



INNOVATION TOWARD
SUSTAINABLE GROWTH
AND DISASTER RISK
REDUCTION

Final Report

INNOVATION
TOWARD
SUSTAINABLE
GROWTH AND
DISASTER RISK
REDUCTION

Preface

The APRU MULTI-HAZARDS 2022 Symposium is an international symposium organized by the Asia Pacific Rim University (APRU) Multi-Hazards with different cooperation hosts annually. This year's symposium was organized by the Faculty of Engineering and the Risk and Disaster Management Program (RDM) of Chulalongkorn University. The theme of this year's symposium was "*Innovation Towards Sustainable Growth and Disaster Risk Reduction*." This symposium took place at Mandarin Hotel, Bangkok between 29 – 30, November 2022 and operated both onsite and online for the participants who were unavailable to join.

After the whole process, the conference has finished and accomplished all the organized goals and objectives. This final report has the details of the activities done during the process.

Assoc. Prof. Natt Leelawat, D.Eng.
Committee Chair
17th APRU MULTI-HAZARDS 2022

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Introduction

The Faculty of Engineering, Chulalongkorn University, and the Risk and Disaster Management Program, Graduate School, Chulalongkorn University, together hosted the 17th APRU Multi-Hazards Symposium 2022. The symposium held during November 29 – November 30, 2022. The event took place at the Mandarin Hotel Bangkok Samyan, Thailand both onsite and online. Carrying the theme banner, "Innovation Towards Sustainable Growth and Disaster Risk Reduction", the symposium covered the following topics:

- Innovation for Disaster Risk Reduction
- Engineering and Infrastructure for Disaster Risk Reduction
- Community Health and Well-being for Disaster Risk Reduction
- Social and Governance Policies/Socio-economic Issues in Disaster Management
- Building Community Resilience in Disaster Management
- Disaster Communication in Disaster Management

Moreover, the participants had a chance to listen to the selected keynote speakers from various backgrounds related to disaster management both in academic and practical areas. And the main event of the symposium was to provide a place for the researcher in the community to present and update their work in the related field. The presentation sessions were separated as the listed topics and were evaluated by an experienced academic researcher in each session. Afterward, the symposium committee invited all the attendees and guests to join the banquet event for the awards announcement for the winners and the closing ceremony from the representatives from Chulalongkorn University and APRU MULTI-HAZARDS.

APRU-MH 2022 Summarization

According to the APRU MULTI-HAZARDS 2022 Symposium on 29-30 November 2022, there are 121 participants, which can be divided into four main groups of people, including Committees, Staff, Presenters, Listeners, and Keynote Speakers. These people came from universities and organizations in 14 countries. Regarding this, the participation consists of an online and onsite engagement. During the two-day event, nine keynote speakers presented exciting research in the morning session. The main presentation session is separated into six main topics.

There are 45 presentations presented by around 50 presenters. From these 45 presentations, our conference committees provided two types of awards: the best presentation award for students and the best presentation award for non-students. We also offered a short lunch break for all participants during both conference days. Next, at the end of the second conference day, we provided the dinner cruise banquet to let the participants see the tradition and scenery of Bangkok from the Chao Praya river. Lastly, we also conducted a survey to collect data about participants' satisfaction. The results based on the survey came out to be very positive. However, there are some issues that the participants mentioned, such as time allocation and a small number of participants.

From the start until the conference day, we spent almost one year preparing the event. This Gantt chart summarizes the timeline for the event preparation.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Create a conference webpage											
Promote the conference to the public											
Create an announcement for abstract submission											
Make a final call for abstract submission											
Announce the acceptance notification											
Open for the early-bird registration process											
Open for the normal registration process											
Finalize and announce the schedule and conference contents											
Prepare for the conference event											

We managed all the staff and committees along this timeline to manage and streamline the process. Our committees and staff can be divided into six main groups: Organizing Committees, Academic Committees, Program Committees, Publicity Committees, Finance and Funding Committees, and Organizing staff.

Conference Programs

Tuesday November 29th

Time	Tuesday November 29 th	Room
8:30 – 9:00	Registration for onsite participants at Mandarin Hotel Bangkok Samyan	Mandarin A and B
9:00 – 9:30	Opening Ceremony	
9:30 – 9:45	Group Photos	
9:45 – 10:00	Coffee Break	Foyer
10:00 – 10:30	Keynote Presentation by Prof. Fumihiko Imamura, D.Eng.	Mandarin A and B
10:30 – 11:00	Keynote Presentation by Bhichit Rattakul, Ph.D.	
11:00 – 11:30	Keynote Presentation by Sanjay Srivastava, Ph.D.	
11:30 – 12:00	Keynote Presentation by Aaron Opdyke, Ph.D.	
12:00 – 13:00	Lunch	
13:00 – 13:30	Presentation from Sponsor, Program Presentation (Overall)	
13:30 – 14:30	Session 1	1A – Mandarin A 1B – Mandarin B 1C – Karaked room 1D – Kannika room 1E – Rodsukon room
14:30 – 14:45	Coffee Break	Foyer
14:45 – 15:45	Session 2	2A – Mandarin A 2B – Mandarin B 2C – Karaked room 2D – Kannika room 2E – Rodsukon room
15:45 – 17:05	Session 3	3B – Mandarin B

