A	
Surabaya Room						ME 1B		ME Plenary ME 2B	
Jakarta A Room						CE Plenary CE 1A		CE 2A	
Jakarta B Room						CE 1B		CE 2B	
Jasmine Room			I-Dwell			CHE 1		CHE 2B	
Lotus Room		I-Dwell	I-Dwell			I-Dwell		I-Dwell	

SESSION LOCATOR

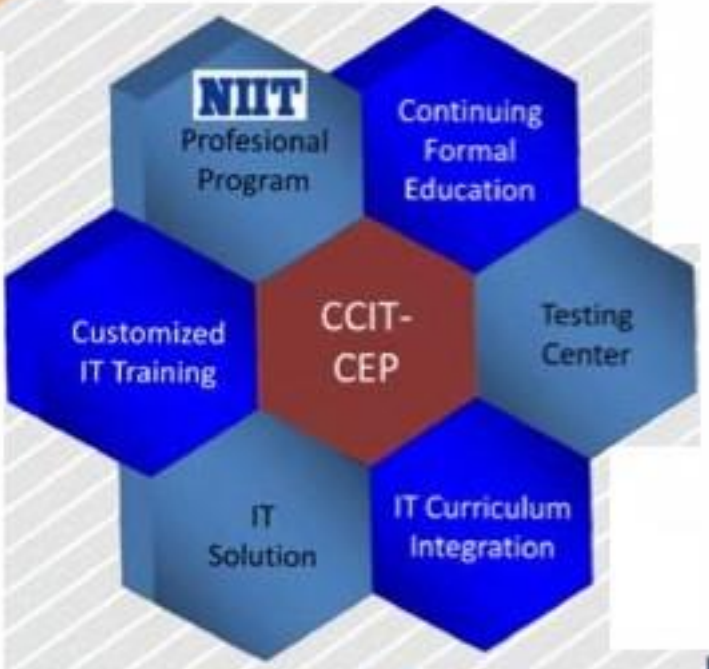
	26-Jul-17									
07:00-09:00 pm	08.00-10.00 am	10:00-10:15	10.15-12:00 am	12:00-01:00 pm	01:00-02:00 pm	02.00-03.30 pm	03:30-03:45 pm	03:45-06.00 pm	06:00-07:00 pm	07:00-09:00 pm
Dinner	MAT Plenary 2 MAT 3A		E 4C			E 5C				Dinner
	IE 3	Coffee break	IE 4	Lunch break	IE 5A	CE 5	Coffee break	E 6C		
	ISBE		ISBE		IE 5B	MAT 5B				
					IE 5C	MAT 5A		MAT 6		
	CHE Plenary CHE 3B		E 4D		ICALT			ICALT		
	MAT 3B		MAT 4							
	E 3A		E 4A			E 5A		E 6A		
	ME 3		ME 4 / ICSERA		ICSERA			E 6D		
	E3B		E 4B			E 5B		E 6B		
	CE 3A		CE 4A		Special Lecture: Prof. Jackie Ying	ISBE		Workshop on Scientific Publication		
	CE 3B		CE 4B					CHE 6B		
	CHE Plenary CHE 3A		CHE 4			CHE 5		CHE 6A		
	BIO		BIO			BIO		BIO		

CCI

- Established in 2002 in cooperation with NIIT India as a professional IT program education, customized IT training, IT short course and IT consultant services.
- The first continue study in 2004 with Politeknik Negeri Jakarta
- 2010 - launching IT Banking Syariah program with UIN Jakarta
- 2012 - Launches mobile programs applications
- 2013 - Organizes the IT Cloud Class program
- 2015 - Opens Network Administrator Professional program in collaboration with FTUI Electrical Engineering Department
- 2016 - becomes the NIIT Master Center

(,,,./

CCIT-FTUI



- Head Center CCIT - FTUI :
  Gedung Engineering Center Lt. 1
  Fakultas Teknik Universitas Indonesia
  Kampus UI Depok 16424
  ☎ +62 – 21 – 7884 9047 / 7863508

- Center Salemba
  Gd. Magister Management Technology (MMT) Lt. 3
  Kampus UI Salemba
  Jl. Salemba raya no. 4 Jakarta Pusat
  ☎ +6221- 3926709

www.ccit.eng.ui.ac.id
ccit@eng.ui.ac.id

Contact :
Eny (+628176423181)
enny@eng.ui.ac.id

CE Plenary

Tuesday, July 25, 2017 13.00-13.30

Jakarta A Room 2nd fl

Invited Speaker : Prof. Dr. Uwe Lahl, TU (Technical University) Darmstadt
The importance of pollution control for the acceptance of waste treatment plants

CE 1A : Environmental Engineering

Tuesday, July 25, 2017 13.30-15.00

Jakarta A Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	823	CE1A - 1	Nyoman Suwartha and Dian Rahayu Pujiastuti	Enhancing Removal Efficiency of Ammonia and Nitrate in Shrimp Farm Wastewater using Biofloc Technology and Effective Microorganisms 4 (EM4)	Universitas Indonesia, Indonesia	13.30-13.45
2	917	CE1A - 2	Christina Browning, Sholahudin Al Ayyubi and Wiratni Budhijanto	Partial Phase I Environmental Site Assessment of Piyungan Landfill and Anaerobic Fluided Bed Reactor (AFBR) Pilot Study for Leachate Treatment	Arizona State University, USA	13.45-14.00
3	82	CE1A - 3	Djoko M Hartono, Gabriel Andari Kristanto, Irma Gusniani Sofian, Ahmad Fauzan and Ghanis Mahdiana	Leachate Treatment using three Years Aged Lysimetric Bioreactor Models	Universitas Indonesia, Indonesia	14.00-14.15
4	368	CE1A - 4	Ariani Dwi Astuti, Muhammad Lindu, Ramadhani Yanidar and Maria Manda Kleiden	Effect of Plants *Vetivera zizanioides* (Akar Wangi) on Performance of Field Plant Subsurface Constructed Wetlands -Multilayer Filtration with Vertical Flow	Trisakti University, Indonesia	14.15-14.30
5	680	CE1A - 5	Adipati Gumelar, Abimanyu Alamsyah, Setyo Moersidik and Nurfitri Syadiah	Pantura Water Quality: Comparing the Pollution Distribution Model of Comal River and Garang River	School of Strategic and Global Studies	14.30-14.45
6	246	CE1A - 6	Robby Yussac Tallar, Erick Wijaya, Yohanes Reinaldo and Jian-Ping Suen	Effects of Vegetation Distribution on Experimental Micro-Drainage Channel	Maranatha Christian University, Indonesia	14.45-15.00

CE 1B : Transportation Engineering

Tuesday, July 25, 2017 13.30-15.00

Jakarta B Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	813	CE1B - 1	Ellen Sophie Wulan Tangkudung and Catharina Widyadayinta	Performance Analysis of Trans-Jakarta Bus Suburban Service Move-across Greater Jakarta	Universitas Indonesia, Indonesia	13.30-13.45
2	709	CE1B - 2	Endang Widjajanti	Public Perception of Public Service Announcement (PSA) on Transportation Safety Awareness Through Television in Surabaya	National Institute of Science and Technology, Indonesia	13.45-14.00
3	248	CE1B - 3	Aleksander Purba, Fumihiko Nakamura and Dwi Herianto	Service Delivered on New Transit System from Users Viewpoint (Case Studies: TransJogja and TransMusi-Indonesia)	Lampung University, Indonesia	14.00-14.15
4	477	CE1B - 4	Martha Veraida Silaen and Jachrizal Sumabrata	Analysis and Design Of Pedestrian Facilities Along Manggarai Railway Station – Manggarai TransJakarta Shelter	Universitas Indonesia, Indonesia	14.15-14.30
5	341	CE1B - 5	ani Talitha Zafira and Muhammad Ismail Hafidz Sadjidullah	Measurement of Toll Road Service Quality (TRSQ) Using Structural Equation Model Approach	Indonesia Toll Road Authority, Indonesia	14.30-14.45

CE 2A: Geotechnical Engineering

Tuesday, July 25, 2017 15.15-18.00

Jakarta A Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	86	CE2A - 1	Ferry Fatnanta and Syawal Satibi	Various Number and Gap of Helical Pile Toward Limit of Axial Carrying Capacity Helical Pile Footing Pressure on Peat Soil	Riau University, Indonesia	15.15-15.30
2	143	CE2A - 2	Sigit Pramono, Widjojo Prakoso, Astri Rahayu, Arsika Rudiyanto, Fajri Syukur, Sofian Sofian and Phil Cummins	Investigated of Characteristics Subsurface by using Parameters Vs30, HVSR and Combination of SPAC Method for Microtremor Array in Palu City and Surroundings Central Sulawesi-Indonesia	Indonesian Agency for Meteorology, Climatology and Geophysics, Indonesia	15.30-15.45
3	160	CE2A - 3	Gunawan Wibisono, Soewignjo Agus Nugroho and Khairul Umam	The Influence of Gradation and Clay Content of the Soil Shear Strength on Clayey Sand	Riau University, Indonesia	15.45-16.00

4	552	CE2A - 4	Yulinda Sari, Anis Saggaff, Wiwik Rahayu and Hanafiah Hanafiah	Characteristic and Classification of Fibrous Peat in Banyuasin Regency	Sriwijaya University, Indonesia	16.00-16.15
5	449	CE2A - 5	Fendi Yanto	A Numerical Method of the Rigid Pavement Supported by Soil Cement Column on Soft Soil	University Merdeka Madiun, Indonesia	16.15-16.30
6	188	CE2A - 6	Sigit Sutikno, Manyuk Fauzi, Ari Sandhyavitri, Rinaldi and Akbar Putra	Integrated Remote Sensing and GIS for Mapping and Classification of Peatland in Riau, Indonesia	Riau University, Indonesia	16.30-16.45
7	179	CE2A - 7	Lolom Evalita Hutabarat and Tommy Ilyas	Land Subsidence Induced by Ground Water Extraction in Urban and Coastal Areas of Jakarta City as a Sustainability Countermeasure in The Future	Universitas Indonesia, Indonesia	16.45-17.00
8	225	CE2A - 8	Yulian Firmana Arifin, Setyo Mulyo Kurniawan and Ellyn Normelani	Effectiveness of Horisontal Drains for Slope Stability of Coal Mining, Case Study of Slope Failure in Tambang Guntur, South Kalimantan	University of Lambung Mangkurat, Indonesia	17.00-17.15
9	390	CE2A - 9	Erly Bahsan, Gabriel Andari Kristanto, Sarah Pramiarsih and Syahrizal A. Latief	Geotechnical Charactheristics of Bantargebang Solid Waste Landfill using Artificial Waste Sample and Field Test	Universitas Indonesia, Indonesia	17.15-17.30
10	68	CE2A - 10	Agus Ika Putra, Muhamad Yusa and Soewignjo Agus Nugroho	Study Gradation and Moisture Content of Sand Embankment on Peat Subjected Vibration Potential liquefaction	Riau University, Indonesia	17.30-17.45
11	571	CE2A - 11	Astri Rahayu and Widjojo Prakoso	Comparing Shear-Wave Velocity from MASW with Borehole Measurement at Merapi Sediment in UMY Campus Site	Universitas Indonesia, Indonesia	17.45-18.00

CE 2B: Transportation Engineering

Tuesday, July 25, 2017 15.15-18.00

Jakarta B Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	602	CE2B - 1	Fitra Ramdhani, Husni Mubarak and Equinaldo Naldo	Rigid Pavement Road Condition Assessment With Highways Method And Pavement Condition Index (PCI) Method In Dumai City Limits Roads - Duri City at STA 173 + 000-177 + 000	Abdurrab University, Indonesia	15.15-15.30
2	754	CE2B - 2	Endang Widjajanti and Ismono Kusmaryono	Identification and Improvement of Accident Black Spots on National Road in Samarinda	National Institute of Science and Technology, Indonesia	15.30-15.45
3	117	CE2B - 3	I Nyoman Arya Thanaya, I Wayan Suweda and Gede Kossala Putra	Performance of Asphalt Concrete Wearing Course (AC-WC) Utilizing Reclaimed Asphalt Pavement from Cold Milling Bound with 80/100 Pen Asphalt	Udayana University, Indonesia	15.45-16.00
4	92	CE2B - 4	Samuel Edy Mataram Simanjuntak and Jachrizal Sumabrata	Analysis of Transjakarta Feeder Transit Service Quality : Case of Corridor 4 Pulo Gadung Dukuh Atas 2	Universitas Indonesia, Indonesia	16.00-16.15
5	791	CE2B - 5	Edy Hadian and Alvinsyah	Impact on Ridership of New Railbase Transit due to the operation of Extensive Bus Semi Rapid Transit Network (Case Study: Greater Jakarta (Jabodetabek) Public Transport Network)	Universitas Indonesia, Indonesia	16.15-16.30
6	414	CE2B - 6	Ika Kustiani and Amril Ma'Ruf Siregar	An Assessment on Sustainability of the Railway – Airport Link as an Alternative Mode of Transportation from Bandar Lampung Central Business District to Raden Inten Airport	The University of Lampung, Indonesia	16.30-16.45

CE Plenary

Wednesday, July 26, 2017 08.00-08.30

Jakarta A Room 2nd fl

Invited speaker : Dr.Bambang Trigurnarsyah, King Fahd University of Petroleum and Minerals, Saudi Arabia

Quality Management System of Saudi Contracting Companies

CE 3A : Structural and Material Engineering

Wednesday, July 26, 2017 08.30-10.00

Jakarta A Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	693	CE3A - 1	Jessica Sjah, Eric Vincens and Jean Christophe Marongiu	2D numerical modeling of Hole Erosion Test : hydrodynamic forces on the fixed pipe wall particles	Universitas Indonesia, Indonesia	08.30-08.45
2	342	CE3A - 2	Basyaruddin Aripin and Min Yuan Cheng	Issues of Shear Deformation Measurement in Experimental Studies	Kalimantan Instute of Technology, Indonesia	08.45-09.00
3	498	CE3A - 3	Irwan Katili and Imam Jauhari Maknun	Error Estimation for DKMQ24 Shell Element by Using Various Recovery Methods	Universitas Indonesia, Indonesia	09.00-09.15
4	476	CE3A - 4	Anas Puri and Rony Ardiansyah	Calculation The Edge of Slab Deflection of Modified Cakar Ayam System by Applying the Displacement Factor from Puri's Graph	Riau Islamic University, Indonesia	09.15-09.30
5	645	CE3A - 5	Heru Purnomo, Rosi Nursani, Sekar Mentari, Sjahril A. Rahim and Elly Tjahjono	Numerical evaluation of shear behavior of a metal shear key used in joining precast concrete segmental bridge girders without epoxy	Universitas Indonesia, Indonesia	09.30-09.45
6	633	CE3A - 6	Dimas Langga and Widarto Sutrisno	Comparative Analysis Layers Method of T-Beam Reinforcement	Sarjanawiyata Tamansiswa University, Indonesia	09.45-10.00

