

# The Sustainable Development Goals: Improving Life for Future Generations

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Programme Book

4<sup>th</sup> Internasional Seminar on Sustainable Urban Development

9<sup>th</sup> August 2017, Jakarta, Indonesia

4<sup>th</sup> ISoSUD 2017

Faculty of Landscape Architecture and Environmental Technology

Universitas Trisakti

Building K, 7<sup>th</sup> Floor, Campus A,

Jl. Kyai Tapa No. 1, Grogol, Jakarta 11440, Indonesia

Telephone :62-21-566 3232 ext 8767

Facsimile :62-21- 560 2575

Email : support.isosud@trisakti.ac.id

URL : [www.isosud.faltr.trisakti.ac.id](http://www.isosud.faltr.trisakti.ac.id)

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- Assoc. Prof. Ir. Edwan Kardena, Ph.D., Institut Teknologi Bandung, Indonesia
- Dr. Ade Gafar Abdullah, Universitas Pendidikan Indonesia, Indonesia
- Dr. Asep Bayu Nandyanto, Universitas Pendidikan Indonesia, Indonesia
- Prof. Dr. Ir. Budi Tjahyati, Universitas Trisakti, Indonesia
- Prof. Ir. Agus Budi Purnomo, M.Sc., Ph.D., Universitas Trisakti, Indonesia
- Prof. Dr. Ir. Dadan Umar Daihani, DEA, Universitas Trisakti, Indonesia
- Prof. Dr. Ir. Indra Surjati, MT., Universitas Trisakti, Indonesia
- Prof. Ir. Asri Nugrahanti Adjidarmo, MS., Ph.D., Universitas Trisakti, Indonesia
- Prof. Dr. Lambang Subagiyo, M.Si., Universitas Lambung Mangkurat, Indonesia
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- Dr. Ir. Hefni Effendi, Institut Pertanian Bogor, Indonesia

## **Conference Correspondence:**

Assoc. Prof. Dr. Astri Rinanti, MT. (Chairperson)  
Dept. of Environmental Engineering, Universitas Trisakti, Indonesia  
Olivia Seanders, ST. (Secretary)  
Dept. of Landscape Architecture, Universitas Trisakti, Indonesia  
E-mail : support.isosud@trisakti.ac.id  
URL : www.isosud.faltl.trisakti.ac.id  
Tel & Fax: 62-21-566 3232 ext 8767

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Journal of Urban Environmental and Technology	

# GENERAL INTRODUCTION

## ***Sustainable Development Goals: Improving Life for Future Generations***

**International Seminar on Sustainable Urban Development (ISoSUD)** is a serial seminar organized by Faculty of Landscape Architecture and Environmental Technology, Universitas Trisakti. This seminar held once in 3 (three) years with themes related to the current issues of urban and environmental. The **first** seminar was conducted in **2009**, the **second** was in **2011**, the **third** was in **2014** and now is the **fourth** seminar of ISOSUD 2017. Moreover, these seminars were always invited the speakers with International reputation that deliver a paper on the topic with an appropriate theme and issues at that moment. The seminar organiz "call for papers" from academics, researchers, professionals both from universities, government, private sector, industry and other institutions.

**The Sustainable Development Goals (SDGs)** replace the Millenium Development Goals (MDGs), are universal call to the action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life through sustainable way. Achieving the SDGs requires governments, private sector, communities be allied to make sure we leave a better planet for future generations.

Some of the goals were in issue in this seminar area: Clean Water and Sanitation, Alternative and Clean Energy, Sustainable Cities and Communities, Climate Action, Life Below Water, Life on Land.

The sub-themes of the seminar and will be addressed in context of Climate Change:

1. ***Ecological Disaster Mitigation and Adaptation***  
Biodiversity and Climate Change, Flood Risk Management, Recovery of Damage Areas, Risk Mitigation, Urban Adaptation on Global Climate Change
2. ***Management of Urban Environment***  
Environmental Modeling, Cleaner Production; Waste Minimize and Management, Water Resources and Management, Water Recovery and Management, Waste and Sanitation Management, Ecological Landscape Planning, Landscape Heritage Protection and Management, Land Use Planning, Transportation Planning and Management, Eco-City for The Future, Environmental Indicators of Sustainability, Urban Environmental Pollution, Diseases and Health Status.
3. ***Environmental Technology***  
Energy Efficiency, Renewable Energy Technologies (Bio-energy), Energy Management and Policies, Pollution Control Technologies (Waste and Wastewater Treatment And Technology), Eco-drain, Indigenous Technology for adaptation and mitigation on Climate Change, Urban Community Empowerment, Water Supply and Technology .

## ***Faculty of Architecture Landscape and Environmental Technology***

Faculty of Landscape Architecture and Environmental Technology (FALTL), Universitas Trisakti, has three study programs, namely Landscape Architecture, Environmental Engineering, and Urban and Regional Planning. All three courses have been accredited (National Accreditation Board of Higher Education No.001 /BAN-PT/AK-XII/S1/III/2009). The Landscape Architecture has partnered with Universiti Putra Malaysia, Universiti Teknologi Malaysia, AKLANI and IALI, regarding with cooperation in education and pedagogy (Tridharma) and publication (non Tridharma), as well as continuous article making in Garden Magazine. Environmental Engineering Department has 71 national cooperation and 5 overseas cooperation. Of the total number of joints which have been completed with cooperation documents are 17 national cooperation and 1 foreign cooperation in the form of Twinning Program with Dutch Saxion Univerisity. Meanwhile, the Regional and City Planning Study Program conducted a national partnership of 5 agencies, namely: 1) PT. Emha Training Center & Advisory Services., With Geography Information System training activities; 2) FMIPA Universitas Terbuka, with activities to create teaching materials for the Regional and Town Planning Study Program; 3) Research and Development Center for Settlement of the Ministry of Public Works of Bandung, with activities of providing apprenticeship for students, obtaining updated information related to the regulations of settlement development and cooperating in research; 4) Ministry of Environment, with activities conducting courses related to Strategic Environmental Assessment (KLHS); and 5) Coordinating Ministry of Economic Affairs, with the activities of organizing national seminars.