Wednesday November 30th

Time	Wednesday November 30 th	Room
8:30 – 9:00	Registration for onsite participants at Mandarin Hotel Bangkok Samyan	Mandarin A and B (Coffee Break in Foyer)
9:00 – 9:30	Keynote Presentation by Prof. Harold Yih-Chi Tan, Ph.D.	
9:30 – 10:00	Keynote Presentation by Atiq Ahmed	
10:00 – 10:30	Keynote Presentation by Asst. Prof. Supattra Visessri, Ph.D.	
10:30 – 11:00*	Keynote Presentation by Assoc. Prof. Tavida Kamolvej, Ph.D.	
11:00 – 11:30	Keynote Presentation by Constance Chua, Ph.D.	5A – Kannika room 5B – Karaked room Poster – Foyer
11:30 – 12:00	Session 5 and Poster	
12:00 – 13:00	Lunch	
13:00 – 17:00	Campus tour (Optional)	Chulalongkorn University
18:00 – 22:00	Banquet, Award Ceremony and Closing Ceremony (During Dinner Cruise: 19:00 – 22:00)	Meridian Cruise (@Icon Siam)

*** Time depends on ICT (GMT+7)

* Coffee Break also included

Award lists and Winners

- Best Presenter

- ***Applying southwestern monsoon weather factor to improve a probabilistic flood warning model based on a Nest-SOM***

Presenter

Tsung-Yi Pan

Authors

Lo-Yi Chen, Tsung-Yi Pan, Yi-Huan Hsieh, Jihn-Sung Lai,
Hsin-Hsing Chia

Organization

National Taiwan University

- ***Seismic Performance Assessment of an Irregular School Building in the University of the Philippines Los Baños Based on Incremental Dynamic Analysis***

Presenter

Carmina B. Borja

Authors

Carla Mae B. Pilapil, Carmina B. Borja, Richelle G. Zafra,
Bien David B. Papasin

Organization

University of the Philippines

- ***Seismic Fragility of Selected Public High School Buildings in Cagayan de Oro City, Philippines***

Presenter

Jameson Glen Lim

Authors

Jameson Glen Lim, Jerson Castro, Marvin Alisson Alama,
Daisy Chris Salugsugan, Dexter Lo, Arash Nassirpour

Organization

Xavier University - Ateneo de Cagayan

- **Best Presenter (Student)**

- *Lessons Learned from COVID-19 Management in Sri Lankan Hospitals*

Presenter

Nimali Lakmini Munasinghe

Authors

Nimali Lakmini Munasinghe, Gerard O'Reilly, Peter Cameron

Organization

Monash University

- *Integrating Tsunami Evacuation Route Planning in Web Applications for Disaster Risk Reduction (Case Study: South Lampung, Indonesia)*

Presenter

Dita Wahyu Primastuti

Authors

Dita Wahyu Primastuti, Mahisa Ajy Kusuma

Organization

University of Indonesia

- **Best Poster (Student)**

- *Comparing Non-Asset-Based Disaster Loss Models for Equitable Planning Outcomes*

Presenter

Jeanette Jiawen Choong

Authors

Jeanette Jiawen Choong, Dennis Wagenaar, and David Lallemant

Organization

Nanyang Technological University

Annex

Committees



Organizing Committees

1. Associate Professor Natt Leelawat, D.Eng.
2. Assistant Professor Phannee Saengkaew, Dr. rer. nat.
3. Associate Professor Witaya Wannasuphprasit, Ph.D.
4. Associate Professor Tirawat Boonyatee, D.Eng.
5. Assistant Professor Anurak Sriariyawat, Ph.D.
6. Nattawin Chawaloephonsiya, Ph.D.
7. Sanguan Purahong
8. Duangporn Pisanusan
9. Kannika Masman
10. Kanyanat Phloisuk
11. Ngamta Chaiya
12. Pisit Kunajak
13. Vorawan Mutakulcharoen
14. Chanon Skawattananon
15. Nuttapon Jitjana
16. Khanittha Rasamitat
17. Phuwadech Doungmanee
18. Siriyakorn Sasiponganan