CE 3B : Construction and Project Management

Wednesday, July 26, 2017 08.30-10.00

Jakarta B Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	750	CE3B - 1	Eric Too, Tiendung Le and Wei Yee Yap	The role of governance and its impact on project scope – A Case Study	RMIT University, Australia	08.30-08.45
2	382	CE3B - 2	Basuki Anondho, Ayomi Dita Rarasati, Yusuf Latief and Khrisna Mochtar	Identification of Country Standard Measureable Indicators on Construction Project Duration Performance in Jakarta, Indonesia	Tarumanagara University, Indonesia	08.45-09.00

3	61	CE3B - 3	Ringgy Masuin, Yusuf Latief, T. Yuri Zagloel and Leni Sagita	Development of Integrated Management System between Quality Management System and Occupational Health and Safety Management System in Ministry of Public Work and Public Housing – A Conceptual Framework	Universitas Indonesia, Indonesia	09.00-09.15
4	180	CE3B - 4	Fauzan, Febrin Anas Ismail, Farizzi Adriya Shiddiq, Yogi Indrayudha and Zev Al Jauhari	Analysis of Retrofit on School Building with Shear Wall and Steel Bracing	Andalas University, Indonesia	09.15-09.30
5	910	CE3B - 5	Muhammad Haikal Syarief, Yusuf Latief and Ayomi Dita Rarasati	Development of Institutional Funding Model of Deep Discount Bond on Toll Road Projects	Universitas Indonesia, Indonesia	09.30-09.45

CE 4A : Structural and Material Engineering

Wednesday, July 26, 2017 10.15-12.00

Jakarta A Room 2nd fl

No	Paper #	ID	Author	Title	Affiliation	Time
1	49	CE4A - 1	Fransisca Maria Farida, Adang Surahman, Ananta Sofwan and Rino Rakhmata Mukti	Numerical study of Geopolymer Paste as Passive Fire Protection	Bandung Institute of Technology, Indonesia	10.15-10.30
2	97	CE4A - 2	Chatarina Niken, Elly Tjahjono, Fx Supartono and Laksmi Irianti	Deformation of High Performance Concrete Plate Under Humid Tropical Weather	University of Lampung, Indonesia	10.30-10.45
3	793	CE4A - 3	I Ketut Sudarsana, Putu Deskarta and Kadek Bangkit T.S.	Capacity and Ductility Analysis of Externally Strengthened R/C Columns Using Steel Plates	Udayana University, Indonesia	10.45-11.00
4	202	CE4A - 4	Gidion Turuallo and Harun Mallisa	Using Cementitious Materials Such Fly Ash to Replace a Part of Cement in Producing High Strength Concrete in Hot Weather	Tadulako University, Indonesia	11.00-11.15
5	470	CE4A - 5	Dewi Sulistyorini and Iskandar Yasin	Ductility of Polystyrene Waste Panel	Sarjanawiyata Tamansiswa University, Indonesia	11.15-11.30

CE 4B : Fluid Mechanics and Water Resources Management						
Wednesday, July 26, 2017 10.15-12.00 **Jakarta B Room 2nd fl**						
No	Paper #	ID	Author	Title	Affiliation	Time
1	204	CE4B - 1	Max Rudolf Muskananfola, Haeruddin ., Pujiono Wahyu Purnomo and Bambang Sulardiono	Erosion and Transport Rates of Sediments at Degraded Coastal Waters in Bedono Village, Sayung Demak, Central Java	Diponegoro University, Indonesia	10.15-10.30
2	195	CE4B - 2	Dwita Sutjiningsih and Yosef Prihanto	The Relationship Between Various Land Use Categories and The Imperviousness For Predicting The Impact of Excessive Land Development in Urban Area at Semarang Regency, Central Java	Universitas Indonesia, Indonesia	10.30-10.45
3	105	CE4B - 3	Ari Sandhyavitri, Sigit Sutikno, Manyuk Fauzi, Mardan Fajri and Muhammad Iqbal	Mapping of Sub-Siak Watershed Based on Remote Sensing and Simulation Its Performances Based on SWAT	Riau University, Indonesia	10.45-11.00
4	279	CE4B - 4	Toha Saleh	Analysis of Flood Emergency Response Instrument in Indonesia	Universitas Indonesia, Indonesia	11.00-11.15
5	154	CE4B - 5	Evi Anggraheni, Dwita Sutjiningsih, Airlangga Mardjono and Teuku Iskandar	Dry Dams Performance on Consecutive Rainfall During Rainy Season at Upper Ciliwung Watershed	Universitas Indonesia, Indonesia	11.15-11.30

CE 5 : Fluid Mechanics and Water Resources Management						
Wednesday, July 26, 2017 14.00-15.30 **Dahlia Room 1st fl**						
No	Paper #	ID	Author	Title	Affiliation	Time
1	497	CE5 - 1	Zainul Faizien Haza	The drag forces exerted by lahar flows on a cylindrical pier: case study of post Mount Merapi eruptions	Sarjanawiyata Tamansiswa University, Indonesia	15.15-15.30
2	134	CE5 - 2	Eva Rolia, Dwita Sutjiningsih and Herr Suryantono	Groundwater Potential Exploration in Bumi Ratu Nuban Lampung Tengah Using Geoelectric Method	Universitas Indonesia, Indonesia	15.30-15.45
3	517	CE5 - 3	Rian Mantasa Salve Prastica	Estimating Design Flood and Hec-Ras modeling Approach for Flood Analysis in Bojonegoro City	Riau University, Indonesia	15.45-16.00
4	203	CE5 - 4	Betania Lydiana, Dwinanti Rika Marthanty and Herr Soeryantono	Reliability of Smoothed Particles Hydrodynamics Method in Simulating 3D Fluid Flow towards	Universitas Indonesia, Indonesia	16.00-16.15

				Conservation of Mass and Energy		
5	432	CE5 - 5	Riyan Benny Sukmara, Ariyaningsih Ariyaningsih, Nadjadji Anwar and Edijatno Edijatno	River Flood Reduction with Multiple Dams Scenario in Karang Mumus River, Samarinda	Kalimantan Institute of Technology, Indonesia	16.15-16.30

uie,J'tilf Ru,o~t
laifa Oa.a, 8at'

International Syn,posiun, on Civil and Environn,ental Engineering

CE

CE2B - 6

AN Assesment On Sustainability Of Railway – Airport Link As An Alternative Mode of Transportation to Radin Inten II Airport

Ika Kustiani and Amril Ma'ruf Siregar

The rapid economic development in the Province of Lampung is indicated by, among other things, the increase of air transportation mode users. The data shows that for the last four years, the number of passengers of the Radin Inten II Airport increased by 52% and the number of cargos increased by 257%. To support these demand, cost-effective and efficient transportation systems are vital, therefore the government has recently completed the construction of the Radin Inten II Airport expansion. Moreover, currently the government is planning to build a link between the airport facilities with railway transportation mode. This link provides additional alternative of transportation to airport. This research was carried out to assess the future demand for railway transportation mode to airport and to measure how this can achieve financial, environmental and social performance for sustainability. The assessment methods were utilizing dynamic, purposive and random sampling method to review the opinion of stakeholders of transportation system to airport. Stakeholders' opinion survey also reviewed a set of physical and managerial interventions that could potentially be implemented to improve the performance and sustainability of the railway transportation system. These interventions were drawn from suggestions made by experts in transportation system. The review of these proposed interventions was executed by integrating the results from a stakeholders' opinion survey with a Triple Bottom Line (TBL) sustainability framework. The integration of these two methods was designed to identify an alternative solution that was not only robust but also preferred by the stakeholders of railway and airport transportation system. The results showed that the physical changes that required large capital cost were less desirable and the managerial changes that give private company a greater authority were less favourable by all stakeholders.

Keywords: Transportation mode; Sampling method; Stakeholders opinion survey; physical and managerial interventions; Triple Bottom Line sustainability framework;

Index

A, Gregorius A Gegana I-Dwell1B – 1
Abdillah, Rizky MAT1B – 3
Abduh, Syamsir E6B – 7
Abdullah BIO4 – 7
Abdullah, Hafid MAT2 - 1, IE1 - 2, IE5A – 2
Abdullah, Nasruddin A. ME2B – 5
Abdullah, Nurhayati CHE1 – 4
Abidin, Akhmad Zainal CHE1 - 7, CHE1 – 6
Abuzairi, Tomy E3A - 5, E4A - 4, E6A - 2, E3A - 6, E4A – 7
ME2C - 3, ME2A - 4, ME2C - 4,
Adanta, Dendy ME2A - 5, ME2A - 9, ME2C - 5, ME2C – 6
Adhitya, Mohammad ME1A - 4, ME1A - 5, ME1A – 6
Adhitya, Muhammad ME1A - 1
Adhyputra, Ryand MAT5A - 3
Adi, Widia Kurnia IE1 - 5
Adi, Wisnu Ari MAT6 - 1, MAT6 - 2
Adicandra, Ferdi Fajrian CHE3B – 2
Adilina, Indri Badria CHE6A – 6
Aditya, Danar P – 53
Aditya, Reza Mohammad MAT2 – 2
Adityosulindro, Sandyanto CHE2A – 1
Adnan, Arisman CHE3B – 5
Adoe, Dominggus MAT5B – 2
Adyartie, Rike IE2 – 5
Afdhol, Muhammadl P – 26
Affandi, Achmad E4D – 8
Affi, Jon ME3 – 4
Afiff, Adnan E3A – 7
Agdhitya, Revaldo P – 17
Agiawati, Riska P – 19
Agustina, Tuty Emilia P – 25
Agustini, Rosalita BIO4 – 5
Aiman, Syahrul CHE2B – 3
Ainny, Luthfiyah CHE3A – 3
Aisyah, Lies CHE2B – 7
Aji, Daisman P.B. ME3 – 6
Aji, Lessy Sutiyono E6D – 6
Akhyar, Hasan MAT2 – 6
Akiba, Kou E4A – 3
Akil, Muhammad E4C – 8
Alam, Syah E3B – 4
Alam, Syaiful E4D - 6, E6D - 5
Alamsyah, Abimanyu CE1A – 5
Alamsyah, Dicky ICSERA2 - 3
Alamsyah, Rizal BIO4 – 1
Alattas, Zainah CHE1 – 2
Alaydrus, Mudrik E3B - 6, E3B - 7
Alesi, Tiffany Clara IE5B – 4
Alexander, Kevin CHE2A – 4
Alfin, Timotius IE4 - 5
Alhamid, Fuad Muhammad ME2C - 5
Alhamid, Muhammad Idrus ICSERA2 - 3
Alianto, Beline ME2B - 2
Alli, Yani Faozani CHE6A - 6, CHE2A - 8
Alvinsyah CE2B - 5
Alwi, Dziki Ufidian CHE2B - 7
Amalia P - 5
Amalia, Adinda IE5A - 3
Amalia, Zakiyah E4C - 5, P - 7
Amat, Muhammad Azwar ME3 - 2
Ambarita, Ervan ME2B - 7
Amiliana, Rahmatika P - 26
Amri, Amun CHE3B - 5
Amriani, Feni CHE2B - 3
Ananda, Wisnu CHE2B - 1, E6C - 7
Ancella, Clarissa BIO3 - 4, CHE4 - 1
Andani, Luthfi Noviardi MAT2 - 3
Andiva, Sergi MAT2 - 2
Andreyani, Ni Putu Wulan ICSERA2 - 1
Andriani, Debrina Puspita IE5B - 4
Andriant, Ryan CHE2A - 3
Andrie P - 57
Andriyah, Lia MAT6 - 6
Andriyanto, Mukti P - 37
Anggarani, Riesta CHE2B - 7
Anggraeni, Dewi E6A - 1
Anggraheni, Evi CE4B - 5
Anggraini, Mutia MAT5A - 3
Aninditio, Muhammad Levy E5B - 3
Anindityo, Albertus Wahyu IE1 - 4
Anis, Muhammad MAT3B - 2
Anjani, Shabila IE1 - 1
Anondho, Basuki CE3B - 2
Anwar, Miftahul P - 33
Anwar, Nadjadji CE5 - 5
Anwas, Yanuar ME2A - 3
Apatya, Yohanes Berchman Adyapaka E4C - 7
Apriady, Dicky E4A - 4
Apriani, Rachma CHE5 - 4
Aprianti, Tine CHE3A - 1, CHE5 - 4
Aprianto, Tangkesalu ME4 - 3 / ICSERA1 - 3
Apriliana, Nadia Huda P - 43
Aprilyanti, Selvia CHE5 - 4
Apriono, Catur E6A - 5, E6A - 6
Arbianti, Rita BIO3 - 6
Ardi, Romadhani IE5B - 7
Ardiani, Yanita Mila I-Dwell3 - 5
Ardiansyah, Luthfi MAT5A – 6
Ardiansyah, Rony CE3A – 4
Ariati, Myrna MAT3B – 6

Arifianto, Mohammad Sigit E3B – 1
Arifin, Ahmad Surya E5A – 5
Arifin, Ajib Setyo E5A – 6
Arifin, Yulian Firmana CE2A – 8
Arijanto, Sugih IE2 – 4

Arini, Tri MAT6 – 6
Aripin, Basyaruddin CE3A – 2
Aripin, H MAT5B – 4

Ariyaningsih CE5 – 5

Ariyanti, Sri E5A – 4
Ariyanto, Rudy P – 42
Ariyanto, Teguh CHE3A - 2, CHE3A - 4
Arlan, Adam Septiyono MAT4 – 1
Arvanda, Enira I-Dwell1A - 3
Aryani, Silfia Mona I-Dwell2 - 1
Aryanto, Didik MAT5B – 7
Ashari, Mochamad E6C - 6, E6C - 4
Asmara, Rosa Andrie P – 42
Asmoro, Pekik ME1B – 6
Astari, Nabila ME2B – 2
Astawa, Ketut CHE2B – 5
Astini, Vita MAT5B – 6
Astuti, Ariani Dwi CE1A - 4
Astuti, Dian Widi E3B - 6, E3B - 7
Astuti, Widi MAT5A - 4
Asvial, Muhamad E6D - 2
Ayutasari, Astrid ME2A - 6
Ayyubi CE1A - 2
Ayyubi, Sholahuddin Al BIO2 - 7
Azaria, Nadia Fridasaniya CHE5 - 5
Azhariyah, Adinda Sofura CHE2B - 2
Azis, Muhammad Mufti BIO3 - 3
Aziz Al Rasyid E2 - 2
Azmi, Bayu E4B - 5
B, Khairul Hadi P - 20
B., Muhammad Joshua Y. MAT1A - 4
Bae, Kyungjin ME4 - 2 / ICSERA1 - 2, P - 56
Bae, Myung-Whan ME2A - 6
Bahari, Zakaria Jaka P - 54, P - 55
Bahsan, Erly CE2A - 9
Baili, Hana E1 - 1
Bakar, Yusrizal IE3 - 1
Bale, Jefri MAT5B - 2
Banuwijoyo, Seto IE5B - 3
Barleany, Dhena Ria CHE1 - 1
Barnama, Andra P - 24
Barthe, Laurie CHE2A - 1
Basari E4B - 3
Basit, Abdul P - 46
Baskara, Gregorius Ivan E6D - 1
Baskoro, Ario Sunar ME3 - 2, ME3 - 3
Basuki, Kris Tri CHE4 - 3, MAT1B - 5
Bawono, Aji Agraning CHE3B - 3
Berawi, Abdur Rohim Boy P - 17
Berawi, Mohammed Ali P - 17, P - 30
Bertalya E4D - 1
Bethari, Sylvia Ayu CHE2B - 7
Bidiawati, Ayu IE3 - 4
Bindar, Yazid P - 21
Bismo, S CHE5 - 6, CHE5 - 3
Bismo, Setijo CHE2B - 2, P - 53
Boimau, Kristomus MAT5B - 2
Bonakapvi, Raymond IE5B - 7
Browning, Christina CE1A - 2
Budhijanto MAT5B - 3