For literature, the faculty provides textbooks and journals from all three majors, totaling 5801 titles and 6399 copies, and 9 national journals and 12 international journals. In addition, the FALTL library is available in 9 accredited journals, as well as 12 international journals, 8 of them are e-journal.

In line with the direction of Higher Education Development Pattern of Universitas Trisakti, the curriculum of each course within the Faculty of Landscape Architecture and Environmental Technology is designed based on a competency-based curriculum with respect to local culture, the development of the times and the demands of international standards. This process makes the graduates expected to be in accordance with the needs of stakeholders and has its own characteristics and advantages of graduates and easily absorbed in the job market, especially in the field of Landscape Architecture, Environmental Engineering and Regional and City Planning.

The three areas of the study program nationally experienced a rapid development in line with the development of increasingly complex environmental quality issues. The increasing presence of similar programs in both state universities and private universities, makes the need to improve the quality of learning through the application of a competency-based curriculum and supported by governance, human resources, financing system and quality infrastructure.

# WELCOME PARTICIPANT

Assalamu'alaikum warrahmatullahi wabarakatuh,  
Very Good Morning

The honorable and our respectable :

- Rector of Universitas Trisakti, Jakarta Prof. dr. Ali Ghufron Mukti, M.Sc., Ph.D
- Dean of Faculty of Landscape Architecture and Environmental Technology, Ir. Ida Bagus Rabindra, MSP.
- Keynote speakers:
  1. Dr. Ir. Gellwyn Daniel Hamzah Jusuf, M.Sc. – Deputy of Ministry of National Development Planning/National Development Planning Agency, Maritime and Natural Resources Affairs, Republic of Indonesia
  2. Dr. Yusnani Mohd. Yusof, Urban Planning, Affordable City, Universiti Brunei Darussalam, Brunei Darussalam
  3. Prof. Dr. Pasi Lehmusluoto, Department of Limnology and Environment Protection, University of Helsinki, Finland
  4. Prof. Dr. Mohd. Razman Salim, Department of Environmental Engineering, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Malaysia
- Participants of the 4<sup>th</sup> ISoSUD 2017

Distinguished guests, ladies and gentlemen,  
First of all, praise be to Allah, the Cherisher and Sustainer of the world, for His blessing for all of us. He who has provided us a chance so that we could be here.

On behalf of the Organizing Committee, it is our great pleasure to welcome you to **the 4<sup>th</sup> International Seminar on Sustainable Urban Development (ISoSUD) 2017**, held by Faculty of Landscape Architecture and Environmental Technology, Universitas Trisakti, Jakarta, Indonesia at Hotel Ciputra.

To the academicians, our colleagues from overseas universities, guests, participants, students, please accept our gratitude, warm welcome and appreciation.

The seminar gathers eminent speakers and scholars that are engaged in Sustainable Urban Development field. The theme for this event is:

## **THE SUSTAINABLE DEVELOPMENT GOALS: IMPROVE LIFE FOR FUTURE GENERATION**

Achieving the SDGs requires of governments, private sector, civil society and citizens alie to make sure we leave a better planet for future generations. All 17 Goals interconnect, meaning success in one goal affects success for others. In short word, this is the greatest chance we have to improve life for future generations. Some of the goals that in major issue of **4<sup>th</sup> International Seminar on Sustainable Urban Development** are:

- Goals No. 6: Clean Water and Sanitation
- Goals No. 7: Affordable and Clean Energy
- Goals No.11: Sustainable Cities and Communities
- Goals No. 13: Climate Action
- Goals No. 14: Life Below Water
- Goals No. 15: Life on Land

This year, the committee received over than 150 papers both in oral and poster presentation from more than 15 universities in Indonesia and from UK, Japan, Malaysia, Italy, and Iraq as well. Selected papers will be proposed to be published in IOP Publisher Conferences Series: Earth and Environmental Science, indexing by Scopus and Thomson Reuters. Other selected papers will be published in National Journal accredited by Ministry of Research and Higher Education of Indonesia, i.e: Aceh International Journal of Science and Technology published by Universitas Syiahkuala, Aceh and Jurnal Reaktor published by Universitas Diponegoro, Semarang.

We are very grateful to Rector of Universitas Trisakti, Jakarta, Dean of Faculty of Landscape Architecture and Environmental Technology, Head of Environmental Engineering Department, Head of Landscape Architecture Department, Head of Urban and Regional Planning Department, the members of Advisory board, the members of Steering committee, Peer Reviewers, and Organizing committee that very supported and helpful within the preparations and conduction this seminar. Our grateful deliver as well to Association of Experts in Sanitary Engineering (TP) and Environmental Engineering (TL), IATPI (Ikatan Ahli Teknik Penyehatan dan Teknik Lingkungan Indonesia), for their support to the seminar. Last but not least, we would like to express our gratitude to all the authors, session chairs, reviewers, participants, institutions for their contribution to 4<sup>th</sup> ISoSUD 2017.