Academic Committees

1. Kallaya Suntornvongsagul, Ph.D.
2. Associate Professor Natt Leelawat, D.Eng.
3. Professor Anat Ruangrassamee, Ph.D.

4. Professor Suched Likitlersuang, D.Phil.
5. Professor Sutep Gonlachanvit, MD
6. Professor Santi Pailoplee, Ph.D.
7. Associate Professor Phisan Santitamnont, Dr.Ing.
8. Associate Professor Jenyuk Lohwacharin, Ph.D.
9. Associate Professor Manoj Lohatepanont, Sc.D.
10. Associate Professor Vachara Peansupap, Ph.D.
11. Associate Professor Suwattana Thadaniti, Ph.D.
12. Associate Professor Tatri Taiphapoon, Ph.D.
13. Associate Professor Panit Pujinda, Ph.D.
14. Associate Professor Smith Boonchutima, Ph.D.
15. Assistant Professor Prasert Akkharapraphomphong
16. Assistant Professor Chatpan Chintanapakdee, Ph.D.
17. Assistant Professor Anurak Sriariyawat, Ph.D.
18. Assistant Professor Piyatida Ruangrassamee, Ph.D.
19. Assistant Professor Supattra Visessri, Ph.D.
20. Assistant Professor Pongsak Suttinon, D.Eng.
21. Assistant Professor Suthirat Kittipongvises, Ph.D.
22. Assistant Professor Penradee Chanpiwat, Ph.D.
23. Assistant Professor Nattasuda Taephant, Ph.D.
24. Assistant Professor Juthatip Wiwattanapantuwong, Ph.D.
25. Assistant Professor Sutee Anantsuksomsri, Ph.D.
26. Assistant Professor Surasak Treenai, Ph.D.
27. Assistant Professor. Pol. Sub.Lt. Dr. Pachanut Nunthaitaweekul
28. Assistant Professor Ruttiya Bhula-Or, Ph.D.
29. Assistant Professor Unruan Leknoi, Ph.D.
30. Jing Tang, D.Eng.
31. Puntita Tanwattana, Ph.D.
32. Tadashi Nakasu, Ph.D.
33. Kannika Swanpotipan
34. Ekatet Intakan
35. Phuwadech Doungmanee
36. Siriyakorn Sasiponganan

Program Committees

1. Kallaya Suntornvongsagul, Ph.D.
2. Associate Professor Natt Leelawat, D.Eng.
3. Professor Anat Ruangrassamee, Ph.D.
4. Professor Suched Likitlersuang, D.Phil.
5. Professor Santi Pailoplee, Ph.D.
6. Professor Nattiya Hirankarn, M.D., Ph.D.
7. Professor Sutep Gonlachanvit, MD
8. Associate Professor Phisan Santitamnont Dr.Ing.
9. Associate Professor Manoj Lohatepanont, Sc.D.

10. Associate Professor Vachara Peansupap, Ph.D.
11. Associate Professor Jenyuk Lohwacharin, Ph.D.
12. Associate Professor Suwattana Thadaniti, Ph.D.
13. Associate Professor Panit Pujinda, Ph.D.
14. Associate Professor Tatri Taiphapoon, Ph.D.
15. Associate Professor Smith Boonchutima, Ph.D.
16. Associate Professor Saowanee Wijitkosum, Ph.D.
17. Assistant Professor Prasert Akkharapathomphong
18. Assistant Professor Chatpan Chintanapakdee, Ph.D.
19. Assistant Professor Anurak Sriariyawat, Ph.D.
20. Assistant Professor Piyatida Ruangrassamee, Ph.D.
21. Assistant Professor Supattra Visessri, Ph.D.
22. Assistant Professor Pongsak Suttinon, D.Eng
23. Assistant Professor Nattasuda Taephant, Ph.D.
24. Assistant Professor Juthatip Wiwattanapantuwong, Ph.D.
25. Assistant Professor Surasak Treenai, Ph.D.
26. Assistant Professor Pol. Sub.Lt. Dr. Pachanut Nunthaitaweekul
27. Assistant Professor Sutee Anantsuksomsri, Ph.D.
28. Assistant Professor Ruttiya Bhula-Or, Ph.D.
29. Assistant Professor Unruan Leknoi, Ph.D.
30. Assistant Professor Suvinee Wivatvanit, Ph.D.
31. Assistant Professor Penradee Chanpiwat, Ph.D.
32. Assistant Professor Suthirat Kittipongvises, Ph.D.
33. Jing Tang, D.Eng.
34. Tadashi Nakasu, Ph.D.
35. Puntita Tanwattana, Ph.D.
36. Pummarin Khamdahsag, Ph.D.
37. Nantamol Limphitakphong, Ph.D.
38. Nattapong Tuntiwiwattanapun, Ph.D.
39. Wilailuk Niyommaneerat, Ph.D.
40. Kannika Swanpotipan
41. Ekatet Intakan
42. Phuwadech Doungmanee
43. Kodchakorn Krutphong
44. Ampan Laosunthara
45. Thitiporn Klainil
46. Piyaporn Sochoeiya
47. Nattapon Trumikaborworn
48. Sansanee Sapapthai
49. Wisit Batpantana
50. Issara Kaowaroex
51. Pusiya Ploylieng
52. Siriyakorn Sasiponganan

Publicity Committees

1. Assistant Professor Phannee Saengkaew, Dr. rer. nat.
2. Nuttapon Jitjana
3. Siraprapa Boonsuk
4. Niloh Pakeamae
5. Tuchakorn Tuntiwetchakul
6. Pattanasek Chanasirinon
7. Anopong Wongchumpa
8. Phuwadech Doungmanee
9. Siriyakorn Sasiponganan

Finance and Funding Committees

1. Nattawin Chawaloesphonsiya, Ph.D.
2. Kannika Masman
3. Sanguan Purahong
4. Duangporn Pisanusan
5. Vorawan Mutakulcharoen
6. Tipsuda Wilai Wongmatanukroah
7. Siriyakorn Sasiponganan
8. Phuwadech Doungmanee

Organizing Staffs

1. Treerat Patiko
2. Kumpol Saengtabtim
3. Alfian Kurnia Yudha
4. Wanit Treeranurat
5. Penpitcha Arayachookiat
6. Teerapat Tappanom
7. Yaowapha Siripakarn
8. Kullachart Prathumchai
9. Ratchapong Chaiyadej
10. Korakoch Mongkornsuk
11. Boonthicha Saejia
12. Pawat Ongratanaphol
13. Phongnarin Sukcham

Keynote Presentation

The session of keynote presentation was separated into 2 days of the symposium both online and onsite joined by 9 speakers both international and local, and both academic and practical fields of work.