Budi Cahyani Anugrah BIO2 - 7, BIO2 - 1, BIO2 - 5, BIO2 - 6, BIO3 - 3, CHE6A - 5, CE1A - 2
Budhijanto, Wiratno CHE2A - 7

Budiarso ME2C - 1, ME2C - 3, ME2A - 5, ME2C - 5, ME2C - 6, ME2C - 1

Budiastuti, Intan E2 - 1
Budihardjo ICSERA2 - 2, ICSERA2 - 3
Budikania, Trisutanti CHE1 - 2, CHE2A - 2
Budiman, Irwan IE5C - 4
Budiono, Hendri Ds ME3 - 1
Budiyanto, Muhammad Arif ME1B - 4, ICSERA3 - 5
Budiyantoro, Cahyo MAT1A - 2
Busaeri, Nundang MAT5B - 4
Cahyanto, Muhammad BIO2 - 4
Cahyono, Rochim Bakti BIO2 - 5, CHE3A - 4
Carissa I-Dwell2 - 2
Cha, Dongan ME4 - 2 / ICSERA1 - 2, P - 56
Chai, M. M. CHE2B - 6
Chai, Mui Nyuk CHE2B - 6
Chairunnisa, C E3B - 1
Chairunnisa, Intan I-Dwell4 - 1
Chalid, Mochamad MAT1A - 1, MAT1A - 4
Chandra, Leonardo P - 16
Chang, Chia-Hua P - 2
Chen, Chun-Yuan E5B - 1
Chen, Poki E2 - 9
Chen, Ting ME4 - 2 / ICSERA1 - 2, P - 56
Chen, Woei-Luen E5B - 1
Cheng, Min Yuan CE3A - 2
Chien, Nguyen-Ba ICSERA2 - 7
Cho, Honggi ICSERA2 - 8, ICSERA2 - 9
Cho, Honghyun ICSERA2 - 5
Choi, Kwang-Il ICSERA2 - 8, ICSERA2 - 9
Chondro, Peter P - 2
Chou, Yu-Ping E5B - 1
Christian, Anthony P - 15
Chung, Jae Dong ICSERA2 - 6
Chung, Yi-Su E2 - 9
Chusna, Firda Mahira Alfiata BIO2 - 1
Cummins, Phil CE2A - 2
Dadang, Gunawan E6D - 6
Dalimi, Rinaldy E6B - 3, E6B - 4, E5B - 6
Damayandri, Dadan CHE2A - 8
Damayanti, Sri Ismiyati CHE6A - 5, BIO2 - 6
Damisih MAT6 - 8
Dani, Mohammad MAT3B - 3
Darari, Alfin MAT6 - 7
Darius, Asyari ME2B - 9
Darjat ME1A - 3
Darmajanti, Linda P - 45
Darmawan, Edy I-Dwell1A - 2
Daryus, Asyari ME2C - 2, ME2C - 1
Dauksta, Edvins P - 12
Dayansyah, Tesar IE1 - 1
Deguchi, Daisuke E4B - 6
Delmas, Henri CHE2A - 1

Desiriani, Ria	CHE4 - 6
Deskarta, Putu	CE4A - 3
Destyanto, Arry Rahmawan	IE5A - 3, IE5A - 4
Destyorini, Fredina	CHE4 - 5
Dewanti, Dian Purwitasari	CHE2B - 8
Dewatama, Denda	P - 7
Dewatisari, Whika Febria	BIO4 - 5
Dewi, R K	CHE5 - 3
Dhaneswara, Dhonanta	MAT2 - 8
Dhaneswara, Donanta	MAT2 - 3, MAT2 - 4
Dianawati, Fauzia	IE1 - 5
Dianofitra, Reza	ME2C - 3, ME2A - 4, ME2C - 4, ME2A - 5, ME2A - 9, ME2C - 5
Dianova, Nita	MAT3A – 2
Diantari, Retno Aita	E6B – 2
Dianty, A. G.	CHE5 – 6
Dimyati. Arbi	MAT3B – 3
Djakaria, Briantono	CHE6A – 4
Djamaluddin, Dewiani	E4D – 7
Djuhana	MAT5B – 7
Djuriatno, Waru	E4B – 7
Dogheche, Elhadj	E6A – 2
Dwidiani, Ni Made	MAT5B – 1
Edijatno	CE5 - 5
Edyanto, Andreas	ME3 - 2
Effendi, Mohammad Ridwan	E3B - 1
Endrasmono, Joko	E2 - 5, E5C - 5
Endthen, Palito J.	IE1 - 3
Enis, Adhisti Samsinar	I-Dwell1A - 2
Erizal	CHE1 - 1
Etzold, Bastian Jm	CHE3A - 2
Fadhli, Nur	ME3 - 6
Fadil, Jazuli	E6C - 3
Fadilah, Fahmi	E4C - 1
Fadli, Ahmad	CHE3B - 5
Fadzli, Mukhamad Fiqih	P - 27
Fahrurrozi, Imam	E6D - 9, P - 42
Fajar, Jaka	P - 52
Fajri, Mardan	CE4B - 3
Fajri, Misbahul	E4C - 3
Farida, Fransisca Maria	CE4A - 1
Farizal	IE5B - 5
Farlyansyah, Dimas	P - 36
Fatimah, Is	CHE2B - 4
Fatnanta, Ferry	CE2A - 1
Fatriansyah, Jaka Fajar	MAT1B - 1, MAT1A - 4
Fauzan	CE3B - 4
Fauzan, Ahmad	CE1A - 3
Fauzi, Manyuk	CE4B - 3, CE2A - 6
Fauzia	E6D - 5
Felaza, Elzavira	P - 45
Ferdian, Deni	MAT4 - 4,
Ferdous, A. A.	E4A - 6
Fikri, Arbi Irsyad	MAT1A - 4
Firdausi, Ahmad	E3B - 7
Firdiyono, Florentinus	MAT6 - 6
Firmansyah, Mochamad Dandy	E6A - 5
Fithrasari, Anisa	IE3 - 7
Fitriady, Muhammad Arifuddin	P - 41
Fitriawan, Helmy	E5A - 5
Fitryah, Nur	E6B - 7
Fronitasari, Dini	E1 - 4
Fukasawa, Kensuke	E4A - 8
Gabe, Rossa Turpuk	I-Dwell1B - 1
Gabriel, Djoko Sihono	IE1 - 4, IE1 - 3, IE5A - 5
Gaos, Yogi Sirodz	ME2B - 7
Garniwa, Iwa	E6C - 5, E5B - 4
Gasni, Dedison	ME3 - 4
Gemilang, Yun	MAT2 - 8
Ghurri, Ainul	ME2B - 7
Gifson, Albert	P - 1
Ginting, Elisabeth	IE5B – 1
Ginting, Simparmin Br	BIO2 - 5, CHE6A - 5
Giovanni, Reinaldo	IE5A – 4
Giriantari, Ida Ayu Dwi	E2 – 6
Gozali, Ferrianto	P - 6, E5C - 3
Gozan	BIO2 - 3, BIO4 - 1, BIO3 - 1, BIO1 - 1, BIO4 - 4
Gumelar	CE1A – 5
Gunadi, Gun Gun R.	ME2C - 2, ME2C - 1
Gunadi, Gun Gun Ramdlan	ME2B – 9
Gunawan, Dadang	E1 - 4, E6D - 7, E5A - 6
Gunawan, Harjadi	ME2A - 7
Habiburrahman, Muhammad	IE5A - 5
Hadian	CE2B - 5
Hadiyat, Mochammad Arbi	IE1 - 6
Haeruddin	CE4B - 1
Hahm, Sung-Ho	P - 8
Hakim, Imansyah Ibnu	ME2B - 5
Hakim, Istajib S.	MAT6 - 7
Hakim, Wendy	I-Dwell4 - 4
Halim, Abdul	E5C - 4
Hamidah, Maratul	E6A - 2, E6A - 3
Hanafi, Afdhal	P - 26
Hanafiah	CE2A - 4
Handaru, Suganta	MAT3B - 1
Handayani, Aniek Sri	P - 16
Handayani, Noer Abyor	P - 31, P - 59
Handoko, Bella Previta	I-Dwell3 - 3
Handoko, Erfan	MAT6 - 3
Hanif, Mahardika Auditia	MAT6 - 4
Hanifa, Aldy Syahrihaddin	P - 58
Hara, Kazuhiko	E4A - 8
Harahap, A R S	CHE5 - 6
Harani, Arnis R	I-Dwell2 - 3
Hardenberg, Julian Leonard	E5C - 3
Harfian, C	CHE5 - 6
Hariadi, Mochamad	E4D - 8, E2 - 1
Harimawan, Ardiyan	BIO2 - 2
Harinaldi	ME1A - 8, 102
Harini, Bernadeta Wuri	E4C - 2
Harisuddin, Muhammad	IE5B - 6
Harjandi, Mega Natalia	CHE1 - 6
Harjanto, Sri	MAT1B - 1, P - 52, P - 54, P - 55
Harjoko, Triatno Yudo	I-Dwell4 - 2, I-Dwell2 - 4, I-Dwell3 - 2
Harmami, Sri Budi	CHE4 - 4
Harris, Farandy	P - 24
Harsritanto, Bangun I.R.	I-Dwell2 - 3
Hartanto, Dhoni	P - 46
Hartanto, Djoko	E3A - 4, E3A - 7

Hartanto, Rudy	E2 - 3
Hartono, Djoko M	CE1A - 3
Hartono, Markus	IE2 - 1
Haryanto, Heri	E6B - 6
Haryanto, Layina Maula	E3A - 4
Haryono, Agus	CHE4 - 4
Hasan, A K M Kamrul	E5B - 2
Hasan, Tarik Hasanah,	E3A - 7
Fitria Hasanuddin,	P - 18
Zulfajri B.	E4D - 7
Hasin, M. Khoirul	E5C - 5
Hastuty, Sri	P - 51
Hatmaja, Sukra Bambang Wahyu Tri	E6D - 4
Haza, Zainul Faizien	CE5 - 1
Heltina, Desi	P - 39
Hendarsa, Agung Sri	P - 32, P - 35
Hendrawan	P - 19
Hendrik	MAT6 - 5
Herbirowo, Satrio	MAT6 - 5
Herianto, Dwi	CE1B - 3
Heribowo, Bimasena	MAT5B - 5
Herijono, Boedi	E2 - 5, E5C - 5
Herjanto, Eddy	IE1 - 2
Herlina	E6B - 8
Hermansyah, Heri	BIO2 - 3, BIO3 - 1, BIO1 - 1, BIO4 - 4, BIO3 - 2, BIO3 - 5, CHE3B - 1
Heryana, Ghany	ME1A - 6
Hidayat, Affan	ME1B - 2
Hidayat, Jojo	E4A - 5
Hidayatno, Akhmad	IE5A - 1, IE5A - 3, IE5A - 4
Hidayatullah, Ibnu Maulana	BIO1 - 1
Hidayatullah, Muhammad Rony	E4B - 7
Hidayatullah, Rizki	MAT2 - 7
Hidayatullah, Taufik	E6D - 3
Hindarto	P - 4
Hofman, Daniel	P - 3
Honggowiranto, Wagiyo	CHE4 - 3, MAT1B - 5
Hoque, Md. Ashraful	E4A - 6
Hori, Masahiro	E3A - 1
Huang, Ko-Ying	E2 - 8
Huang, Yen-Chung	E1 - 2
Hudaya, Chairul	MAT6 - 6, E5B - 4, E6B - 4, E5B - 5
Husein, Michael Kelvin E	MAT5A - 2
Hutabarat, Lolom Evalita	CE2A - 7
Hutabarat, Risdawati	E4D - 6
Hutauruk, Jonathan Kriswanto	MAT5A - 3
Ibrahim	CHE1 - 2
Ibrahim, Fera	ME3 - 5
Ide, Ichiro	E4B - 6
Idrus, Muhammad	ICSERA2 - 2
Ikhsan, Mohammad	ME1A - 5
Ilhami, Alpin	CHE1 - 1
Ilyas, Tommy	CE2A - 7
Imaduddin, Agung	MAT6 - 5
Iman, Mohammad Rizky Nur	IE5A - 1
Imfianto, Pradhana	ME1B - 5, P - 58
Inawati	E6B - 6
Indarto, Agus	E5B - 4
Indayaningsih, Nanik	CHE4 - 5
Indiarni, Arin	CHE1 - 7
Indrayudha, Yogi	CE3B - 4
Indriyati	CHE4 - 5
Inokawa, Hiroshi	E4A - 3
Iqbal, Billy Muhamad	IE4 - 1
Iqbal, Muhammad	CE4B - 3
Irawan, Anton	P - 13
Irawan, Yan	CHE6A - 6, CHE2A - 8
Irawati, Rina	E6B - 1
Irianti, Laksmi	CE4A - 2
Iridiastadi, Hardianto	IE3 - 2
Isa, M. I. N.	CHE2B - 6
Iskandar, Muhammad Riza	MAT3B - 3
Iskandar, Teuku	CE4B - 5
Ismail	ME1B - 6
Ismail, Febrin Anas	CE3B - 4
Ismiyati, Sri	BIO2 - 5
Ismojo	P - 16, MAT1A - 1
Ismoyo, Agus Hadi	MAT3B - 3
Istiyanto, Jos	ME3 - 8
Iswan	E6C - 5
Iswanto, Priyo Tri	MAT2 - 6
Iwantono	CHE3B - 5
Izzati, Dina Nur	P - 13
Jan, Jeremia	P - 53
Jauhari, Zev Al	CE3B - 4
Jodi, Heri	MAT3A - 1
Joevian, Michael	ME2A - 7
Jonny	IE5C - 1
Jubaidillah, Arif	E3B - 6
Julcour, Carine	CHE2A - 1
Julian, Engelin Shintadewi	E4B - 2
Juliana, Ika	CHE6A - 6
Juwita Sari, Paramita	MAT5A - 1
Juwono, Indri Lestari	I-Dwell1B - 3
K., Nanang	ICSERA3 - 2, ICSERA3 - 3
Kamal, Mustafa	ME2A - 4
Kanata, Bulkis	E6A - 8, E6A - 7
Kang, Woobin	ICSERA2 - 5
Kaniaswari, Rheinanda	IE3 - 5
Karami, Shelma	CHE5 - 5
Karimah, Cahyaning Nur	E3A - 6
Kartini, Evvy	MAT3A - 1, CHE4 - 3, MAT1B - 5
Kartohardjono, Sutrasno	CHE2A - 3,CHE2A - 4
Kasim, Ishak	E6B - 7
Katayama, Hideki	P - 51
Katili, Irwan	CE3A - 3
Kautsar, Syamsiar	E5C - 5
Kawanishi, Yasutomo	E4B - 6
Kemal, Mohammad	P - 27
Kern, Andreas	CHE3A - 2
Khatab, Umar	CHE6A - 2
Khoerun, Bobi	E3A - 4
Khoerunnisa, Fitri	P - 19
Khoironi, Nur Shofiana	MAT3A - 4
Kim, Byung Ryeon	ICSERA3 - 4
Kim, Min Ho	ICSERA2 - 6
Kimpara, Masahiro	E3A - 5
Kiswanto, Gandjar	ME3 - 3, ME3 - 9, ME3 - 8
Kleiden, Maria Manda	CE1A - 4
Kobayashi, Saya	E3A - 3