We believe that this event will be able to facilitate a good networking among researchers, scientists, engineers and practitioners of with common interest especially in sharing the latest research results, ideas, development and applications in the Sustainable Urban Development. We hope you enjoy the seminar and find this experience inspiring and helpful in your professional field. We look forward to seeing you at our upcoming seminar in the next 3 years on 5<sup>th</sup> ISoSUD 2020.

Thank you for your participation and hope you enjoy the seminar.

Jakarta, August 9<sup>th</sup>, 2017

A handwritten signature in black ink, which appears to be 'Astri Rinanti Nugroho'.

**Chair person of 4th ISoSUD 2017**

Dr. Astri Rinanti Nugroho, MT



# RECTOR REMARKS

The Honorable:

- Dean of Faculty of Landscape Architecture and Environmental Technology, Universitas Trisakti, Ir. Ida Bagus Rabindra, MSP
- Keynote speakers, Advisory boards, Steering Committee, Organizing Committee
- Participants of the 4<sup>th</sup> ISoSUD 2017

Distinguished participants, ladies, and gentlemen

*Assalamu'alaikum Warahmatullahi Wabarakatuh, and Good Morning*

On this special occasion, let me invite you to praise Allah SWT for His mercy and grace that we are able to attend the **4<sup>th</sup> International Seminar on Sustainable Urban Development (ISoSUD) 2017** today. On behalf of the university, I warmly welcome you, all the impressive keynote speakers and participants. Welcome to Universitas Trisakti, Jakarta Indonesia.

In September 2015, The United Nations (UN) held The UN Development Summit that formally adopted the agreement "**Transforming our World: The 2030 Agenda for Sustainable Development**". The summit embraced the three dimensions of sustainability, such as economic, social and environment. The summit also aimed at ending global poverty and building a life of dignity for all.

That was a generally accepted concept of Sustainable Development Goals (SDGs) in the world. The report of the 1987 World Environment and Development Committee argues that "Sustainable development is development that meets the needs of present without compromising the ability of future generations to meet their own needs". Three dimensions of sustainable development which consist of society, economy and environment should exist together. Economic development should not depend on excessive resource consumption; meanwhile, environmental sustainable development should be considered more important. This 4th International Seminar on Sustainable Urban Development is conducted to provide the opportunity for government officials, researchers, academicians, industry practitioners, non-governmental and multinational organization staffs and other stakeholders to share their views and experiences to build international collaborative networks on managing sustainable development.

**THE SUSTAINABLE DEVELOPMENT GOALS** is a common thing to be realized without compromising the ability to improve life for future generation. It must be done to prevent any adverse impacts on our lives such as air and water pollution, land use and contamination, material depletion, impacts on human health, and climate change. Therefore, it is expected that the incorporation of sustainable development concept in terms of research, product, and values will enhance the energy performance of environment development and bring about building sustainability as well as disaster management.

The 4<sup>th</sup> International Seminar on Sustainable Urban Development (ISoSUD) 2017, takes theme in this urgent agenda of:

## **THE SUSTAINABLE DEVELOPMENT GOALS, TO IMPROVE LIFE FOR FUTURE GENERATION**

The seminar plays role as the media to share wisdom and experiences, and develop knowledge as well as skill and recent technologies on the application of built urban, environmental sciences and technologies. The Boundary between urban and rural is not so clearly, so we should not limit the discussion in these two terms. The environmental problems

also show up in rural, but since Universitas Trisakti is located in Jakarta as Indonesia Capital, we focus our vision on solving of urban problems. Universitas Trisakti is very concern about urban and all its problems. This challenge is in line with our vision to be the leading private university and centre of excellence in the world in developing science, technology and arts for community welfare and sustainable development.

I do hope that this seminar will inspire us to enhance our awareness to explore any possibilities in involving sustainable development. Also, I look forward to hearing discussions (on these topics) and I hope we can be inspired by the best practices we will hear from our distinguished speakers.

Let me deeply express a special appreciation to the speakers:

- 1) Dr. Ir. Gellwyn Daniel Hamzah Jusuf, M.Sc. – Deputy of Minister of National Development Planning/National Development Planning Agency, Maritime and Natural Resources Affairs, Republik Indonesia
- 2) Dr. Yusnani Mohd. Yusof from Urban Planning, Affordable City, Universiti Brunei Darussalam
- 3) Prof. Dr. Pasi Lehmusluoto, from Department of Limnology and Environment Protection, University of Helsinki, Finland
- 4) Prof. Dr. Mohd. Razman Salim, from Department of Environmental Engineering, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Malaysia

Our appreciation is also for all the participants who have actively written excellent research papers. It is desired to have a sustainable seminar to be continuously held in the future times, as we are challenged to make a sustainable building and environment for a sophisticated life.

Finally, by reciting “Bismillahirrahmanirrahim” hereby I officially open the event of **4<sup>th</sup> International Seminar on Sustainable Urban Development (ISoSUD) 2017**. May Allah always guide us and lighten our step.

Thank you for your attending and participation, have a great seminar and Welcome to Universitas Trisakti, Jakarta.