Day 1

- ***The Challenging of Resilient Society Overcoming Disaster and Risk in the Future***
By **Professor Fumihiko Imamura, Ph.D.**
(The Director of International Research Institute of Disaster Science (IRIDeS), Tohoku University)
- ***Participatory Technologies as a Catalyst to Reduce Disaster Risk***
By **Aaron Opdyke, Ph.D.**
(The Director of Research Training, School of Civil Engineering, The University of Sydney)
- ***Managing Complex, Combined and Cascading Risk: Challenges and Opportunities for Regional Actions in Asia and the Pacific***
By **Sanjay Srivastava, Ph.D.**
(Chief for Disaster Risk Reduction, UNESCAP)
- ***The Role of an Academia in Disaster Resilience***
By **Bhichit Rattakul, Ph.D.**
(Chair of the Thai Network for Disaster Resilience)

Day 2

- ***The Climate Change Impacted on Zhengzhou's Flooding in China, 2021***
By **Professor Harold Yih-Chi Tan, Ph.D.**
(The Director of Weather Climate Disaster Research Center,
National Taiwan University)
- ***Integrating Multiple Domains of Science, Systems and Society for Disaster and Climate Resilience: Experiences and Lessons from the Asian Countries***
By **Mr. Atiq Ahmed**
(Senior Programme Manager of Climate Resilience
from Asian Disaster Preparedness Center (ADPC))
- ***Building Drought Resilience in Thailand's Agricultural Sector***
By **Assistant Professor Supattra Visessri, Ph.D.**
(Department of Water Resource Engineering,
Faculty of Engineering, Chulalongkorn University)
- ***Resilience Bangkok***
By **Associate Professor Tavida Kamolvej, Ph.D.**
(Deputy Governor of Bangkok Metropolitan Administration)
- ***Tsunami Impacts on Critical Infrastructure:
Research Gaps and Challenges***
By **Constance Chua, Ph.D.**
(Post-doctoral research fellow from Earth Observatory of
Singapore, Nanyang Institute of Technology)

Symposium Contents

The symposium content in the 17th APRU MULTI-HAZARDS 2022 has been settled by the theme of *"Innovation Towards Sustainable Growth and Disaster Risk Reduction."* The topics provided for the participants are listed below.

- Innovation for Disaster Risk Reduction
- Engineering and Infrastructure for Disaster Risk Reduction
- Community Health and Well-being for Disaster Risk Reduction
- Social and Governance Policies/Socio-economic Issues in Disaster Management
- Building Community Resilience in Disaster Management
- Disaster Communication in Disaster Management

The submitted and approved abstracts are gathered in the Book of Abstracts and provided for all the participants in the form of an e-book. During the symposium event, the presentation sessions need to be conducted parallelly and separated into 2 days of the symposium.

This topic will gather all the contents in the presentation of the participants arranged mainly by the title of the topic.

Topic 1

Innovation for Disaster Risk Reduction

- *Dynamic Capability for AREA-BCM: A Case Study of Industrial Complex in Thailand*

Yuko Iwasaki^{1,*}

¹ Yokkaichi University, Yokkaichi, Japan

* Corresponding author, yiwasaki@yokkaichi-u.ac.jp

- *Integrating Tsunami Evacuation Route Planning in Web Applications for Disaster Risk Reduction (Case Study: South Lampung, Indonesia)*

Dita Wahyu Primastuti^{1,*}, Mahisa Ajy Kusuma²

¹ Department of Geography University of Indonesia, Depok West Java 16424, Indonesia

* Corresponding author, dita.wahyu01@ui.ac.id

² Meteorological, Climatology, and Geophysical Agency, Jakarta 10610, Indonesia

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Topic 2

Engineering and Infrastructure for Disaster Risk Reduction

- ***Seismic Fragility of Selected Public High School Buildings in Cagayan de Oro City, Philippines***

Jameson Glen C. Lim^{1,*}, Jerson S. Castro¹, Marvin Alisson B. Alama¹, Daisy Chris C. Salugsugan¹, Dexter S. Lo¹, Arash Nassirpour²

¹ Xavier University, Cagayan de Oro City, Philippines

* Corresponding Author, limjameson8@gmail.com

² University College London, London, United Kingdom

- ***Traffic jams on flooded streets: quantifying flood-related traffic disruption in Singapore with an agent-based traffic micro-simulation model***

Indraneel Kasmalkar, David Lallemant

- ***Initiatives towards a Seismic Resilient Campus***

Richelle G. Zafra^{1,*}

¹ Department of Civil Engineering, University of the Philippines Los Baños, Laguna, Philippines

* Corresponding author, rgzafra@up.edu.ph

- ***Report on Architecture and Urban Design for Disaster Risk Reduction about the 2011 Great East Japan Earthquake and Tsunami***