Koesalamwardi, Ario Bintang P - 30
Koestoer, Raldi Artono ME2A - 2, ME2B - 5
Komarudin IE5B - 3, ME1B - 7, IE2 - 2, IE5C - 5
Kominami, Hiroko E4A - 8
Kondoh, Jun E3A - 3
Kosasih, Engkos Achmad ME2B - 1, ME2B - 3
Kouno, Tetsuya E4A - 8
Kresnaraman, Brahmastro E4B - 6
Kresnowati, Made Tri Ari Penia P - 20, CHE4 - 6, CHE6A - 4, P - 21
Krisanti P - 18, P - 44, P - 57
Krissalam, Renalda IE4 - 1
Kristanto, Gabriel Andari CE1A - 3, CE2A - 9
Kristianto, William P - 6
Kuntaji, Lukman CHE3A - 3
Kurnia, Dede R. P - 52
Kurniawan, A S P - 62
Kurniawan, Aditya P - 50
Kurniawan, Candra MAT5B - 7
Kurniawan, Dimas Andy E5C - 5
Kurniawan, Farohaji E3B - 2
Kurniawan, Riccy P - 15
Kurniawan, Setyo Mulyo CE2A - 8
Kusmaryono, Ismono CE2B - 2
Kusrini, Eny CHE2B - 8, CHE3B - 3, P - 54, P - 55, P - 61, P - 62
Kustiani, Ika CE2B - 6
Kustiningsih, Indar P - 34
Kusuma ME2B - 7
Kusuma, I Gusti Bagus Wijaya ME4 - 3 / ICSERA1 - 3
Kusuma, Nevine Rafa I-Dwell4 - 2
Kusumastuti MAT5B - 3
Kusumawati, Diah E5A - 4
Kusumawaty, Dewi IE5C - 2
Kusumoputro, Benyamin E3B - 5, E4C - 4, E4B - 4, E5C - 1, E5C - 2, E5C - 7

Kwon, Ohkyung ME4 - 2 / ICSERA1 - 2, P - 56
La Elo, Yulianto E3B - 8
Lady, Lovely IE4 - 2
Lai, Chih-Kang E2 - 8
Lalasari, Latifa Hanum MAT6 - 6, MAT1A - 6
Langga, Dimas CE3A - 6
Langit, Rizki E4C - 4
Larasati, Annisa CHE2A - 4
Larasati, Dewi ME1A - 8
last name ID
Latief CE3B - 3, CE3B - 2, P - 30, CE3B - 5
Latief, Syahrizal A. CE2A - 9
Le, Tiendung CE3B - 1
Lee, Kwang Pyo ICSERA3 - 4
Lee, Yong Tae ICSERA2 - 6
Lemington ICSERA2 - 1
Leng, Sim Yoke CHE2B - 4
Leondo, Vifki BIO3 - 6
Lesmana, Jeffry P - 48
Lestanto, Yusuf E5C - 6
Lestari, Maya P - 60
Lestari, Witri Wahyu CHE6A - 3, P - 47
Leu, Jenq-Shiou P - 3
Liansari, Gp IE4 - 4
Lin, Ding-Bing E2 - 8
Lindu, Muhammad CE1A - 4
Listyarini, Sri CHE3B - 4
Lu, Chih-Wen E1 - 2
Lubis, Mira Sophia I-Dwell3 - 2
Lukitawesa BIO2 - 4
Lukito, Yulia Nurliani I-Dwell4 - 3
Lukito, Yulia Nurliani I-Dwell3 - 3
Lukiyanto, Y.B. ME2A - 8
Lusi, Utami P - 34
Luvita, Veny CHE2B - 3
Lydiana, Betania CE5 - 4
Machmud, Danila E4D - 2
Madhania, Suci CHE2A - 7
Maftukhah, Siti BIO4 – 7
Mahdiana, Ghanis CE1A - 3
Mahmudah, Aida ME3 - 9
Maknun, Imam Jauhari MAT5A - 2
Maksum, Ahmad MAT5A - 2, MAT5A - 3
Malau, Viktor MAT2 - 6
Malawat, Mohammad ME1A - 2
Mallisa, Harun CE4A - 4
Mangapul, Juara P - 1
Manjang, Salama E5A - 3
Mansjur, Zuldesmi MAT3B - 5
Mansur, Dieni P - 41
Mardatillah, Anggianika IE5C - 3
Mardikus, Stefan ME4 - 1 / ICSERA1 - 1
Mardjono, Airlangga CE4B - 5
Maresya, Ambar BIO4 - 4
Marku, Amy Karmia I-Dwell1A - 3
Marongiu, Jean Christophe CE3A - 1
Marthanty, Dwinanti Rika CE5 - 4
Martiningsih, Wahyuni E6B - 6
Martokusumo, Widjaja

Masmui I-Dwell1A - 1
Masruroh MAT6 - 8, MAT6 - 4
Masuda, Yuichiro E4A - 8
Masuin, Ringgy CE3B - 3
Matari, Tryatmaja MAT1B - 1
Mattheij, Stijn CHE3A - 4
Mau, Sealtial ME2A - 3
Maulana, Gerra MAT2 - 7
Maulana, Serdi Akbar IE2 - 6
Maurina, Anastasia I-Dwell2 - 2, I-Dwell3 - 4
Mausa, Danny E5A - 5
Mayasari, Fitriyanti E6B - 3
Mayasari, Rina Dewi P - 38
Medvids, Arturs P - 12
Mekada, Yoshito E4B - 6
Meliana, Yenny CHE2B - 3
Mellyanawaty, Melly BIO2 - 1
Melvi E6D - 5
Mentari, Sekar CE3A - 5
Midiani, Luh Putu Ike MAT1B - 7
Millati, Ria BIO2 - 4, CHE3A - 4
Mindaryani, Aswati BIO4 - 6
Miraj, Perdana P - 17
Miswar, Andre Yulanda ME3 - 4
Mitsudo, Seitaro MAT5B - 4
Mizan, Adlan MAT3A - 3
Mizeikis, Vygantas P - 12

Moch., Boy Nurtjahyo IE2 - 2
Mochtar, Khrisna CE3B - 2
Mochtar, Myrna Ariati MAT3B - 4
Moeis IE5A - 1, IE5B - 6
Moeis, Armand Omar IE4 - 1, IE5B - 3, IE5B - 7
Moersidik, Setyo CE1A - 5
Mohammad, Sakib E4A - 6
Mohammad, Taherzadeh BIO2 - 4
Moraru, Daniel P - 9, E3A - 7
Moulydia, F CHE5 - 3
Mubarak, Husni CE2B - 1
Mufti, Dessi IE3 - 1
Muhaimin, Habibur E3B - 1
Muharam, Yuswan CHE2A - 7, P - 49, P - 50, CHE3A - 6
Mujahidin, Didin CHE1 - 5
Mujtahid, Mujtahid E3B - 2
Mukti, Rino Rakhmata CE4A - 1
Mulia, Kamarza P - 18, CHE2A - 6, P - 44, P - 57
Muliadi, Jemie E4C - 4
Muljanto, Widodo Pudji E5B - 6
Mulyadi, Ismet Hari ME3 - 4
Mulyanto, Budi MAT6 - 1
Munadi, Rizal E1 - 3
Munir, Achmad E3B - 3, E3B - 2, E3B - 1
Munir, Badrul MAT1B - 6, MAT4 - 5
Murakami, Kenji P - 12, MAT1B - 4
Murase, Hiroshi Murdani, E4B - 6
Anggit Muskananfola, Max P - 7
Rudolf Muslim, Erlinda CE4B - 1
IE5C - 5

Musnajam MAT5B - 6
Mustaqim, Amsa E5C - 1
Mustofa, Salim MAT6 - 1, MAT6 - 2
Mutiari, Anies CHE2B - 1
Muzakki, Hakam ME3 - 2, ME3 - 3
N, Muhammad Fathur Rahman E5A - 3
Naafi, Andita Ainun CHE2B - 4
Nagase, Tsuyoshi E4A - 8
Nagatsu, Masaaki E3A - 5
Nakamura, Fumihiko CE1B - 3
Naldo, Equinaldo CE2B - 1
Napitupulu, Humala IE5C - 2
Nararya, Andaradhi MAT6 - 6
Nareshwara, Benedictus Darendra ME2B - 2
Narottama, Anak Agung Ngurah Made E3A - 2
Narpati, Faisal E4B - 3
Nasikin, Mohammad CHE3A - 3
Nasruddin P - 24, P - 26, ME2B - 3, ICSERA2 - 2, ICSERA3 - 5, P - 60, P - 61, P - 62, ICSERA3 - 1, ICSERA3 - 2, ICSERA3 - 3, ICSERA2 - 1
Nasution, Harmein IE5C - 4
Natali, Yus E6A - 4
Nelwan, Adinda Franky E6B - 4
Nguyen, Ba Chien ICSERA2 - 4
Niken, Chatarina CE4A - 2
Niklasson, Claes BIO2 - 4

Nirmala, A CHE5 - 3
Nisfaeni IE4 - 2
Nizam, Muhammad ME1A - 7
Noegroho I-Dwell3 - 5
Noer, Astriany E4D - 7
Nofrizal E6A - 5
Normelani, Ellyn CE2A - 8
Novianto, Sentot ME2A - 2
Novirani, Dwi IE4 - 4
Novriaty, Shanty P - 45
Nugraha, Cahyadi IE2 - 4
Nugroho, A. Agung MAT6 - 2
Nugroho, Eko Nugroho, E2 - 3
Kartiko Nugroho, P - 33
Muhammad Adi Nugroho, E5C - 7
Saptadi E6D - 4
Nugroho, Soewignjo Agus CE2A - 10, CE2A - 3
Nugroho, Supeno Mardi Susiki E2 - 1
Nugroho, Yulianto Sulistyo ME2B - 1, ME2B - 2
Nupur, Silvia Naznin E5B - 2
Nur, Danti Firda BIO2 - 3, BIO3 - 1
Nuradityatama MAT4 - 3
Nurcahyo, Rahmat IE5A - 5, IE3 - 6
Nurjanah, Novi BIO2 - 1
Nurokhim E6B - 9
Nurrohman ME2B - 7
Nursam, Natalita Maulani E4A - 5, MAT1B - 3
Nursani, Rosi CE3A - 5
Nurtanio, Ingrid E4C - 8
Nurtono, Tantular CHE2A - 7
Oediyani, Soesaptri MAT5A - 1
Ogi, Dion E2 - 2, E4D - 2, E4D - 5

Oh, Jong-Taek ICSERA2 - 4, ICSERA2 - 7, ICSERA2 - 8, ICSERA2 - 9
Ohira, Yosi E5B - 5
Oktariani, Eka BIO2 - 2
Ono, Yukinori E3A - 1
Onufrijevs, Pavels P - 12
P., Dimas ICSERA3 - 3
Palamba, Pither ME2B - 1
Pamitran, Agus ME2A - 2
Pamitran, Agus Sunjarianto ME2A - 1
Pamudji, Gandjar MAT5B - 5
Pandelaki, Edward E. I-Dwell1B - 2
Pane, Erlanda ME1B - 6
Paniran, Paniran E6A - 7
Panjaitan, Jabosar BIO4 - 1
Paramitha, Angeline CHE2A - 3
Pardoyo MAT6 - 7
Parikin, Parikin MAT3B - 3
Park, Chan Woo ICSERA3 - 4
Paronda, Abdul Hafid E6D - 2

Pasymi CHE6A - 2
Permana, Sulaksana MAT5A - 2, MAT5A - 3
Permanasari, Eka I-Dwell3 - 1
Permanasari, Ervina BIO2 - 4
Permata, Diah E6B - 5
Petroceany, Jade Sjafrecia P - 30
Petrus, Himawan Tri Bayu Murti MAT5A - 4

Petrus, Himawan Tri Bayu Murti MAT5B - 3

Nishikata, Atsushi	P - 51	Poespawati, Nji Raden	E6A - 2, E3A - 6, E6A - 3, E4A - 7