*Wassalamu’alaikum Warahmatullahi Wabarakatuh.*

Jakarta, August 9<sup>th</sup>, 2017



**Rector of Universitas Trisakti, Jakarta**  
Prof. dr. Ali Ghufon Mukti, M.Sc., Ph.D

# CONFERENCE PROGRAMME

THE 4<sup>TH</sup> INTERNATIONAL SEMINAR ON SUSTAINABLE URBAN DEVELOPMENT  
(4<sup>th</sup> ISoSUD 2017)  
9<sup>TH</sup> AUGUST 2017 – HOTEL CIPUTRA, JAKARTA, INDONESIA

TIME	PROGRAMME
07:30-08:30	Registration
	Opening Ceremony
08:30-08:45	1. Report: OC Chairperson: Assoc. Prof. Dr. Astri Rinanti, MT 2. Opening Remark: Rector of Universitas Trisakti Prof. Dr. Ali Ghufon Mukti, M.Sc., Ph.D.
08:45 - 09:00	Photo Session
	Poster presentation session
09:00-09.30	Coffee Break
	Plenary Session Moderator: Assoc. Prof. Dr. Ir. Rustam Hakim, MT. Keynote Speakers:
09:30-12:00	1. Prof. dr. Ali Ghufon Mukti, M.Sc, Ph.D. 2. Dr. Ir. Gellwyn Daniel Hamzah Jusuf, M.Sc. 3. Dr. Yusnani Mohd. Yusuf 4. Prof. Dr. Pasi Lehmusluoto 5. Prof. Dr. Mohd. Razman Salim Discussion (Q & A)
12:00-13:00	Lunch and Break
	Oral Presentation session
13:00-15:30	(Look at the Table Bellow)
	Poster presentation session
15:30-16:00	Coffee Break
	Closing Ceremony at Plenary Hall
16:00-16:15	<i>Closing Remark: Dean of Faculty of Landscape Architecture and Environmental Technology, Universitas Trisakti</i>
16:15-16:30	Photo Group Session

## **Theme : Environmental Modeling**

### **[ABS-161] Evaluation of axial pile bearing capacity based on pile driving analyzer (PDA) test**

H Maizir\*, R Suryanita

Civil Engineering Department, Sekolah Tinggi Teknologi Pekanbaru, Pekanbaru, Indonesia

\*Corresponding author: harnedi@sttp-yds.ac.id

**Abstract.** A few decades, many methods have been developed to predict the bearing capacity of driving piles. The problem of predicting the bearing capacity of the pile is very complex and not yet established, different soil testing and evaluation produce widely different solutions. However, the most important thing is to determine methods used to predict the bearing capacity of the pile to the required degree of accuracy and consistency value. Accurate prediction of axial bearing capacity, generally depends on some variables, such as type of soil, diameter and length of pile, etc. The aim of study of Artificial Neural Networks (ANNs) is used to obtain more accurate and consistent axial bearing capacity of a driven pile. ANNs can be described as mapping an input to the target output data. The method using the ANNs model to developed for predict the axial bearing capacity of the pile based on the pile driving analyzer (PDA) test data for more than 200 data were selected. The results of the predictions obtained by the ANNs model and the PDA test were compared. This research as the neural network models gives a good prediction of axial bearing capacity of piles for soil compaction.

### **[ABS-201] Carbon Monoxide (CO) dispersion model on the road near toll gate**

**Tj. Duren - Grogol, West Jakarta**

M D Irawan, H Yulinawati\* and W Astono

Faculty of Architecture Landscape and Environmental Technology, Environmental Engineering Department, Universitas Trisakti, Jakarta, Indonesia

\*Corresponding author : hernani@trisakti.ac.id

**Abstract.** Jakarta is facing chronic traffic congestion every day. The road near Toll Gate Tj. Duren - Grogol is also experienced it, more than 3,300/day motor vehicles passing that road. Motor vehicles are the major source of carbon monoxide (CO). This study aims to determine the position of the highest CO concentration, volume and vehicle speed toward CO emissions, to predict the CO dispersion and to compare with ambient air quality standard (Jakarta Governor's Decree No. 551 Year 2001). The study was conducted in June 2016 for two weeks from 6:00AM to 22:00PM on three segments of road (100, 300, 500 m) using Gastec GV-100S sampling pump with CO detector tube (palladium salt). The CO dispersion was predicted with Gaussian Model Line Source. The results showed the highest CO concentrations occurred at positions 100 m and 300 m during the day. CO emissions are directly proportional to the high volume of vehicles with low speed. The CO prediction model results were close to the measurement results where deviations ranging from 0.02% - 0.99%. The highest 24-hour CO of 2,864  $\mu\text{g}/\text{Nm}^3$  still meets the standard of 9,000  $\mu\text{g}/\text{Nm}^3$ . Further research is needed for longer period with continuous monitoring (i.e. Non-Dispersive Infra-Red).

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## LIST OF PARTICIPANTS

No.	Presenter Certificate	Author	Email	Affiliation
1	Afiat Anugrahadi	<i>Afiat Anugrahadi</i>	afiat.a@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
2	Agah Muhammad Mulyadi	<i>Agah Muhammad Mulyadi</i>	Agah.muhammad@pusjatan.pu.go.id	Institute of Road Engineering, Ministry of Public Works of Indonesia
3	Akhmad Syihabuddin	<i>Akhmad Syihabuddin, Budi Darmadi, Tarsoen Waryono</i>	syihab66@gmail.com	Universitas Indonesia, School of Environmental Science
4	Anggoro Wisaksono	<i>Anggoro Wisaksono, Joseph Murphy, Paul Younger</i>	anggi.z.wisaksono@gmail.com	University of Glasgow, UK
5	Anindrya Nastiti	<i>Anindrya Nastiti, Arief Sudradjat, Ahmad Komarulzaman</i>	anindrya@tl.itb.ac.id	Institut Teknologi Bandung, Faculty of Civil and Environmental Engineering
6	Anita Sitawati Wartaman	<i>Anita Sitawati Wartaman1 and Rahel Situmorang</i>	asitawati@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
7	Annisa Chairiah Nasution	<i>Annisa Chairiah Nasution Gabriel Andari Kristanto,</i>	nisanissa96@gmail.com	Universitas Indonesia, Engineering Faculty
8	Ariani Dwi Astuti	<i>Ariani Dwi Astuti, Astri Nugroho, Alexandre Amo F. Vieira</i>	ariani_da@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
9	Ariani Dwi Astuti	<i>Ariani Dwi Astuti, Widyo Astono, Laetitia Agnes Rade Tukan</i>	ariani_da@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
10	Ariani Dwi Astuti	<i>Ariani Dwi Astuti, Muhammad Lindu, Ramadhani Yanidar, Muhammad Faruq</i>	ariani_da@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
11	Arwindrasti Bandjar	<i>Arwindrasti Bandjar</i>	arwindrasti@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
12	Astari Dwi Jayanti	<i>Astari Dwi Jayanti, Dr. Melati Feranita Fachrul MS, Dr. Ir Diana Hendrawan Msi</i>	astaridwij.tl13@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology

No.	Presenter Certificate	Author	Email	Afiliation
13	Astri Rinanti	<i>A Rinanti, D Jonathan, M D S Silalahi, M F Fachrul, R Hadisoebroto</i>	astririnanti@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
14	Astri Rinanti	<i>A Rinanti, I J Nainggolan</i>	astririnanti@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
15	Astri Rinanti	<i>A Rinanti, R Purwadi</i>	astririnanti@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
16	Atie Tri Juniati	<i>A T Juniati, D Sutjiningsih S M, H Soeryantono and E Kusratmoko</i>	atietrij@gmail.com	Universitas Pancasila, Faculty of Engineering.
17	Ayu Ekasari	<i>Ayu Ekasari</i>	Ayu.ekasari@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty
18	Bani Nugroho	<i>Bani Nugroho, Pulung Arya Pranantya, Retno Witjahjati, Rofinus</i>	bani@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
19	Eki Noerfitriyani	<i>Eki Noerfitriyani, Djoko M. Hartono, Setyo S. Moersidik, Irma Gusniani</i>	eki.noerfitriyani@ui.ac.id	Universitas Indonesia Faculty of Engineering, Departemen of Civil Engineering , Environmental Engineering,
20	Eko Widiyanto	<i>Eko Widiyanto</i>	ewidiyanto@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
21	Nur Intan Mangunsong	<i>Nur Intan Mangunsong</i>	nurintan@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
22	Ratnayu Sitaresmi Hendri	<i>Ratnayu Sitaresmi Hendri, Jeffier Winarta</i>	rsitaresmi@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
23	Untung Sumotarto	<i>Untung Sumotarto</i>	untung.s@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
24	Bambang Iswanto	<i>I. S. Sitorus, W. Astono, and B. Iswanto</i>	biswanto@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
25	Cici Maulani Rusly	<i>Cici Maulani Rusly, Diana Hendrawan, Astri Rinanti</i>	cici.maulani@yahoo.co.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
26	Dedy Sugiarto	<i>Dedy Sugiarto, Anung Ariwibowo, Is Mardianto, Dadang Surjasa</i>	dedy@trisakti.ac.id	Universitas Trisakti, Faculty of Industrial Technology

No.	Presenter Certificate	Author	Email	Afiliation
27	Denisa Melati Arsyah	<i>Denisa Melati Arsyah, Edwan Kardena, and Qomarudin Helmy</i>	helmy@tl.itb.ac.id	Institut Technology Bandung, Faculty of Architecture Landscape and Environmental Technology
28	Dian Nur Afalia	<i>Dian Nur'afalia, Lidia Rubianto, Firda Afidfa, Ketut Dewi Martha Erli Handayani</i>	diannur.afalia@yahoo.co.id	Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia
29	Dody prayitno	<i>Dody Prayitno, Rizky Sugiarto</i>	dodyprayitno@trisakti.ac.id	Universitas Trisakti, Faculty of Industrial Technology
30	Dwi Indrawati	<i>Dwi Indrawati, Muhammad Lindu, Puteri Denita</i>	dindrawati@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
31	Dwi Indrawati	<i>Dwi Indrawati, Pramiati Purwaningrum, Nabilah</i>	dindrawati@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
32	Dwina Roosmini	<i>Dwina Roosmini, Mochamad Adi Septiono, Nurul Ekawati Putri, Neng Rohmah, Husna Muizzati Shabrina, Lufiandi</i>	dwinaroosmini@yahoo.com	Institut Teknologi Bandung, Environmental Engineering Dept.
33	Euardi Prahara	<i>Dedy Sugiarto, Anung Ariwibowo, Is Mardianto, Dadang Surjasa</i>	eduardi@gmail.com	Universitas Bina Nusantara
34	Edwan Kardena	<i>Edwan Kardena, Sri Lestari Ridhati</i>	kardena@itb.ac.id	Institut Teknologi Bandung, Environmental Engineering Department
35	Endang Djuana	<i>Endang Djuana, Kuat Rahardjo TS, Ferrianto Gozali, Sunarto Tan, Richard Rambung</i>	edjuana@trisakti.ac.id	Universitas Trisakti, Faculty of Industrial Technology
36	Endang setyowati	<i>Endang Setyowati, Gagoek Hardiman, Titin Woro Murtini</i>	eniel_ars@yahoo.com	Universitas Diponegoro, Program Architecture and urban design
37	Erni Erfan	<i>Erni Erfan, Christopher Cudharma</i>	erri.erfan@trisakti.ac.id	Universitas Trisakti, Dental Faculty
38	Etty Indrawati	<i>Etty Indrawati</i>	ettyindra@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
39	Etty Retnowati Kridarso	<i>Dedy Sugiarto, Anung Ariwibowo, Is Mardianto, Dadang Surjasa</i>	ettykridarso@gmail.com	Universitas Trisakti, Faculty of Civil Engineering and Planning
40	Farah Margaretha Leon	<i>Farah Margaretha Leon and Aprilia</i>	farahmargaretha@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty



No.	Presenter Certificate	Author	Email	Affiliation
41	Fauziah Rahmawati	<i>Fauziah Rahmawati, Hernani Yulinawati, Endro Suswanto</i>	hernani@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
42	Firmansyah Sjafril Murad	<i>Firmansyah, Aldo Fernando, Ira Prayuni Rante Allo (a)</i>	firmansyah@ar.itb.ac.id	Institut Teknologi Bandung
43	Golda Mahardika	<i>G. Mahardika (a), A. Rinanti (a), M. F. Fachrul (a*)</i>	goldamahardika.s@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
44	Guntur	<i>Guntur, A. Aziz Jaziri, Asep A. Prihanto, Andi Kurniawan*, Defrian Marza Arisandi</i>	defrianmarzaarisandi@gmail.com	Universitas Brawijaya, Faculty Fisheries and Marine Science,
45	Guntur	<i>Guntur1, Abu Bakar Sambah2,3, Defrian Marza Arisandi4,* , Alfan Jauhari2</i>	defrianmarzaarisandi@gmail.com	Universitas Brawijaya, Faculty Fisheries and Marine Science,
46	Hanny Wahidin Wiranegara	<i>T A Feminin, H W Wiranegara and Y Supriatna</i>	hanny.w@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
47	Hanny Wahidin Wiranegara	<i>Hanny Wahidin Wiranegara</i>	hanny.w@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
48	Harnedi Maizir	<i>Harnedi Maizir, Reni Suryanita</i>	harnedi@sttp-yds.ac.id	Sekolah Tinggi Teknologi Pekanbaru
49	Haryono Setiyo Huboyo	<i>Haryono S Huboyo, Irawan W Wardhana, Endro Sutrisno, Lisa Sekar Wangi, Riska Andria Lina</i>	huboyo@gmail.com	Universitas Diponegoro, Environmental Engineering Department, Faculty of Engineering,
50	Hendri Nofriandi	<i>Hendri Nofriandi ; Asih Wijayanti ; Melati Ferianita Fachrul</i>	hendri_nofriandi@yahoo.co.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
51	Henny Setyo Lestari		henny_setyo_lestari@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty
52	Hernani Yulinawati	<i>Hernani Yulinawati, Intan Agustine</i>	hernani@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
53	Hilarion Widyatmoko	<i>Hilarion Widyatmoko Widyatmoko</i>	widyatmoko@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology

No.	Presenter Certificate	Author	Email	Afiliation
54	Hilarion Widyatmoko	<i>Hilarion Widyatmoko Widyatmoko</i>	widyatmoko@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
55	Hinijati Widjaja	<i>Hinijati Widjaja</i>	hinijatiwidjaja@yahoo.co.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
56	I Wayan Koko Suryawan	<i>I Wayan Koko Suryawan, Qomarudin Helmy, and Suprihanto Notodarmojo</i>	helmy@tl.itb.ac.id	Institut Teknologi Bandung, Environmental Engineering Dept.
57	Ida Bagus Rabindra	<i>Ida Bagus Rabindra</i>	ib.rabindra@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
58	Imma Widyawati Agustin	<i>Imma Widyawati Agustin</i>	immasaitama@ub.ac.id	Universitas Brawijaya
59	Ina Krisantia	<i>LH Phin , Ina Krisantia</i>	inakrisantia@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
60	Ina Krisantia	<i>I. Krisantia, I.B. Rabindra</i>	ib.rabindra@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
61	Inavonna Gazali	<i>Inavonna, Gagoek Hardiman, Agus Budi Purnomo</i>	inavonna@yahoo.com	Universitas Trisakti, Faculty of Civil Engineering and Planning
62	Iveline Anne Marie	<i>Iveline Anne Marie</i>	ivelineannemarie@yahoo.com	Universitas Trisakti
63	Jakobis Johanis Messakh	<i>J J Messakh, D L Moy, D Mojo, Y Maliti</i>	yapmessakh@gmail.com	Universitas Nusa Cendana
64	Jenni Ria Rajaguguk	<i>Jenni Ria Rajaguguk</i>	jenniria_rajaguguk@yahoo.com,	Universitas Krisnadwipayana, Faculty of Mechanical Engineering
65	Kurniawati Chrisjtmiko	<i>Kurniawati Chrisjtmiko</i>	niachrisjtmiko1@gmail.com	Universitas Trisakti, Faculty of Business and Economics
66	Lailatus Siami	<i>Lailatus Siami</i>	lailatus.siami@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
67	Ratnaningsih	<i>Ratnaningsih, Lailatus Siami</i>	ratnaningsih@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
68	Luki Adiaty Pratomo	<i>Sari Intan Pratiwi, Luki Adiaty Pratomo</i>	luki.adiaty@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty

No.	Presenter Certificate	Author	Email	Afiliation
69	Margareta Maria Sintorini	<i>Margareta Maria Sintorini</i>	sintorini@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
70	Margareta Maria Sintorini	<i>Margareta Maria Sintorini</i>	sintorini@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
71	Maria Immaculata Ririk Winandari	<i>Maria Immaculata Ririk Winandari</i>	mi.ririk@trisakti.ac.id	Universitas Trisakti, Faculty of Civil Engineering and Planning
72	Marisa Handajani	<i>M Handajani, A Gumilar and M Syafila</i>	kang.andrie@gmail.com	Institut Teknologi Bandung, Environmental Engineering Dept.
73	Martinus Bambang Susetyarto	<i>Martinus Bambang Susetyarto</i>	mbsusetyarto@yahoo.com	Universitas Trisakti, Faculty of Civil Engineering and Planning
74	Marudut Sirait	<i>Marudut Sirait</i>	marudut@ub.ac.id	Universitas Brawijaya, Department of Industrial Engineering, Faculty of Engineering
75	Maya Putri Dayanti	<i>M.P Dayanti, A Wijayanti and M.F Fachrul</i>	mayadayanti@hotmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
76	Mohammad Ischak	<i>Mohammad Ischak, Bambang Setioko, Dedes Nurgandarum</i>	m.ischak@trisakti.ac.id	Universitas Trisakti, Faculty of Civil Engineering and Planning
77	Muhammad Arif Salsabil	<i>M.A Salsabil, A Rinanti, and M.F Fachrul</i>	arifsalsabil05@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
78	Muhammad Debby Irawan	<i>Muhammad Debby Irawan, Hernani Yulinawati, Widyo Astono</i>	hernani@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
79	Muhammad Hasbi Zaenal	<i>Muhammad Hasbi Zaenal, Amelya Dwi Astuti, Ayu Solihah Sadariyah</i>	mohd.hasbi@puskasbaznas.com	The National Board of Zakat (BAZNAS)
80	Muhammad Irham	<i>Muhammad Irham, Yuni fadhla, Ichsan Setiawan</i>	irham@unsyiah.ac.id	Universitas Syiah Kuala, Faculty of Marine and Fisheries
81	Muhammad Irham	<i>Muhammad Irham, Ichsan Setiawan</i>	irham@unsyiah.ac.id	Universitas Syiah Kuala, Faculty of Marine and Fisheries,
82	muhammad zainul arifin	<i>M. Zainul Arifin; Imma Widyawati Agustin</i>	mzaftub@gmail.com	Universitas Brawijaya, Engineering Faculty
83	Murtanti Jani Rahayu	<i>Murtanti Jani Rahayu, Imam Buchori, Retno Widjanti</i>	mjanirahayu@gmail.com	Universitas Diponegoro, Architecture and urban docotoral program

No.	Presenter Certificate	Author	Email	Afiliation
84	Nadya Saffira	<i>Gabriel Andari Kristanto, Nadya Saffira</i>	rahmi.puspita@hotmail.com	Universitas Indonesia, Faculty of Engineering
85	Nova Nevila Rodhi	<i>I Putu Artama Wiguna, Nadjadji Anwar, Amien Widodo, and Nova Nevila Rodhi</i>	nova.nevila@gmail.com	Institut Teknologi Sepuluh Nopember Surabaya Indonesia, Faculty of Civil Engineering and Planning
86	Nurul Wahjuningsih	<i>Nurul Wahjuningsih, Sigit Pranowo Hadiwardoyo, R. Jachrizal Sumabrata, Muhammad Anis</i>	nwahjuningsih@gmail.com	Universitas Indonesia, Engineering Faculty
87	Olivia Seanders	<i>Olivia Seanders</i>	olivia.seanders@mail.polimi.it	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
88	Popi Puspitasari	<i>Popi Puspitasari, Trihono Kadri, Indartoyo, Lili Kusumawati</i>	popi@trisakti.ac.id	Universitas Trisakti, Faculty of Civil Engineering and Planning
89	Pramiati Purwaningrum	<i>Pramiati Purwaningrum</i>	pramiati@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
90	Quintarina Uniaty	<i>Quintarina Uniaty</i>	quintarina@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
91	R.L. Pangaribowo	<i>R.L. Pangaribowo</i>	pangaribowo2006@yahoo.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
92	Ramadhani Yanidar	<i>R Yanidar, D.M Hartono, S Moersidik</i>	r.yanidar@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
93	Ratna Permatasari	<i>Ratna Permatasari, Astri Rinanti, Ratnaningsih</i>	ratnapermatasari02@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
94	Reni Suryanita	<i>Reni Suryanita</i>	reni.suryanita@eng.unri.ac.id	Universitas Riau, Civil Engineering Department Faculty of Engineering
95	Rijal Hakiki	<i>Rijal Hakiki, Temm Wikaningrum, Tetuko Kurniawan</i>	rijalhakiki@gmail.com	President University, School of Engineering
96	Rini Setiati	<i>Rini Setiati, Suryo Prakoso, Septoratno Siregar, Taufan Marhaendrajana, Deana Wahyuningrum, Sofa Fajriah</i>	rinisetiati@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy

No.	Presenter Certificate	Author	Email	Affiliation
97	Riska Pratiwi	<i>Riska Pratiwi, Suprihanto Notodarmojo, Qomarudin Helmy</i>	helmy@tl.itb.ac.id	Institut Teknologi Bandung. Water and Wastewater Engineering Research Group. Bioscience and Biotechnology Research Center,
98	Sansika Ardana Reswari	<i>Sansika Ardana Reswari, I D A A Warmadewanthi</i>	sansikaardana@gmail.com	Institut Teknologi Sepuluh Nopember Surabaya Indonesia, Department of Environmental Engineering,
100	Sekar Mayangsari	<i>Sekar Mayangsari</i>	sekar_mayangsari@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty
101	Septiana Hariyani	<i>Septiana Hariyani</i>	septianahariyanipwk@yahoo.co.id	Universitas Brawijaya, Faculty of Engineering
102	Setiani Putri Hendratno	<i>Setiani Putri Hendratno and Yvonne Agustine</i>	setianihendratno@gmail.com	Universitas Trisakti, Economic and Business of Faculty
103	Shirley Angganita Jodhie Ririhena	<i>Shirley Angganita Jodhie Ririhena, Astri Rinanti, Ariani Dwi Astuti, Melati Ferianita Fachrul, Mawar Debora Seremian Silalahi, Rositayanti Hadisoebroto</i>	astri.rinanti@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
104	Sih Andayani	<i>Sih Andayani, Bambang E. Yuwono, Dina Paramitha A.H</i>	sandajani23@gmail.com	Universitas Trisakti, Faculty of Civil Engineering and Planning
105	Siti Amira	<i>S. Amira, D. Hendrawan, W. Astono</i>	ira.amira17@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
106	Sofyan Rachman	<i>S Rachman1,2, H Pramudito2 and D Muslim 3</i>	sofyan_r1900@yahoo.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
107	Sofyan Rachman	<i>Sofyan Rahman, Untung Sumotarto, Harry Pramudito</i>	sofyan_r1900@yahoo.com	Universitas Trisakti, Faculty of Technology Earth and Energy
108	Sri Bakti Yunari	<i>Sri Bakti Yunari , Suhariningsih , Rachmat Syafa'at dan Sihabudin</i>	sri.by@trisakti.ac.id	Universitas Trisakti, Law Faculty
109	Surachman Ramadhani	<i>Surachman Ramadhani, Bambang Iswanto and Pramati Purwaningrum</i>	surachman13ramadhani@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
110	Susi Kurniawati Kurniawati	<i>Susi Kurniawati, I. D. A. A. Warmadewanthi</i>	susikurniawati07@gmail.com	Institut Teknologi Sepuluh Nopember, Surabaya, Faculty of Civil Engineering and Planning

No.	Presenter Certificate	Author	Email	Afiliation
111	Suwondo	<i>Suwondo, Darmadi, Mohd. Yunus</i>	suwondo@lecturer.unri.ac.id	Universitas Riau
112	Syahrul Purnawan	<i>Syahrul Purnawan, Ichsan Setiawan, Haekal Azief Haridhi, Muhammad Irham</i>	syahrulpurnawan@unsyah.ac.id	Universitas Syiah Kuala University, Marine Science Departement
113	Syamsul Irham	<i>Syamsul Irham, Aldimas Danu , Siti Nuraeni Sibuea</i>	syamsul.irham@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
114	Syamsul Irham	<i>Syamsul Irham, Priky Yulius</i>	syamsul.irham@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
115	Tazkiaturrizki	<i>Tazkiaturrizki, Prayatni Soewondo, Marissa Handajani</i>	tazkiaturrizki13@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
116	Teddy Siswanto	<i>Teddy Siswanto, Ratna Shofiati, Hartini</i>	teddysiswanto@yahoo.com	Universitas Trisakti, Faculty of Industrial Technology
117	Tiarapuspa	<i>Tiarapuspa, Devani Laksmi Indyastuti, Wahyuni Rusliyana Sari</i>	tiara.puspa@trisakti.ac.id	Universitas Trisakti, Economic and Business of Faculty
118	Titien Suryanti	<i>T. Suryanti, H. Meilianti, R.Hakim and Q.A. Besila</i>	titienr@trisakti.ac.id	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
119	Ulfah Anisah	<i>Ulfah Anisah, B. Iswanto and A. Rinanti</i>	ulfahanisah@hotmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
120	Vincentia Reni Vitasurya	<i>Vincentia Reni Vitasurya, Gagoek Hardiman, Suzanna Ratih Sari</i>	reni792003@yahoo.com	Universitas Atma Jaya Yogyakarta
121	Vinola Herawaty	<i>Vinola Herawaty</i>	vinolaherawaty@yahoo.com	Universitas Trisakti, Economic and Business of Faculty
122	Widia Yanti	<i>Widia Yanti, Bayu Satiyawira, Cahaya Rosyidan, Liani Anisara</i>	widyayanti@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
123	Widyaningrum Permata Siwi	<i>Widyaningrum Permata Siwi, Melati Feranita Fachrul, Astri Rinanti, Mawar Silalahi, Rositayanti Hadisoebroto,</i>	permatawidya.s@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
124	Yoas Martinus	<i>Y Martinus, D Hendrawan, W Astono</i>	yomartins11@gmail.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology

No.	Presenter Certificate	Author	Email	Afiliation
125	Yolanda Masnita	<i>Yolanda Masnita, Hermien Triyowati, Mangku Rasyawal</i>	yolandamasnita@yahoo.com	Universitas Trisakti, Economic and Business of Faculty
126	Yolanda Rohmah	<i>Yolanda Rohmah, Astri Rinanti, Diana Hendrawan</i>	firdausyolanda@yahoo.com	Universitas Trisakti, Faculty of Architecture Landscape and Environmental Technology
127	Yudhi Artha	<i>Yudhi Artha, E. Shintadewi Julian</i>	yudhiarta@gmail.com	Universitas Trisakti, Faculty of Industrial Technology
128	Yusraida Khairani Dalimunthe,	<i>Yusraida Khairani Dalimunthe, Abdul Hamid</i>	yusraida@trisakti.ac.id	Universitas Trisakti, Faculty of Technology Earth and Energy
129	Yvonne Augustine Sudibyo	<i>Yvonne Augustine Sudibyo</i>	yvonneags@gmail.com	Universitas Trisakti, Economic and Business of Faculty
130	Zulfadrim Zulfadrim	<i>Zulfadrim, Yusuke Toyoda, Hidehiko Kanegae</i>	zulfadrim_ok@yahoo.com	Ritsumeikan University, Graduate School of Policy Science