Osamu Murao^{1,*}

¹ International Research Institute of Disaster Science, Tohoku University, Sendai, Japan

* Corresponding author, murao@irides.tohoku.ac.jp

- ***Flood damage and economic loss assessment by Google Earth Engine in case of Ayutthaya Province, Thailand***

Souliya Keola^{1,*}, Pongsak Suttinon¹

¹ Water Resources Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

* Corresponding: Souliya Keola, e-mail: souliya_keola@outlook.com

- ***Flood Warning Platform using Overland Flow Simulation***

Yong-Jun Lin¹, Hsiang-Kuan Chang^{1,*}, Jih-Sung La^{1,2}, Yih-Chi Tan^{1,3}

¹ Center for Weather Climate and Disaster Research, National Taiwan University, Taipei, Taiwan

* Corresponding author, akuanchang@gmail.com

² Hydrotech Research Institute, National Taiwan University, Taipei, Taiwan

³ Department of Bioenvironmental Systems Engineering, National Taiwan University, Taipei, Taiwan

- ***Seismic Performance Assessment of an Irregular School Building in the University of the Philippines Los Baños Based on Incremental Dynamic Analysis***

Carla Mae B. Pilapil^{1,*}, Carmina B. Borja¹, Richelle G. Zafra¹, Bien David B. Papasin¹

¹ University of the Philippines Los Baños, Laguna, Philippines

* Corresponding author, cbpilapil@up.edu.ph

- ***Reduction in the Environmental Impacts of Blasting at Pyrophyllite Mine, Saraburi, Thailand***

Arif Khan^{1,*}, Pipat Laowattanabandit¹

¹ Department of Mining & Petroleum Engineering, Chulalongkorn University, Bangkok, Thailand

* Corresponding author: arifkhan4749@gmail.com

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Topic 3

Community Health and Well-being for Disaster Risk Reduction

- ***Lessons Learned from COVID-19 Management in Sri Lankan Hospitals***

Nimali Lakmini Munasinghe^{1,*}, Gerard O'Reilly¹, Peter Cameron¹

¹ School of Public Health and Preventive Medicine-Monash University, Melbourne, Australia.

* Corresponding author, email: Nimali.Munasinghe@monash.edu

- ***A Qualitative Study Exploring the Impact of COVID-19 Pandemic on Schools: Multi-Perspective Approach***

Abdul Kadir^{1,*}, Stevan Deby Anbiya¹, Muhammad Sunarno¹, Fatma Lestari¹, Dadan Erwandi¹

¹ Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

* Corresponding author, abdul_kadir@ui.ac.id

- ***Analysis of the relation between processability and accessibility to prevent respiratory infectious disease in Thai hospitals (Pilot-review study)***

Opor Chaisangapong^{1,*}, Tanut Waroonkun¹, Titaya Sararit¹

¹ Chiang Mai University, Chiang Mai, Thailand

* Corresponding author, opor.c@psu.ac.th

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Topic 4

Social and Governance Policies/Socio-Economic Issues in Disaster Management

- ***Subjective perception of risk and willingness to insure against flood risk***

**Maria Forlicz^{1,*}, Patrycja Kowalczyk-Rólczyńska¹, Zdzisław Kes¹,
Łukasz Kuźmiński¹, Michał Nadolny¹**

¹ Wrocław University of Economics and Business, Poland

* Corresponding author, maria.forlicz@ue.wroc.pl

- ***Education Continuity Planning Amidst Compound Disasters: Lessons Observed from Teachers of Higher Education Institutions in the Philippines***

**Joanna Rose T. Laddaran^{1,*}, Maricris B. Acido-Muega²,
Michael Arthus G. Muega²**

¹ University of the Philippines Institute for Small-Scale Industries, Diliman, Quezon City, Philippines

* Corresponding author, jtladdaran@up.edu.ph

² University of the Philippines - Diliman, Quezon City, Philippines

- ***Rebuilding Strategies after the wildfire in San Francisco Bay Area, USA***

Chiho Ochiai^{1,*}

¹ Graduate School of Global Environmental Studies, Kyoto University, Kyoto, Japan

* Chiho Ochiai, ochiai.chiho.2x@kyoto-u.ac.jp

- ***Towards HPC-assisted High-resolution Evaluation of Economic Impacts of Disasters***

**Amit Gill¹, Maddeggedara Lalith^{2,*}, Joshua Panganiban³,
Tsuyoshi Ichimura², Kohei Fujita², Muneo Hori⁴**

¹ Sumitomo Mitsui Construction Company, Ltd, Tokyo, Japan

² Earthquake Research Institute, The University of Tokyo, Tokyo, Japan

* Corresponding author, lalith@eri.u-tokyo.ac.jp

³ Department of Civil Engineering, The University of Tokyo, Tokyo, Japan

⁴ Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

- ***Marginality shaping vulnerability and risk of disaster in Kathmandu***

Rojani Manandhar^{1,*}, Dilli P. Poudel¹, Binod Adhikari¹

¹ Southasia Institute of Advanced Studies, Kathmandu, Nepal

* Corresponding author, rojani.manandhar@gmail.com

- ***Quantifying Economic Impacts of Flooding in North America – Insights into overcoming contemporary challenges***