Poespawati, Nji Raden	E4A - 4
Prabhudesai, Gaurang	P - 9
Prabowo, Bintang N.	I-Dwell2 - 3
Prabowo, Harris	MAT4 - 5
Prabowo, I Putu Deny Arthawan Sugih	E2 - 3
Prabowo, I Putu Deny Arthawan Sugih	E2 - 3
Pradipta, Andrianus	E5A - 6
Pradito, Riandhika	ME2A - 5
Pradyasti, Astrini	CHE2B - 2
Prahasto, Toni	ME1A - 7
Prajitno, Djoko Hadi	MAT1A - 3
Prakoso, Aji Putro	ME2A - 9
Prakoso, Widjojo	CE2A - 2, CE2A - 11
Pramiarsih, Sarah	CE2A - 9
Pramono, Sigit	CE2A - 2
Pramudita, Rediani	IE5C - 6
Pramuka, Pandega Pramadtya Putra	MAT3B - 4
Pranamukti, Himawan	IE5A - 1
Pranoto, Lia Muliani	E4A - 5
Prasetya, Ade	I-Dwell1B - 4
Prasetya, Sonki	ME1A - 6
Prasetyani, Lin	E4A - 1
Prasetyo, Anton	MAT6 - 2
Prasetyo, Eko	ME1B - 6
Prasiwi, Vicky	MAT5A - 5
Prastica, Rian Mantasa Salve	CE5 - 3
Prastyatama, Budianastas	I-Dwell2 - 2, I-Dwell3 - 4
Pratama, Andreas Diga	MAT5A - 4
Pratama, Andreyanto	E6D - 3
Pratama, Dimas Firlyansyah	P - 28, P - 29
Pratama, Yoga Putra	E6B - 5
Pratesa, Yudha	MAT4 - 4, MAT4 - 5
Pratomo, Sri Bimo	I-Dwell1A - 2
Prawiroredjo, Kiki	E4B - 2
Prayitno	MAT5A - 1
Prayoga, Adam Yuta	MAT5B - 5
Prayoga, Syam Erast	E4A - 7
Prayogo, Dina Natalia	IE2 - 1
Priadi, Cindy Rianti	P - 45
Priadi, Dedi	ME3 - 9
Priambodo, Purnomo Sidi	E4A - 1, E6A - 1, E4A - 2, E6A - 3, E6A - 4
Priananda, Ciptian Weried	E6C - 6
Priandana, Karlisa	E3B - 5
Priatna, Edvin	MAT5B - 4
Pribadi, Insan Laksana	E6D - 8
Prihandoko, Bambang	CHE4 - 5
Prihandoko, Prihandoko	E4D - 1
Prihanto, Yosef	CE4B - 2
Prihatini, Putu Manik	E2 - 6
Prihatno, Fajar	CHE3B - 4
Primastari, Dwi Rizki	P - 19
Priyono	MAT6 - 7
Priyono, Bambang	MAT3A - 2
Priyono, Bambang	P - 52
Pudjihastuti, Isti	P - 22, P - 23, P - 31, P - 59
Pujowidodo, Hariyotejo	ME2C - 1, ME2B - 9
Purba, Aleksander	CE1B - 3
Puri, Anas	CE3A - 4
Purnamaningsih, Retno Wigajatri	E6A - 2, E3A - 6, E6A - 3, E4A - 7
Purnamaningsih, Retno Wigajatri	E4A - 4
Purnamasari, Dian	ME1B - 1
Purnamasari, Prima Dewi	E4D - 4, E4B - 4
Purnomo, Chandra	CHE3A - 5, CHE6A - 1
Purnomo, Chandra Wahyu	CHE5 - 1
Purnomo, Heru	CE3A - 5, MAT5B - 5
Purnomo, Mauridhi Hery	E2 - 7
Purnomo, Pujiono Wahyu	CE4B - 1
Purwaningrum, Rahajeng Widiana	P - 13
Purwanto, Widodo Wahyu	CHE2A - 6, CHE2A - 7
Purwono, Suryo	CHE6A - 1
Puspa Sari, Gema	ME3 - 5
Puspasari, Maya Arlini	IE3 - 2, IE4 - 5
Puspita, Titi	P - 40, ME2B - 4
Putra, Agus Ika	CE2A - 10
Putra, Akbar	CE2A - 6
Putra, Dea Saka Kurnia	E4D - 3
Putra, Gede Kossala	CE2B - 3
Putra, I Ketut Gede Darma	E2 - 6
Putra, Ilham	CHE1 - 5
Putra, Nandy	ME2B - 5
Putra, Riandy	CHE6A - 3, P - 47
Putra, Wahyuaji Narottama	MAT3B - 4
Putranto, Dedy Septono Catur	E6D - 3, E4D - 5
Putri, Alip Tania	CHE6A - 5
Putri, Arini Muthiah Rosmaya	MAT5A - 4
Putri, Aulia Andika	CHE2A - 3
Putri, Echa Cahya Julyta	BIO4 - 8
Putri, Gita Lestari	P - 45
Putri, Gitasha A.	P - 44
Putri, S N	CHE5 - 2
Putrie, Yulia E.	I-Dwell1A - 1
Putro, Egy Ciptia	MAT2 - 2
Rachima, Ima	I-Dwell1B - 1
Rachman, Amar	IE5B - 5
Rachmanto, Muchamad Aditya	ME1A - 4
Rahardjo, Amien	E5B - 3, E6B - 8
Rahardjo, Eko Tjipto	E3B - 8, E3B - 5, E6A - 4, E6A - 5, E6A - 6
Puji Lestari, Pratiwi	BIO4 - 6
Pujiastuti, Dian Rahayu	CE1A - 1
Pujotomo, Isworo	E6B - 2

Rahardjo, Sasono	E6A - 2, E6A - 3, P - 11
Raharjo, Jarot	MAT6 - 8
Rahayu, Astri	CE2A - 2, CE2A - 11
Rahayu, Wiwik	CE2A - 4
Rahim, Gafero	ME1B - 8
Rahim, Sjahril A.	CE3A - 5
Rahman, Elly Desni	CHE4 - 7
Rahman, Fajri	IE5B - 4
Rahman, Mohammad Wahidur	E4A - 6
Rahmina, Fathya	P - 21
Rajagukguk, Antonius	E6C - 6, E6C - 4
Ramadhan, Imam	P - 24, P - 26
Ramadhan, Mohamad Lutfi	ME2B - 1
Ramadhan, Muhammad Iqbal	E4D - 1
Ramadhani, Laily Isna	BIO2 - 6
Ramadiansyah, Muhammad	E4C - 6

Ramahdita, Ghiska	MAT6 - 6, MAT1A - 1
Ramandhika, Mirza	I-Dwell2 - 3
Ramayeni, Elsa	P - 28
Ramdan, Dadan	ME3 - 7
Ramdhani, Fitra	CE2B - 1
Ramli, Kalamullah	E4B - 8, E4C - 3
Rarasati, Ayomi Dita	CE3B - 2, CE3B - 5
Ratna, Anak Agung Putri	E4D - 4, E4B - 4
Rayhan, Fajri Ashfi	ME2A - 1
Rebecca, Tessa	P - 25
Refnaldi, Refnaldi	MAT3B - 2
Reinaldo, Yohanes	CE1A - 6
Rendi, M. Faisal	MAT4 - 3
Rengga, Wara Dyah Pita	BIO4 - 8, BIO4 - 3
Resnawati, Rina	P - 45
Rhakasywi, Damora	ME1B - 6
Riansa, Irvan	IE5C - 5
Rianti, Cindy	P - 40, ME2B - 4
Riastuti, Rini	MAT4 - 6
Riawan, Dedet Candra	E6C - 6, E6C - 4
Ridhova, Aga	MAT1B - 2, MAT1A - 5
Ridhowati, Atikah	BIO3 - 5
Rifai, Andri Irfan	E5C - 2
Rinaldi	CE2A - 6
Rines	ME2A - 8
Riskiyanto, Resza	I-Dwell2 - 3
Risqi, Sofu	E5A - 2
Riva'I, Abu Khalid	MAT3B - 3
Riyadi, Soegeng	ME1B - 2
Riyanto, Gregorius	ME4 - 1 / ICSERA1 - 1
Riyono, Joko	ME3 - 6
Rizkia, Vika	MAT1B - 6
Rizkiani, Sisi Nova	I-Dwell2 - 2
Robecca, Julian	IE2 - 3
Rohadi, Erfan	P - 5, E6D - 9, P - 42
Rohmah, Ratnasari Nur	E6B - 9
Rohmatin, Etin	BIO3 - 2
Rolia, Eva	CE5 - 2
Rorimpandey, Gladly Caren	E2 - 4
Rosa, Erlyta Septa	MAT1B - 3
Roswanda, Robby	CHE1 - 5
Rosyidi, Sri Atmaja P.	P - 14
Ruan, Shanq-Jang	P - 2
Rudiyanto, Arsika	CE2A - 2
Rus, Annisa Marlin Masbar	IE5C - 6,IE3 - 7
Rus, Annisa Marlin Masbar	IE2 - 5
Rustamadji, Rustamadji	BIO4 - 3
Rustandi, Andi	MAT4 - 1, MAT5A - 2, MAT5A - 3, MAT3B - 1, MAT4 - 5, MAT4 - 3
S, Yessica Hannauli	BIO4 - 4
S., Kadek Bangkit T.	CE4A - 3
S., Yodi	ICSERA3 - 2
Sabchevski, Svilen	MAT5B - 4
Sadikin, Mohamad Ali	E4D - 3
Sadjad, Rhiza Samsoe'oed	E4C - 8
Sadjidullah, Muhammad Ismail Hafidz	CE1B - 5
Safana, Aminu Aliyu	CHE1 - 4
Sagara, Altho	I-Dwell2 - 2
Saggaff, Anis	CE2A - 4
Sagita, Leni	CE3B - 3
Saha, Shovajit	E5B - 2
Sahlan, Muhamad	BIO2 - 3, BIO3 - 1, BIO1 - 1, BIO4 - 4, BIO3 - 2, BIO3 - 5, P - 48
Sahputro, Suwandi Dwi	E4C - 1
Saito, Kiyoshi	ME2A - 2
Saksono, Nelson	CHE1 - 2, CHE2A - 2, P - 48, P - 53
Sakti, Setyawan P	MAT6 - 4
Saleh, Toha	CE4B - 4
Salim, Agus	IE5C - 4
Salsabila, N	CHE5 - 3
Samanta, Arup	E3A - 7
Sammadikun, Waliyuddin	P - 46
Sanal, Alristo	P - 24
Sandhyavitri, Ari	CE4B - 3, CE2A - 6
Sanjaya, Randy	E4D - 4
Santjojo, D. J. Djoko	MAT6 - 4, E4B - 7
Santosa, Herry	I-Dwell1A - 4
Santoso, Amelia	IE2 - 1
Santoso, M. Iman	E6B - 6
Santoso, Rio Pudjidarma	MAT4 - 6
Santoso, Satria Putra	ME3 - 5
Saptari, Sitti Ahmiatri	MAT3A - 5
Sapteka, Anak Agung Ngurah Gde	E3A - 2
Saputra, Afip Jaya	CHE3B - 4
Saputra, Asep Handaya	P - 43
Saputra, Govinda Aris	CHE3A - 5
Saputra, Pradhana	ME2C - 4
Saputro, Adhi Harmoko	E4B - 5
Saraswati, Teguh Endah	P - 33
Sarena, Sryang Tera	E2 - 5
Sari, Denni	P - 34
Sari, Ellyta	CHE6A - 2, CHE4 - 7
Sari, Esty Octiana	CHE3B - 5
Sari, Kartika	BIO2 - 4
Sari, Suzanna Ratih	I-Dwell1A - 2
Sari, Yulinda	CE2A - 4
Sarker, Md Al-Amin	E5B - 2
Sartimbul, Aida	E6D - 9
Sarto	CHE3A - 4
Sasiang, Johannes	CHE2A - 2
Sasongko, Angga Kurniawan	P - 61
Satibi, Syawal	CE2A - 1
Satoh, Hiroaki	E4A - 3
Satrio, Hanindito Haidar	MAT1A - 4
Satya, Awalina	BIO2 - 2
Saubryania, Nurania	P - 49
Savitri, Savitri	CHE2B - 3
Sebayang, Perdamean	MAT5B - 7
Seffiani	BIO3 - 2
Semaradipta, I Wayan Yuda	MAT4 - 2
Sembiring, Anita Christine	IE5C - 3
Sembiring, Ferdianta	CHE6A - 1
Sembiring, Meilita Tryana	IE5C - 2
Seol, Jeong-Hoon	P - 8
Septiadi, I Wayan Nata	MAT1B - 7
Septiyanti, Melati	CHE2B - 3
Septyan, Tegar	IE4 - 6
Setiabudy, Rudy	E5B - 4, E6B - 8
Setiadi, Eko Arief	MAT5B - 7
Setiadi, Tjandra	BIO2 - 2, P - 20, CHE6A - 4

Setianingrum, Lesti	P - 11
Setiawan, Antrisha Daneraici	E3B - 3
Setiawan, Budhy	E4C - 5
Setiawan, Dedy	MAT3A - 5
Setiawan, Haris	ME3 - 5
Setiawan, Suganta	MAT4 - 3
Setiawati, Lestari	IE3 - 4
Setyahandana, Budi	ME2A - 8
Setyawan, Iwan	E6D - 4
Setyoko, Annas Singgih	E2 - 5, E5C - 5
Setyopratomo, Puguh	CHE1 - 3
Setyowati, Erni	I-Dwell1B - 2
Sherly, Sherly	ICSERA3 - 3
Shibuya, Mitsuki	P - 9
Shiddiq, Farizzi Adriya	CE3B - 4
Shimomura, Masaru	P - 12
Shin, Jung Eun	I-Dwell2 - 2
Shin, Yunchan	ICSERA2 - 5
Shinoda, Takeshi	ME1B - 4
Shobih	MAT1B - 3
Sholahudin, Sholahudin	P - 60
Sian, Buen	I-Dwell2 - 2
Sidik, Moch Syamsul Arifin	E2 - 5
Siegfried, Siegfried	P - 14
Sihombing, Ivander Christian	CHE2A - 4
Sihotang, Yosua Pangihutan	MAT5A - 4
Siladryanto, Ade Surya	P - 46
Siladryanto, Tania	BIO2 - 3
Silaen, Martha Veraida	CE1B - 4
Simanjuntak, Gita Theodora	P - 25
Simanjuntak, Samuel Edy Mataram	CE2B - 4
Simanungkalit, Sabar Pangihutan	P - 41
Simatupang, Rossa Turpuk Gabe	I-Dwell4 - 2
Sinambela, Hotdian	ICSERA2 - 3
Siradjuddin, Indrazno	P - 5, E4C - 5, P - 7, E4B - 7
Siregar, Amril Ma'Ruf	CE2B - 6
Siregar, Khawarita	IE3 - 3
Siregar, Rolan	ME1A - 1
Siregar, Syahrul Fauzi	IE3 - 3
Sisnayati	CHE5 - 4
Siswantara, Ahmad Indra	ME2A - 6, ME2C - 2, ME2C - 3, ME2A - 4, ME2C - 4, ME2A - 9, ME2C - 5, ME2C - 6, ME2C - 1, ME2B - 9
Siswanto, Anggun	P - 22, P - 23
Sitorus, Henry B.H.	E6B - 5
Sjafruddin, Ade	IE3 - 2
Sjah, Jessica	CE3A - 1
Slamet, Slamet	P - 39
Soedibyo	E6C - 6
Soedibyo	E6C - 4
Soedarsono, Johny Wahyuadi	MAT1B - 6, MAT4 - 1, MAT5A - 2, MAT5A - 3, MAT2 - 8, MAT4 - 5
Soelistijono, Rachmad Tri	E2 - 5, E5C - 5
Soeprijanto, Adi	E2 - 5, E5C - 5
Soeryantono, Herr	CE5 - 4
Soetanto, Maria F.	ME2A - 6
Sofian	CE2A - 2
Sofian, Irma Gusniani	CE1A - 3
Sofiana, Aprilinda	P - 16
Sofwan, Ananta	CE4A - 1
Sofyan, Amelia Virgiyani	CHE6A - 5
Sofyan, Bondan Tiara	MAT2 - 5
Sofyan, Nofrijon	MAT1B - 2, MAT3A - 3, MAT2 - 3, MAT6 - 6, MAT6 - 3, MAT6 - 5, MAT1A - 5, MAT1A - 6
Sopia, Lusi	CHE2B - 4
Sri Sumantyo, Josaphat Tetuko	E3B - 2
Suarda, Made	ME2B - 7
Suarnadwipa, Nengah	ME4 - 3 / ICSERA1 - 3, CHE2B - 5
Suastika, I Ketut	ME1B - 2, ME1B - 1
Subagia, I.D.G Ary	MAT5B - 1
Subagio, Agus	MAT6 - 7
Subekti, Norman	MAT4 - 1
Subhan, Achmad	MAT3A - 3, MAT3A - 2, MAT6 - 6, MAT3A - 5, MAT6 - 7
Subiantoro, Aries	E4C - 2, E5C - 6, E4C - 7
Subiyanto, Lilik	E2 - 5, E5C - 5
Subrata, Rosalia H	E5C - 3
Suci, Maharani	BIO1 - 1
Sucipta, Made	ME2B - 7
Sucipto	IE5B - 5
Sudarma, Made	E2 - 6
Sudarsana, I Ketut	CE4A - 3
Sudaryanto, Sudaryanto	MAT3A - 1, MAT3A - 4
Sudiana, I Nyoman	MAT5B - 4
Sudibandriyo, Mahmud	CHE1 - 3, CHE5 - 2
Sudibyo, Hanifrahmawan	BIO2 - 7, BIO2 - 6, BIO3 - 3
Sudibyo, Harry	E4A - 2, E3A - 7
Sudirja, Sudirja	ME1A - 4
Sudiro, Toto	MAT5B - 7
Suen, Jian-Ping	CE1A - 6
Suendo, Veinardi	MAT6 - 2
Sugita, I Ketut Gede	MAT5B - 1
Suhandy, Diding	BIO4 - 2, CHE2A - 5
Suharno, Bambang	MAT1B - 6, MAT2 - 7, MAT2 - 8
Suharno, Sri Mulyani	CHE1 - 6
Suharto, Nugroho	P - 42
Suherman, Suherman	CHE5 - 5
Suhrowati, A	P - 62
Suhrowati, Atik	P - 61
Sukmara, Riyan Benny	CE5 - 5
Suksmono, Andriyan Bayu	E3B - 1
Sulaiman, Fauziah	CHE1 - 4
Sulamet-Ariobimo, Rianti Dewi	MAT2 - 8
Sulardiono, Bambang	CE4B - 1
Suleeman, Evelyn	P - 45
Sulistyawati, Wiwin	ME1B - 3
Sulistyo	ME1A - 3
Sulistyo, Hary	CHE3A - 5
Sulistyorini, Dewi	CE4A - 5
Sumarno	P - 4
Sumarsono, Danardono Agus	ME1A - 2, ME1A - 4, ME1A - 5, ME1A - 6, ME1A - 1, ME3 - 5
Sumardiono, Siswo	P - 22, P - 31, P - 59
Sumpeno, Surya	E2 - 7
Sumual, Hendro Maxwell	MAT3B - 5
Sunaryo, Geni Rina	CHE3B - 1
Sunaryo, Sunaryo	ME1B - 7, ME1B - 8, ME1B - 5, P - 58
Supartono, Fx	CE4A - 2
Suprapto, Bhakti Yudho	E5C - 1
Sumabrata, R Jachrizal	CE2B - 4, CE1B - 4