Zafar Adeel^{1,*}

¹Executive Director, Pacific Water Research Centre, Simon Fraser University, Surrey, Canada

- ***Socio-economic and governance challenges of pandemic preparedness in urban agglomerations and the way forward***

Asitha De Silva^{1,*}, Richard Haigh¹, Dilanthi Amaratunga¹, Harkunti Rahayu²

¹ Global Disaster Resilience Centre, University of Huddersfield, UK

* Corresponding author, Asitha.DeSilva@hud.ac.uk

² School of Architecture, Planning and Policy Development, Institute of Technology Bandung (ITB), Indonesia

- ***The COVID-19 Pandemic and Vulnerable Communities: Multi Hazard Disaster Risk Governance Discourse through a Social Justice Lens***

Anuradha C. Senanayake^{1,*}, Dilanthi Amaratunga¹, Richard Haigh¹

¹ Global Disaster Resilience Centre, University of Huddersfield, United Kingdom

* Corresponding author, anuradha.senanayake@hud.ac.uk

- ***Significance of Policy Implementation in Disaster Risk Governance***

Mahesh Senanayake^{1,*}, D Amaratunga¹, R. Haigh¹

¹ Global Disaster resilience Centre, University of Huddersfields, The UK

* Corresponding author: Mahesh.senanayake@hud.ac.uk

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Topic 5

Building Community Resilience in Disaster Management

- ***Resilience construction of different types of communities after the 2021 Henan floods from the perspective of social capital***

Wang Yixuan^{1,*}, Otani Junko¹, Mo-Hsiung Chuang¹

¹ Osaka University, Osaka, Japan

* Corresponding author, ougeisen1996@yahoo.co.jp

- ***A Study of Measures to Improve Resilience of Residents in Disaster-Prone Areas***

Yuwen Gao^{1,*}, Junko Otani¹

¹ Graduate School of Human Sciences, Osaka University, Osaka, Japan

* Corresponding author, gaoyuwen52@yahoo.co.jp

- ***HANDA: Community of Practice for Entrepreneurship for MSMEs to Build Forward Better***

Joanna Rose T. Laddaran^{1,*}, Allysa Anne M. De Guzman²

¹ University of the Philippines Institute for Small-Scale Industries, Diliman, Quezon City, Philippines

* Corresponding author, jtladdaran@up.edu.ph

² University of the Philippines Institute for Small-Scale Industries, Diliman, Quezon City, Philippines

- ***Bridging gaps in community based DRR in Fiji: policy review***

Sainimere Veitata^{1,*}, Ayako Fujieda¹, Hirohide Kobayashi¹

¹ Kyoto University, Kyoto, Japan

* Corresponding author veitata.naikadroka.34n@st.kyoto-u.ac.jp ² Kyoto Seika University, Kyoto, Japan

- ***Women and Intersectionality in Disasters: toward Critical Disaster Studies in Japan***

Paola Cavaliere^{1,*}, Junko Otani¹

¹ Osaka University, Graduate School of Human Sciences, Japan

* Corresponding author, pcavaliere@hus.osaka-u.ac.jp

- ***Analyzing the Resilience and Vulnerabilities of the Dumagat-Remontado in Sitio Masla in General Nakar, Quezon in the Philippines Using the Element of Collective Action***

**Chiarra C. Cleto^{1,*}, Sharon Feliza Ann P. Macagba¹,
Almira Geles L. De Mesa¹, Sandra S. Samantela¹**

¹ Department of Community and Environmental Resource Planning, College of Human Ecology, University of the Philippines, Los Baños, Laguna, Philippines

* Corresponding author, cccleto@up.edu.ph

- ***Policies and programs for housing recovery in three Asian countries – India, Thailand, and Japan***

Titaya Sararit^{1,*}, Liz Maly², Mittul Vahanvati³

¹ Building Innovation and Management Center, Faculty of Architecture, Chiang Mai University, Thailand

* Corresponding author, Titaya.s@cmu.ac.th

² Tohoku University, Sendai, Japan

³ RMIT University, Melbourne City, Australia

- ***How to Help Government to Enhance the Flood Reduction and Prevention by Volunteer Servants***

Titaya Sararit^{1,*}, Liz Maly², Mittul Vahanvati³

¹ Building Innovation and Management Center, Faculty of Architecture, Chiang Mai University, Thailand

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- Youth Participation in the Disaster Risk Reduction and Management of a Coastal Village in Calamba City, Philippines***
Zyrl F. Palomares^{1,*}, Almira Geles L. de Mesa¹, John Ceffrey L. Eligue¹, Kristina Cordero-Bailey¹
¹ University of the Philippines Los Banos, Laguna, Philippines
^{*} Corresponding author, zfpalomares@up.edu.ph
- Participatory GIS (PGIS) for locally informed planning and future resilient city: A case from urbanizing Kathmandu, Nepal***
Binod Adhikari^{1,*}, Dilli Prasad Poudel¹, Rojani Manandhar¹, Mani Ram Banjade¹
¹Southasia Institute of Advanced Studies (SIAS)
^{*} Corresponding author, Binod@sias-southasia.org ; geo.binod@gmail.com
- Collecting Local Practice on Flood Management by Gaming Simulation and Focus Group Discussion***
Yusuke Toyoda^{1,2,*}, Puntita Tanwattana²
¹ Ritsumeikan University, Osaka, Japan
^{*} Corresponding author, toyoday@fc.ritsumei.ac.jp
² Chulalongkorn University, Bangkok, Thailand
- Dynamic Prediction and Enhancement of Social Resilience in Highly Disaster Sensitive Urban Areas in Japan***
Kenji Watanabe^{1,*}
¹ Nagoya Institute of Technology, Nagoya, Aichi, Japan
^{*} Corresponding author, watanabe.kenji@nitech.ac.jp
- Incorporating Community Engagement within Multi-hazard Preparedness: An Evaluation of Two Community-based Planning Sessions in Sri Lanka***
Thushara Kamalrathne^{1,*}, Dilanthi Amaratunga², Richard Haigh³, Lahiru Kodituwakku⁴
^{1,2,3} Global Disaster Resilience Centre, University of Huddersfield, UK
^{*} Corresponding author, Thushara.Kamalrathne@hud.ac.uk
⁴ National Dengue Control Unit, Ministry of Health, Sri Lanka
- Earthquake hazards in the Kashmir basin can cascade into major disasters; time to reflect on minimizing the risk***
Shah A. A.^{1,*}, Muhsana Mahoor², Gazali Rahman¹
¹ Universiti of Brunei Darussalam, Bander, Brunei Darussalam
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² Independent Researcher, Srinagar, Kashmir

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Topic 6

Disaster communication in Disaster Management

- *Applying southwestern monsoon weather factor to improve a probabilistic flood warning model based on a Nest-SOM*

**Lo-Yi Chen¹, Tsung-Yi Pan^{1*}, Yi-Huan Hsieh², Jihn-Sung Lai³,
Hsin-Hsing Chia⁴**

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³ Hydrotech Research Institute, National Taiwan University, No. 1, Sec. 4,
Roosevelt Rd., Taipei, 10617, Taiwan

⁴ Taiwan Integrated Disaster Prevention of Technology Engineering Consulting Co., Ltd.,
Taipei, 23672, Taiwan

- *Identifying A Leverage Point of Business Continuity at Industrial Complexes through Causal Inference*

**Akira Kodaka¹, Natt Leelawat^{2,3,*}, Jing Tang^{3,4}, Kenji Watanabe⁵,
Naohiko Kohtake¹**

¹ Graduate School of System Design and Management, Keio University, Kanagawa, Japan

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⁴ International School of Engineering, Faculty of Engineering, Chulalongkorn University,
Bangkok, Thailand

⁵ Department of Architecture, Civil Engineering and Industrial Management Engineering,
Nagoya Institute of Technology, Nagoya, Japan

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Poster Session

- ***Quantifying the Benefits of Nature-based Solutions in Disaster Management: A Review of Literature***

Joeylyn Nato Marty^{1,*}, U Hiroi¹, Kensuke Otsuyama¹

¹ The University of Tokyo, Tokyo, Japan

* Corresponding author, joeylynatomarty@g.ecc.u-tokyo.ac.jp

- ***A Preliminary Study in Interoperability Assessment Model for Area Business Continuity Management***

**Penpitcha Arayachookiat¹, Jing Tang^{1,2,3,*}, Natt Leelawat^{1,3,4},
Akira Kodaka⁵, Eri Ino⁶, Kenji Watanabe⁶, Yuko Iwasaki⁶,
Kunruthai Meechang⁶, Kritchavit Thippayajindakul²,
Theekadhas Chantarasanarm²**

¹ Risk and Disaster Management Program, Graduate School, Chulalongkorn University, Bangkok, Thailand

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⁴ Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

⁵ Graduate School of System Design and Management, Keio University, Tokyo, Japan

⁶ Graduate School of Engineering, Nagoya Institute of Technology, Japan

- ***Influential Factors in Tsunami Evacuation Modeling: A Literature Review***

**Wanit Treeranurat³, Jing Tang^{1,2,4}, Natt Leelawat^{1,2,3,*},
Kodchakorn Krutphon², Kumpol Saengtabtim³, Ampan Laosunthara²,
Boonthicha Saejia⁴, Noppawan Sriksirin⁴, Penpitcha Arayachookiat¹**

¹ Risk and Disaster Management Program, Graduate School, Chulalongkorn University, Bangkok, Thailand

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³ Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

⁴ International School of Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

- ***Drivers and Pathways of Climate Change-Induced Human Migration in Southeast Asia***

Sonali Manimaran^{1,*}

¹ Nanyang Technological University, Singapore, Singapore

* Corresponding author, sonali005@e.ntu.edu.sg

- ***The impact of subjective well-being on risk perception and disaster preparedness actions: Re-examining a survey of the Kinki region, Japan, through structural equation modeling***

Ryo Ashida¹, Ana Maria Cruz^{1,*}, Dimitrios Tzioutzios¹

¹ Disaster Prevention Research Institute, Kyoto University, Kyoto, Japan.