Supria, Cika Kasturi I-Dwell4 - 3
Supriadi, Cipta Panghegar CHE4 - 3, MAT1B - 5
Supriadi, Leni Sagita Riantini P - 30
Supriyadi ME2B - 3, P - 60
Supriyadi, Sugeng MAT2 - 7
Supriyo, Edy P - 22
Surahman, Adang CE4A - 1
Surjandari, Isti IE5C - 6
Surjati, Indra E3B - 4
Surjosatyo, Adi P - 40, ME2B - 4
Suryadi, Fenti ME1B - 7
Suryanegara, Muhammad E6D - 1, E5A - 4, E6D - 8
Suryani, Eva IE3 - 1
Suryanto, Agus BIO4 - 8
Suryantono, Herr CE5 - 2
Suryati, Euis E6C - 2
Suryawijaya, Ibrahim Abdulfattah CHE1 - 7
Susana, Ernia E4B - 1
Susanto, Bambang Heru P - 28, P - 29, P - 47, CHE3A - 3, P - 36, CHE6A - 3
Susanto, Christopher ME2A - 7
Susanto, Dalhar I-Dwell3 - 2
Susanto, Edy ICSERA2 - 2
Susanto, Misfa E4D - 6, E6D - 5, E5A - 5
Susilo, Didik Djoko ME1A - 7
Susilo, Maulana Senjaya IE2 - 2
Sutalaksana, Iftikar IE3 - 2
Sutikno, Sigit CE4B - 3, CE2A - 6
Sutjiningsih, Dwita CE5 - 2, CE4B - 5, CE4B - 2
Sutrisno, Akhmad P - 46
Sutrisno, Himawan Hadi ME3 - 8
Sutrisno, Widarto CE3A - 6
Suwartha, Nyoman P - 45, CE1A - 1
Suweda, I Wayan CE2B - 3
Suyanto, Heri P - 1, E6B - 1
Suzianti, Amalia IE3 - 5, IE1 - 1, IE2 - 6
Syadiah, Nurfitri CE1A - 5
Syafinal, Alviana Alicia IE1 - 1
Syahral, Mohamad E4D - 5
Syahrial, Anne Zulfia MAT3A - 2, MAT2 - 3, CHE4 - 5, MAT2 - 4
Syahrihaddin, Aldy ME1B - 5
Syaiful ME2A - 6
Syaifullah, Danu Hadi IE4 - 5
Syai'In, Mat E2 - 5, E5C - 5
Syamsiah, Siti CHE3A - 4
Syarief, Muhammad Haikal CE3B - 5
Syarif, Dani Gustaman MAT1A - 3
Syukur, Fajri CE2A - 2
Tabe, Michiharu P - 9, E3A - 7
Tada, Eiji 814, P - 51
Takahashi, Tomokazu E4B - 6
Talahatu, Marcus Alberth ME2A - 3
Tallar, Robby Yussac CE1A - 6
Tamba, Konni MAT5B - 7
Tambunan, Mangara M. IE5B - 1
Tangkudung, Ellen Sophie Wulan CE1B - 1
Taqwallah, Hafizh Malik H. BIO1 - 2
Thalib, Humaid ME1A - 3
Thanaya, I Nyoman Arya CE2B - 3
Tjahjadi, Gunawan E4B - 2
Tjahjadi, Hendrana E4B - 8, E4B - 1
Tjahjono, Elly CE4A - 2, CE3A - 5
Tjahjono, Tri P - 45
Tobing, Bonardo I-Dwell3 - 1
Tobing, Sheila ME2A - 7, P - 15
Too, Eric CE3B - 1
Tousif, Md. Noumil E4A - 6
Trinopiawan, Kurnia MAT5A - 3
Trirahayu, Nanang Tri CHE1 - 7
Trirama, Hatara IE1 - 1
Trisanto, Agus E5A - 5
Trisko, Nici P - 54, P - 55
Trisnawan, Dita I-Dwell4 - 1
Trisnawati, Dikha Utami CHE2B - 4
Trisno, Ramon ME1A - 8
Tristantini, Dewi BIO3 - 4, BIO4 - 1, CHE2B - 8, CHE4 - 1
Triwiyatno, Aris ME1A - 3
Triyono, Triyono ME3 - 6
Troller, Pavel P - 3
Tuada Afnan, Nadia BIO2 - 3, BIO3 - 1
Turuallo, Gidion CE4A - 4
Tyas, Ratih Luhuring CHE3B - 1
Ubay, Muhammad Sulaiman Nur E5C - 4
Udhiarto, Jati U MAT1B - 2
Ulfah, Irmawati IE5B - 2
Ulfah, Irmawati ME2B - 7
Ulwani, Sekar Hanun CHE2A - 6
Umam, Khairul CE2A - 3
Umar, Efrizon MAT1A - 3
Utama, Ahmad Angga MAT4 - 4
Utama, I Ketut Aria Pria ME1B - 1
Utami, Chairani Shafira P - 61, P - 62
Utami, Tania Surya BIO1 - 1, BIO4 - 4, BIO3 - 6
Utami, Tania Surya BIO3 - 1
Utaviani, Risya P - 36
Vente, Abby
Tarigan, Uni Pratama Pebrina IE5C - 3

	C H E 3 A - 4
Verdiyanto, Raka Nuralif	MAT2 - 4
Vincens, Eric	CE3A - 1
Vohra, Hans	ME2C - 3
Vu, Pham Quang	ICSERA2 - 4, ICSERA2 - 8, ICSERA2 - 9
Wahab, Wahidin	E5C - 1, E6C - 1, E4C - 6
Wahid, Abdul	BIO1 - 2, CHE3B - 2
Wahidin, Aang	E2 - 5, E5C - 5
Wahyuddin, Mohammad Iwan	E4A - 2
Wahyudi, Indah Survyana	E4D - 8
Wahyudi, Teguh	E6A - 6
Wahyuna, Nanang Tri	IE3 - 6
Wahyuningsih	P - 23
Wang, Ting-Wei	P - 10
Wardhani, Rini Wisnu	E4D - 5
Warjito	ME2A - 4, ME2C - 4, ME2A - 9, ME2C - 6
Warjito, Ahmad Indra	ME2A - 5
Waskito, Kurniawan Teguh	ME2A - 3
Watanabe, Tokinobu	E3A - 1
Wattimena, Priandra Aditya	IE3 - 5

Wenten, I Gede	CHE4 - 6
Weried Priananda, Ciptian	E6C - 4
Wey, I-Chyn	E5B - 1
Whulanza, Yudan	ME1A - 6
Wibisana, I Gusti Nyoman	E3B - 4
Wibisono	E4B - 5
Wibisono, Gunawan	CE2A - 3, E6C - 2, E6D - 6
Wibowo, Agung Satrio	ICSERA3 - 1
Wibowo, Cahyo Setyo	CHE2B - 7
Wibowo, Cahyo Setyo	ME2B - 6
Wicaksono, Nanda Avianto	E4C - 1
Wicaksono, Rendi Pambudi	E4C - 5, P - 7
Widana, Iketut	IE4 - 3
Widana, Kurnia Setiawan	MAT5A - 3
Widiawaty, Candra Damis	ME2C - 1
Widiyatmoko, Pramujo	CHE2B - 1
Widjajanti, Endang	CE1B - 2, CE2B - 2
Widjanarko, Dani Indra	E6D - 7
Widodo, Achmad	ME1A - 7
Widyadayinta, Catharina	CE1B - 1
Wijaksana, Hendra	CHE2B - 5
Wijanarko, Anondho	BIO2 - 3, BIO3 - 1, BIO1 - 1, BIO4 - 4, BIO3 - 2, BIO3 - 5
Wijaya, Erick	CE1A - 6
Wijaya, Handi	IE2 - 4
Wijayanti, Suwastika	E4A - 5
Winantyo, Rangga	MAT1B - 4
Winaputri, Nadira	IE2 - 6
Winardi, Sugeng	CHE2A - 7
Winarto	MAT3B - 2, P - 27, ME3 - 3
Windarta, Susila	E5A - 2, E5A - 1, E4D - 3
Wirawan, I Ketut Gede	MAT5B - 1
Wirawan, Sang Kompiang	BIO4 - 6
Wirawan, Vincent	CHE1 - 6
Wirianata, Tomi	E4D - 4
Wirya, Andrey Sapati	CHE3A - 6
Wiyono, Apri	P - 40,ME2B - 4
Wu, Chin-Hsien	P - 10
Wulan, Praswasti Pembangun Dyah Kencana	CHE2A - 6, CHE1 - 3, P - 39
Wulandari, Dyah Arum	CHE2A - 6
Wulandari, Winda	ME2A - 3
Wulansari, Dwi Novi	BIO4 - 8
Wulansarie, Ria	BIO4 - 3, E6A - 8
Yadnya, Made Sutha	IE3 - 6, IE3 - 7, IE5B - 2, IE2 - 5
Yadrifil	E6A - 7
Yanidar, Ramadhani	CE1A - 4, CE2A - 5
Yanto, Fendi	ME1B - 3
Yap, Wei Yee	CE3B - 1
Yasin, Iskandar	CE4A - 5
Yatim, Ardiyansyah	ICSERA2 - 3
Yatjong, Fachryano	MAT5B - 6
Yohana Purwaningtyas, Fiska	MAT5B - 3
Yohanes, Steven	E2 - 2
Yu, Chung-Ke	E2 - 8
Yudaningtyas, Erni	E4C - 5, E4B - 7
Yudanto, Dea Yusuf	CHE1 - 1
Yulia, Meinilwita	BIO4 - 2, CHE2A - 5
Yulianingrum, Carissa Mega	E5A - 1
Yulianti, Asri	E2 - 7
Yulianti, Evi	MAT3A - 4
Yuliusman	P - 24, P - 26
Yunasfi	MAT6 - 1
Yuniati, Yetti	E4D - 6
Yusa, Muhamad	CE2A - 10
Yusivar, Feri	E4C - 1, E4C - 2, E5C - 2, E5C - 6, E4C - 7
Yusoff, Nur Izzi Md	P - 14
Yuwono, Ahmad Herman	MAT5B - 1, MAT1A - 6
Yuwono, Akhmad Herman	MAT1B - 2, MAT6 - 6, MAT1A - 5
Zafira, Adani Talitha	CE1B - 5
Zagloel, Teuku Yuri M.	CE3B - 3, IE1 - 5, IE5C - 1
Zainuddin, Zahir	E5A - 3
Zainuri, Fuad	ME1A - 1
Zamroni, Muhammad Hafid	IE5B - 4
Zhafari, Fariz	ICSERA3 - 5
Zhang, Gui-Rong	CHE3A - 2
Zubaidah, Teti	E6A - 8, E6A - 7
Zulfia, Anne	MAT3A - 1, MAT3A - 3, MAT2 - 2
Zulkarnain	IE5B - 3
Zulkarnain, Lisa Marie	P - 49
Zulkarnain, Lisa Marie	CHE3A - 6
Zulkifli, Fitri Yuli	E3B - 8, E6A - 5, E6A - 6
Zulys, Agustino	CHE3B - 4
Zuna, Herry Trisaputra	CE1B - 5
Zwart, Jan Pieter	E2 - 4

Join us again in

TME 15tti1 INTrEANATIONAL CONfEAENCE on QiA

International Symposium on Civil and Environmental Engineering
International Symposium on Mechanical and Maritime Engineering
International Symposium on Electrical and Computer Engineering
International Symposium on Materials and Metallurgy
International Conference on Dwelling Form (I-DWELL)
International Symposium on Chemical Engineering
International Symposium on Industrial Engineering and Ergonomics
International Symposium on Innovation Technology and Community Engagement

Conference Organizing Committee: Faculty of
Engineering Universitas lndone ia
Dekanat Building 3th Floor Kampus UI. Depok 16424. Indonesia
Phone : +62-21-7863503, Fax : +62-21 - 7270050
Email : qir@eng.ui.ac.id,
Website : qir.eng.ui.ac.id
eng.ui.ac.id

15th International Conference on Quality in Research (QiR 2017)

AN ASSESSMENT ON SUSTAINABILITY OF THE RAILWAY – AIRPORT LINK AS AN ALTERNATIVE MODE OF TRANSPORTATION TO RADIN INTEN II AIRPORT

Ika Kustiani
Amril Ma'ruf Siregar

Abstract

The rapid economic development in the Province of Lampung is indicated by, among other things, the increase of air transportation mode users. The data shows that for the last four years, the number of passengers of the Radin Inten II Airport increased by 52% and the number of cargos increased by 257%. To support these demand, cost-effective and efficient transportation systems are vital, therefore the government has recently completed the construction of the Radin Inten II Airport expansion. Moreover, currently the government is planning to build a link between the airport facilities with railway transportation mode. This link provides additional alternative of transportation to airport. This research was carried out to assess the future demand for railway transportation mode to airport and to measure how this can achieve financial, environmental and social performance for sustainability. The assessment methods were utilizing dynamic, purposive and random sampling method to review the opinion of stakeholders of transportation system to airport. Stakeholders' opinion survey also reviewed a set of physical and managerial interventions that could potentially be implemented to improve the performance and sustainability of the railway transportation system. These interventions were drawn from suggestions made by experts in transportation system. The review of these proposed interventions was executed by integrating the results from a stakeholders' opinion survey with a Triple Bottom Line (TBL) sustainability framework. The integration of these two methods was designed to identify an alternative solution that was not only robust but also preferred by the stakeholders of railway and airport transportation system. The results showed that the physical changes that required large capital cost were less desirable and the managerial changes that give private company a greater authority were less favourable by all stakeholders.

Keywords: Transportation mode; Sampling method; Stakeholders opinion survey; physical and managerial interventions; Triple Bottom Line sustainability framework;

I. INTRODUCTION

Based on the data provided by the Province of Lampung Department of Transport, there are significant increase of the number of passengers at Radin Intan II Airport by 58% from 2010 to 2014 as well as the number of cargo by 257%. The airport provides services for domestic flights as well as embarkation flights for hajj pilgrims and overseas Indonesian workers. Currently, the airport serves for about 25 arrival and 25 departure flights a day from major cities in Indonesia. From January to September 2016, the average passenger that arrived were 2,455 per day and the number of passengers that departed were 2,521 per day. The airport operates 14 hours a day and peak hour is at 17 to 18 o'clock with 8 flights. Airport is one of transport nodes that play an important role in intermodal transportation systems, in particular among air, road and railway modes. To improve airport operational service, it needs to be supported by reliable and quality public transportation. The challenge to provide a better, faster cheaper and safe public transportation becomes more important along with the dynamics development of the region.

At the moment, the only access to the airport from Bandar Lampung Central Business District is through Trans Sumatra Highway. On average travel time is 45 minutes for private cars and taxis. Longer time is needed for Airport Bus. Every year, the travel time is increasing since the number of vehicles are increasing. This problem is exacerbated by the prediction of potentially high increase in the number of airport passengers in the future. It can be predicted that the current transportation mode to access the airport can no longer supports the demand. Therefore, an alternative mode of transportation is urgently needed to shorten the travel time from and to the airport. Fortunately, the airport location is close to railway track and utilizing it is one of possible options to effectively and efficiently transport people in mass from and to the airport.

Railway services has many advantages compare to other forms of transportation mode such as: enable to transport people in mass, lower/affordable cost, lower pollutant emission, lower land requirement, comfortable, safe, and free from traffic. There are some criteria that govern the type, size or class of a train station such as: operation facilities, number of tracks, supporting facilities, frequency of traffics, number of passengers and goods, revenues, and level of service (safety, security, reliability, comfort, easiness and equality). Based on those criteria, an airport train is considered as a short distance type railway service in which the distance is between 10 to 100 kilometers or the time travel is between half to three hours. In general, a high frequency or a short headway type of trains are needed with a maximum headway of 10 to 15 minutes or minimum there are 4 trains in one hour.

The current Branti Railway Station is classified as a small station and operates as longsiding and transfer station. At the moment, the railway provides services to transport passengers in short distance from Tanjung Karang to Kotabumi and medium distance from Tanjung Karang to Kertapati. The railway runs 2 return trains for economy and executive classes for medium distance and 1 return trains for short distance. The railway also provides services for transporting goods such as coals, pulp and others. The travel speed for passengers' trains are 36 – 52 km per hour and for goods carriages are 25 – 40 km per hour.

Figure 1. Airport – Train Station Link Concept

Based on the previous assessment, there are some problems exist in developing a mass rapid transportation system from Tanjung Karang CBD to the airport via railway. The nearest train station to the airport (Branti) is about 1.3 kilometers. Therefore, it is needed to relocate the current location of Branti Station to enable it to be operated as an airport train station. It is planned that a skybridge will be constructed to connect the train station with the airport terminal as can be seen from Figure 1. In addition to that, a double track railway is a must as

well as separation of track for passengers and goods. Improvements of facilities at Tanjung Karang and Labuhan Ratu Stations to support airport train station operation are also needed.
For Indonesia Railway Authority, pioneering airport train to provide transportation services that accommodate passengers' mobility from one transportation mode to another in mass and in accordance to passengers' preferences is the challenge that must be done as soon as possible. Therefore, studies were required to understand the factors that influence users to switch to rail service as well as factors that influence the sustainability of the Railway – Airport Link. This study was conducted to find out the characteristics of passengers of each transportation mode to airport (taxi, private cars, and Trans Lampung bus), the number of passengers that might switching to train; and the technical and managerial intervention alternatives that favourable to stakeholders.

II. METHODOLOGY

2.1. Opinion survey

According to Abernethy, Jinapala, and Makin (2001) the objectives of measuring and quantifying stakeholders opinions are to:

1. Assist users to exert some influence on policies that affect their lives and economies,
2. Assist project planners in identifying the project components that are most likely to satisfy the concerns of affected users,
3. Provide a balanced view of alternative strategies and estimate differences of opinion between stakeholders, and
4. Provide a means of continuing mixed (quantitative and qualitative) evaluation of peoples' reaction to the impact of a project.

Among different stakeholders of transportation projects, users are the most fundamental. Opinion survey of the people most affected by transportation project is aimed to capture opinion and discourse on the current level of service, expectation of future service levels and willingness to bear the consequences of possible upgrades to service levels and/or infrastructure. It is very important to increase local support, co-operation, and benefit.
Abernethy, Jinapala and Makin (2001) explained aspects to be considered when gathering the opinion of people are: technique/methodology, preparation of questionnaires, and analysis of findings. Reported works on opinion surveys generally used a quantitative design with a questionnaire method. It is widely uses since it is an easy, quick and economical method; and reliable and capable of analysing large sample size subsets containing variations of possible determinant factors such as age, gender, or income. In designing the questionnaire, the following should be considered carefully:

1. As short as possible: based on a brief interview via 10 to 15 questions/statements,
2. Should be in written/spoken in the local language,
3. Consider the respondents might have low education level.

In general, the users' perceptions that need to be taken into account are:

1. Service delivery (operational): adequacy/sufficiency, reliability/predictability, tractability/convenience/flexibility, equity;
2. Asset/infrastructure condition (maintenance): railway, station, train
3. Economic aspect: fare
4. Environmental aspect: air quality and green corridors
5. Management aspect: effectiveness and efficiency of the services

2.2. Travel Fare

Travel fare is the most important aspect in choosing a mode of transportation. If the fare to be paid is considered too expensive, people tend to choose cheaper alternatives. However,

when there is no choice, they are forced to use this mode of transportation. Basically, fare are determined based on the following aspects: users, operator and regulator (government). In determining train service fee, it is needed to compare the ability to pay (ATP) and the willingness to pay (WTP) of train users to pay a sum of money for services provided. The value of ATP and WTP also affect the frequency of using the facility.

When the fare are determined based on ATP and WTP, user aspect is the subject who determine the amount of fare applied. The fare applied follows the following principles:

1. The fare applied cannot exceed the ATP of target communities. When the fare applied is higher than ATP, government intervention in the form of subsidy (direct or cross-subsidy) or other government supports are needed to obtain a fare that equal to ATP.
2. Since the WTP is the function of level of service of public transportation, the opportunity to increase fare still exists by increasing performance of service.
3. In case that fare applied is far below the ATP and WTP, there is flexibility in the calculation or application of the new fare.

Basically, ATP is transportation budget to travel intensity ratio. It measure the ability of public to pay the service provided based on ideal income. There are two type of ATP that are general ATP and ATP based on occupation, however both can be calculated using household budget method. ATP is influenced by income, travel frequency, estimation on daily transportation cost, and other costs.

WTP can be defined as the average amount of money that passengers willing to incur as a payment for service received. It is affected by several factors such as: quantity and quality of service, purpose of utilization and users' income. One method to analyse WTP for train services is based on users' perception on fare and service of the public transport such as: expected rates, service priority expected, and willingness to pay more for improved safety.

2.3. The Triple Bottom Line Sustainability

Sakthivadivel et al. (1999) stated that performance assessment is an integral part of performance-oriented management. It can be used to measure the general health of a system, the impact of interventions and to diagnose the constraint threats and institutional strengths. The most popular type of performance assessment is a measurement on sustainability performance. The triple bottom line (TBL) sustainability performance is a concept proposed by John Elkington in 1995. The TBL is an expanded spectrum of values and criteria for measuring organisational (and societal) success that takes into account ecological and social performance in addition to financial performance. Because of its goal of sustainability, the TBL is famously described as 'people, planet, and profit'.

To measure sustainability in a complex system, a structured approach is appropriate to identify the main issues of concern for stakeholders, or the objectives relating to sustainability, and it then should address these objectives using selected indicators and performance measures. Sustainability citeria and incators for transportation infrastructure from various research from 2000-2013 are summarized in Table 1. From these research the framework indicators of sustainable infrastructure development for this study were developed. The study employed three sustainability criteria and two facilitating criteria that can be further break down into 40 indicators.

Table 1. Sustainability Citeria and Indicators for Transportation Infrastructure from Previous Research

Sustainability Citeria and Indicators		Author				
Social Criteria (People):		**1**	**2**	**3**	**4**	**5**
1.	Public safety (including traffic accidents level)	X	X	X	X	X
2.	Public security (traffic disruption level)	-	X	X	X	X
3.	Public health	X	X	X	-	X
4.	Public welfare (including savings from other transportation mode)	-	-	-	-	X
5.	Equity / fairness	-	X	-	X	-
6	Facilities for the disabled and elderly	-	X	X	X	X
7	Access to public services	X	-	-	X	X
8.	Social interaction and social access	-	-	-	-	-
9.	Tradition/cultural protection	-	X	-	-	-
10	Behaviour of community as user (as an effect of education & skill rate)	-	X	X	-	X
Environmental Criteria (Planet):		**1**	**2**	**3**	**4**	**5**
1.	Air pollution (ambient air quality)	X	X	X	X	X
2.	Land pollution (including waste) & land degradation (e.g. permanent puddle and flood)	-	-	X	X	X
3.	Noise pollution	-	X	X	X	X
4.	Water resources / ground water pollution	X	X	X	-	X
5.	Use of energy (fuel consumption and efficiency of movement / mobility)	X	X	X	X	X
6	Use of renewable energy / efficiency of natural resources	-	X	-	X	X
7	Disruption to landscape / conversion rate of land (land use)	X	X	-	X	X
9.	Green area and ecological network (hubs, nodes, corridors)	-	-	-	-	X
10	Protection of wildlife / habitat / biodiversity	-	X	X	X	-
Economic Criteria (Profit):		**1**	**2**	**3**	**4**	**5**
1.	Cost of infrastructure (capital & MOM)	X	X	X	X	X
2.	Revenue from trip / service / users fee (willingness to pay)	X	X	X	X	X
3.	Local government revenue (savings on O&M on other transportation mode, revenue per capita)	-	X	-	-	-
4.	Locals & regional economic opportunities (creation of jobs, absorption of labor) and effect on Gross Regional Domestic Product	-	X	-	-	X
5.	Supporting growth center / investment development (business, education, industrial, etc.)	X	X	-	-	X
6	Increase land value	-	-	-	-	X

Facilitating Citeria and Indicators		Author				
Technology Criteria		**1**	**2**	**3**	**4**	**5**
1.	Capacity of infrastructure (supply)	X	-	-	-	X
2.	Quality of infrastructure	-	-	-	-	X
3.	Technology and design of infrastructure	-	-	X	-	-
4.	Levels of service (performance)	X	X	X	-	X
5.	Integration of infrastructure (transportation mode)	-	-	-	-	X
6	Ability to cope with population / private vehicle / road network growth and diversification of transportation mode	-	X	X	-	X
7	Facilities for pedestrians and non-motorcycle vehicle / bike	-	-	X	-	X
Governance Criteria:		**1**	**2**	**3**	**4**	**5**
1.	Regulation and institution	X	-	-	-	-
2.	Cooperation with other institutions	-	-	-	-	X
3.	Budget for R & D	X	X	X	-	X
4.	Conformity with the spatial planning & land use control	-	X	X	-	X
5.	Quality of human resources	-	-	X	-	X
6	Community / users participation	X	X	X	X	-
7	Law enforcement / sanctions / control / call center	X	-	X	-	X

Note: 1 (Sahely, *et al.*,2005); 2 (Litman and Burwell, 2006); 3 (Tamin, 2007); 4 (Haghenas dan Vaziri, 2012), 5 (Kusbimanto, 2013)

III. RESULTS AND DISCUSSION

Opinion surveys conducted for this study consist of three different surveys that were two users' opinion survey and one key stakeholders' opinion survey. As a result, each survey required different respondents and methodologies; however, the stages were typical that are: defining the population of concern, specifying sampling frame, specifying sampling method, developing questionnaires, conducting field surveys, analysing and interpreting data.

3.1. Users' opinion survey

1. Measuring interest on train service to airport

Passengers' opinion survey was carried out through questionnaires to gather information about passengers' interest on choosing airport train service, and origin and destination of passengers. The survey method utilized **Random Sampling** and the number of respondents was calculated based on Slovin equation as follow: $n = N / (1 + N e^2)$. Where: n = minimum

number of samples, N = number of passengers per day, and e = prediction on passengers' increase.

Based on the data, the average number of passengers per day in 2016 was 2,448. It was predicted that the rate of passengers' increase of 5% per year applied following the rate of Sukarno – Hatta Airport. As a result of the equation above, the minimum number of samples needed is 345 per day.

Opinion survey on airport passengers' interest in using train service to access airport was conducted on Thursday, Friday and Saturday in the month of September 2016 against 450 respondents. From 441 valid respondents, 61% of respondents comes from Bandar Lampung and 74% said interested to choose train service.

Based on the number of passengers in the Year 1998 to 2015, a polynomial regression graphs was drawn to predict the number of passengers in 10 and 20 years (Year 2026 and 2036). Based on the graph, it can be predicted that in the Year 2026: the number of passenger from Bandar Lampung would be 378 passengers and 280 of them would prefer to use train to transport from Bandar Lampung. The number is becoming more striking in the Year 2066. The number of passengers from Bandar Lampung would become 1,704 per day and 1,200 of them would choose train to transport to the airport.

2. Measuring the Ability to Pay (ATP) and the Willingness to Pay (WTP)

The questionnaires survey utilized a **Dynamic Method** in which the respondent was chosen based on incidental sampling (anytime and anywhere) as long as they fulfil the requirements as a sample of a population (Amirin, 2011). Respondents were passengers of three different type of transportation mode that exist in the airport at the moment that were: bus, private car and taxi. The number of respondent was 350 passengers that consist of 151 private cars, 148 taxi, and 51 taxi. The responds gathered from the survey was analysed using multiple regression with SPSS. With 95% of confidence level, the value of R2 for formula obtained was 0.72. The questionnaires were designed in four sections as follow:

a. Characteristics of passengers:

It consists of 12 questions that addressed to find out the characteristics of airport passengers at Radin Inten II Airport as follow: age, gender, education, frequency to airport, means of transport most frequently used, alternatives of transport that can be selected, time travel to airport, travel origin, travel destination, purpose of travel, number of dependents, and the one-time cost travel to airport.

From about 350 respondents, 56% of travel purpose was for work, 23% for social activities, 13% for business, and the rest was for others such as holiday and family matters. In addition to that, 51% of respondents who work were private employees, education level of passengers was dominated by under graduate level by 71%, and family income for taxi and bus passengers were 1 to 3 million Rupiahs per month while for private car passengers were 3 to 5 million Rupiahs per month.

Since the majority of passengers' purposes is for work, they choose air transportation because its punctuality. Since most of the passengers' purpose is for work, the frequency of passengers to airport 59% travel twice a month, 32% travel 4 times a month, and 9% travels more than 4 times a month. Only a very small fraction of the passengers are one time travellers.

b. Ability to pay (ATP)

There were four questions asked to measure the ATP for train service in this study: average income per month, percent of income allocated for transportation per month, percent of income allocated for transportation to airport per month and frequency to airport per month. Hence, respondents' ATP can be calculated.

Based on the calculation, the minimum ATP of respondents was USS 0.75 and maximum was USS 3.75 with an average of USS **2.6**. The most ATP was in the range of < USS 1.5 (25%), then followed by USS 2.25 - 3 (16.67%), > USS 3 (16.67%) and USS 1.5 – 2.25 (15%). If the airport train fare are in the range of USS 0.75 – 2.25, the ATP of respondents are 60%. However, if the fare is increased to USS 2.25 – 3.75 the ATP of respondents decrease to 40%.

c. Willingness to pay (WTP)

The questions asked for this study consist of for questions as follow: appropriate airport train fare, highest priority of airport train service, willingness to pay more for improved safety, and added costs for the program. Hence, the respondents' WTP can be calculated.

Based on the calculation, minimum WTP of respondents was USS 0.75 and maximum was USS 4.5 with an average of **USS 2.1**. The most WTP of respondents was in the range of USS 1.5 – 1.9 (26.67%), then followed by USS 0.75 – 1.5 (20%) and USS 1.9 – 2.25 (20%). If the airport train fare are set in the range of USS 1.5 – 2.25, the WTP of respondents are 78,33%. However, if the fare is increased to USS 2.25 – 3 the WTP of respondents decrease to 50%.

The study results show that the average ATP was higher than the average WTP. This means that the respondents' ability to pay is greater than the desire to pay for the services. This condition is caused by:

- Low utility of public services often caused by users with relatively high income not willing to utilize it because the service are below their expectation. In this case, users are called choice riders since they have a choice on transportation modes. They tend to utilize transportation modes with a better service or using their own car even with a higher cost.
- Respondents' perception on airport train are is still influenced by the assumption that all public transportation have similar level of service, as a result they expected the fare would be similar.

d. Respondents' expectation

The questionnaire was designed to assess respondents expectations on service provided. The results can be he results can be used to determine the priority of service.

From about 350 respondents, 35% of taxi passengers and 37% of private car passengers were not willing to switch modes of transport to bus. On the other hand, the respondents were willing to switch from previous transportation to train because they expect the train will have shorter travel time/avoid congestion (49.3%), much cheaper (17.6%) and comfortable (10.3%).

Based on the survey on priority of services, respondents prioritize punctuality of service was 51%, comfort of service was 20%, convenience in obtaining service was 17% and others (responsibility, completeness, politeness and friendliness in providing services and other supporting attributes). In addition to this, 80% of respondents are willing to pay more than the original rate to increase safety.

3.2. Measuring sustainability of proposed railway – airport link

Opinion survey also carried out to gather key stakeholders preferences on the planning (physical and managerial interventions) to assess the sustainability of the planning. Stakeholders' opinion survey was carried out based on **Purposive Sampling Technique**. The sampling units or respondents in a *purposive sampling* method are selected based on certain consideration, characteristics or criteria. For this research, the selection of experts to serve as respondents were based the assumptions that someone was: (1) having sufficient

experience for the research field; (2) having position, reputation and credibility as stakeholders; and willing to be a respondent and can be met for an interview. The key stakeholders consisted of representatives from South Sumatra Region Railway Engineering Institution, Lampung Railway Development Office, Regional Division IV Tanjung Karang – Indonesia Railway Authority, the Province of Lampung Local Transport Authority, Radin Inten II Airport Office, Radin Inten II Railway Station Development Team, the Province of Lampung Local Planning Office, the Province of Lampung Office - National Road Planning and Supervision, the Province of Lampung Road Authority - the Department of Public Work, the Directorate General of Airport Transportation, the consultant companies of Radin Inten II Airport Development Planning (PT. Aria Graha and PT. Muara Consult) and the University of Lampung.

Table 2. The TBL Assessment on Proposed Interventions

			TECHNICAL IMPROVEMENT									MANAGERIAL IMPROVEMENT								
Key Issue	Goal/objective	Criteria	Install Automatic Machines for Ticketing and Gates			Construction of New Track (Double Track)			Construction of Airport Train Station			Increase Fare for Additional Services such as City Check-in			Diversifying Business by Opening Airport Link Service			Turnover Management of Airport Link Service to Private Sector		
			Score	Weight	Real score = score * weight	Score	Weight	Real score = score * weight	Score	Weight	Real score = score * weight	Score	Weight	Real score = score * weight	Score	Weight	Real score = score * weight	Score	Weight	Real score = score * weight
Technical and economic aspects	Technical viability	Reliability (punctuality)	3	1.2	3.6	3	4.8	14.4	2	1.7	3.4	2	1.6	3.2	3	2.7	8.0	1	1.1	1.1
		Efficiency	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	2	1.6	3.2	2	2.7	5.3	2	1.1	2.3
		Operation and maintenance	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	3	1.6	4.8	2	2.7	5.3	2	1.1	2.3
		Utilise existing infrastructure	1	1.2	1.2	2	4.8	9.6	1	1.7	1.7	2	1.6	3.2	2	2.7	5.3	2	1.1	2.3
		Upgradeability	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	2	1.6	3.2	3	2.7	8.0	2	1.1	2.3
	Technical sustainability	Future demand	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	3	1.6	4.8	3	2.7	8.0	2	1.1	2.3
		Flexibility	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	2	1.6	3.2	3	2.7	8.0	2	1.1	2.3
		Long-term operation and maintenance	3	1.2	3.6	3	4.8	14.4	3	1.7	5.1	3	1.6	4.8	3	2.7	8.0	2	1.1	2.3
	Economical viability	Investment cost*	3	1.2	3.6	2	4.8	9.6	1	1.7	1.7	2	1.6	3.2	1	2.7	2.7	2	1.1	2.3
		O&M cost efficiency	3	1.2	3.6	3	4.8	14.4	2	1.7	3.4	2	1.6	3.2	2	2.7	5.3	3	1.1	3.4
		Pricing users accurately	3	1.2	3.6	1	4.8	4.8	1	1.7	1.7	3	1.6	4.8	1	2.7	2.7	3	1.1	3.4
		Productivity	3	1.2	3.6	3	4.8	14.4	2	1.7	3.4	3	1.6	4.8	3	2.7	8.0	3	1.1	3.4
	Economical sustainability	Financial sustainability	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	3	1.6	4.8	3	2.7	8.0	3	1.1	3.4
Social, institutional, and legal aspects	Social viability	Complain/dissatisfaction*	2	1.2	2.4	2	4.8	9.6	2	1.7	3.4	1	1.6	1.6	3	2.7	8.0	2	1.1	2.3
		Acceptance	2	1.2	2.4	3	4.8	14.4	2	1.7	3.4	1	1.6	1.6	2	2.7	5.3	2	1.1	2.3
		Trust/confidence	2	1.2	2.4	3	4.8	14.4	2	1.7	3.4	2	1.6	3.2	2	2.7	5.3	2	1.1	2.3
	Institutional viability	Local capacity	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	2	1.6	3.2	2	2.7	5.3	2	1.1	2.3
		Acceptance	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	2	1.6	3.2	2	2.7	5.3	1	1.1	1.1
	Legal viability	Legislation/regulation	2	1.2	2.4	2	1.4	2.8	2	1.7	3.4	2	1.6	3.2	3	2.7	8.0	1	1.1	1.1
Environmental, and public health and safety aspects	Environmental viability	Pollution*	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	3	1.6	4.8	3	2.7	8.0	3	1.1	3.4
		Waste production*	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	3	1.6	4.8	3	2.7	8.0	3	1.1	3.4
		Resources effeciency	3	1.2	3.6	2	4.8	9.6	2	1.7	3.4	3	1.6	4.8	3	2.7	8.0	3	1.1	3.4
	Public health and safety	Comfort	2	1.2	2.4	3	4.8	14.4	3	1.7	5.1	2	1.6	3.2	3	2.7	8.0	2	1.1	2.3
		Health & safety	1	1.2	1.2	3	4.8	14.4	2	1.7	3.4	2	1.6	3.2	3	2.7	8.0	2	1.1	2.3
		Security	3	1.2	3.6	3	4.8	14.4	2	1.7	3.4	2	1.6	3.2	3	2.7	8.0	2	1.1	2.3
		Education/awareness	2	1.2	2.4	2	4.8	9.6	2	1.7	3.4	2	1.6	3.2	2	2.7	5.3	2	1.1	2.3
Total score					82			305			96			94			174			64

As mentioned before that there some problems exist in developing a mass rapid transportation system from Tanjung Karang CBD to the airport via railway. The proposed alternatives of physical and managerial improvements to enable this link operated are shown on the Table 2. These proposed interventions then were tested against three key sustainability issues i.e., the goals to be achieved in implementing the alternatives. The three key sustainability issues were: technical and economic; social, institutional and legal issue; and environmental, public health and safety. These key issues were then developed further into several criteria of sustainability/viability that determined whether the goals were achievable. The key sustainability issue and its criteria were framed based on previous researches as summarized in Table 1.

Each criteria of the three key sustainability issues was measured through examining statements in which a score was imposed based on the ability to satisfy the statements. The scores were 1 for low, 2 for moderate and 3 for high. Weights were also allocated to each criteria based on the rank of the options obtained from the key stakeholders opinion survey analysis using the Pairwise Comparison Matrix and Analysis. The higher the value obtained by an action, the more viable. Further discussion on the TBL sustainability viability assessment of proposed intervention priorities is presented in the Table 2. From the table, it can be seen key stakeholders preferences were: constructing a double track, diversifying business by opening airport link service and constructing a new airport train station.

IV. CONCLUSIONS AND SUGGESTIONS

Based on the analysis on potential airport train users' responds, airport train station authority must provide transportation services with satisfactory level of service and appropriate fare, so the potential users are willing to utilize airport train services. In addition to these, to realize the plan to link railway and airport, there are physical and managerial alternatives that has to be taken by Indonesia Railway Authority. The following are conclusions and suggestions resulting from the study:

1. **Fare**
   Appropriate fare (basic fare) for airport train service from Tanjung Karang Station to Branti Airport Station based on the study was about USS 2.6.
2. **Travel Time with Express Train and Special Track**
   Average travel time for train services in Indonesia is 60 km/hour. With travel distance of 24.5 km (Tanjung Karang to Branti Airport Station), it is expected that the airport train travel time would be 30 minutes without stopping (express train). Since the travel time of private car for the same origin and destination is about one hour in normal condition, it is expected to attract users since it provides punctuality for passengers. Even with stopping at two places will not affect the travel time too much since it only needs to stop for 5 minutes each. This will greatly increase users' access to airport train. In addition to this, providing a special track for airport train also become an alternative to guarantee no delays.
3. **Travel Schedule (Frequency and Punctuality)**
   Frequent and punctuality of departure as well as train schedule according to flight schedule will greatly affect the interest of airport users. It provides convenience and comfort to choose the time to go without fear of missing the train or the flight as well as reducing waiting time at station and airport.
4. **Supporting Facilities for Comfort**
   Since it is a short distance travel, facilities such as toilet and free wifi are not crucial. However, air conditioner will greatly enhance travel comfort. In addition to this, some rules also needed to be enforced to maintain the cleanliness, health and comfort of

passengers. Smoking, eating (bottled water is permitted) and littering in the train are prohibited. Since it is a short distance train, there will be no restriction for the number of passengers and there is possibility of standing passengers.

5. **Safety and Security (Access In and Off Station)**
   Rules regarding only people with ticket may enter the station must be upheld. In addition to this, security officers have always ready at the entrance and exit of the station. This will also remove hawkers from the station so that the station safer, cleaner and more comfortable. It is needed to consider to provide automated ticketing and automated entrance and exit gate.
6. **Additional Services**
   City check-in enables airport passengers to check-in their flight and baggage at Tanjung Karang Station and arrive at the airport 30 minutes before departure time. This will also reduce queues and waiting time at the airport. This service is very helpful for visitors, so they have extra time to stroll, shop or do other activities without carrying heavy luggage.
7. **Priority of intervention alternatives**
   In order the railway - airport link plan can be realized, several physical and managerial intervention alternative needs to be taken. Several phases are needed and the first three priorities are: constructing a double track, diversifying business by opening airport link service and constructing a new airport train station.

V. ACKNOWLEDGEMENT

The authors would like to thank for the support of the University of Lampung and the consultants PT. Aria Graha and PT. Muara Consult for providing some data for the study.

VI. REFERENCES

Abernethy, C. L., Jinapala, K., and Makin, I. W., (2001), Assessing the opinions of users of water projects, Irrigation and Drainage 50(3): 173-193.

Haghenas, H. and Vaziri, M., (2012), Urban sustainable transportation indicators for global comparison, Ecological Indicators 15: 115–121.

Kusbimanto, I.W., (2013), Models of sustainable urban transport infrastructure development policies in Metropolitan Mamminasata Southern Sulawesi, Dissertation, Graduate School IPB Bogor.

Litman, T. and Burwell, D., (2006), Issues in sustainable transportation, International Journal of Global Environmental Issues 6(4): 331-347.

Sakthivadivel, R., Fraiture, C. D., Moden, D. J., Christopher, P. and Kloezen, W., (1999), Indicators of land and water productivity in irrigated agriculture, International Journal of Water Resources Development 15(1-2): 161-179.

Sahely, H., Kennedy, C.A. and Adams, B.J., (2005), Developing sustainability criteria for urban infrastructure system, Canadian Journal of Civil Engineering 32(1): 72-85.

Tamin, O.Z., (2007), Towards sustainable transportation system in Bandar Lampung City, Proceeding of Sustainable Transportation Seminar, Bandung Institute of Technology.

Amirin, T.M., (2011), Research population and sample: Sampling from infinite and unspecific populations, Accessed 8 March 2017, https://tatangmanguny.wordpress.com/2009/06/30/.