* Corresponding author, cruznaranjo.anamaria.2u@kyoto-u.ac.jp

- ***Comparing Non-Asset-Based Disaster Loss Models for Equitable Planning Outcomes***

Jeanette Jiawen Choong^{1,*}, Dennis Wagenaar¹, David Lallemand¹

¹ Nanyang Technological University, Singapore

* Corresponding author, jiawenje001@e.ntu.edu.sg

- ***Time Series Analysis for Identifying the Correlation among the COVID-19 Prevention and COVID-19 Impact Indices: A Case of Thailand***

Kumpol Saengtabtim¹, Jing Tang^{2,3}, Natt Leelawat^{1,3,*}, Ampan Laosunthara³, Penpitcha Arayachookiat⁴

¹ Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

* Corresponding author, natt.l@chula.ac.th

² International School of Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

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Survey

• *Survey Results*

After the activities of the symposium, the organizer plan to distribute the survey of the event to the participants via the online platform with the QR code to scan and answer the questionnaire. The question was separated into the part of satisfaction and the part of information and suggestion from the participants.

Type of Participation	Persons
Onsite	34
Online	0
<u>Total</u>	34

The total number of participants who answered the questionnaire is 34 persons and all of them attended the event onsite. The results showing in the form of a table to show the percentile of each question.

	Very Dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very Satisfied (5)	Can't answer
1. The overall satisfaction						
Please indicate your overall satisfaction with the following aspects of the symposium:						
1.1 Symposium theme and topics	11.76%	2.94%	2.94%	17.65%	61.76%	2.94%
1.2 Symposium location	11.76%	2.94%	0.00%	11.76%	70.59%	2.94%
1.3 Ease of paper/video submission, registration, and payment system	8.82%	5.88%	5.88%	14.71%	55.88%	8.82%
1.4 Symposium program (Opening & closing ceremony, keynote speaker, sponsor, presentation sessions, campus tour, award)	11.76%	5.88%	8.82%	8.82%	58.82%	5.88%
1.5 Time allocated for program and/or discussions	8.82%	5.88%	5.88%	23.53%	52.94%	2.94%
1.6 Accommodation, transportation, facilities and catering	8.82%	2.94%	2.94%	23.53%	55.88%	5.88%
1.7 Helpfulness of event organizers]	11.76%	2.94%	0.00%	2.94%	70.59%	11.76%

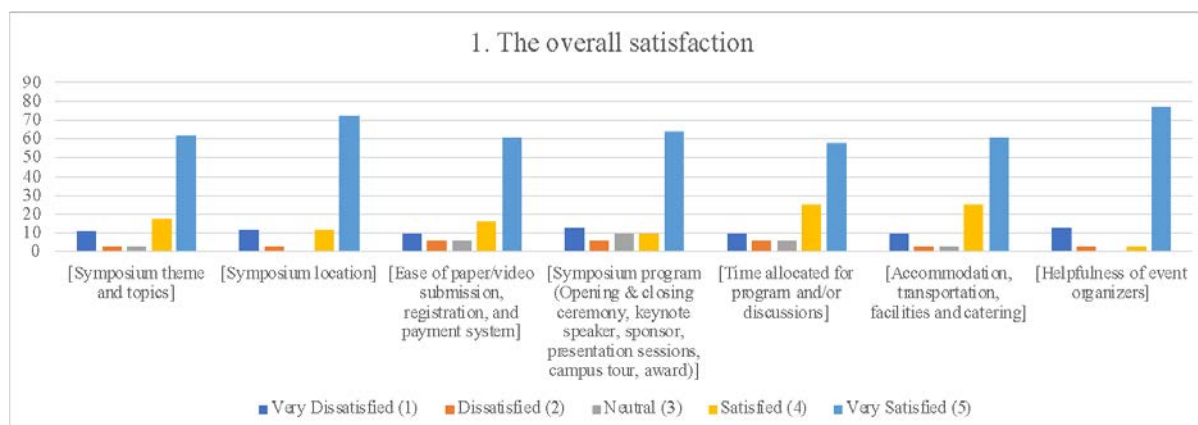
	Very Dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very Satisfied (5)	Can't answer
2. Please rate us for the overall organization of this symposium	0.00%	3.23%	9.68%	19.35%	77.42%	0.00%
3. How likely would you be to recommend the future APRU Multi-Hazards Symposium to a friend or colleague?	0.00%	6.45%	6.45%	25.81%	70.97%	0.00%
4. Detailed satisfaction Please rate us and/or select the answer following the topics below						
4.1 The symposium has met your expectations	12.90%	3.23%	12.90%	25.81%	54.84%	0.00%
4.2 The offer of parallel sessions has been interesting	12.90%	3.23%	12.90%	25.81%	54.84%	0.00%
4.3 The facilities are adequate in relation to comfort, networking and material resources	12.90%	6.45%	6.45%	19.35%	64.52%	0.00%
4.4 How satisfied were you with the platform experience?	9.68%	3.23%	16.13%	22.58%	58.06%	0.00%
4.5 How would you rate the quality of audio and video at the event?	12.90%	0.00%	16.13%	19.35%	61.29%	0.00%
4.6 How would you rate our event venue and equipment in regard to how it served your presentation/keynote?	12.90%	3.23%	3.23%	16.13%	74.19%	0.00%

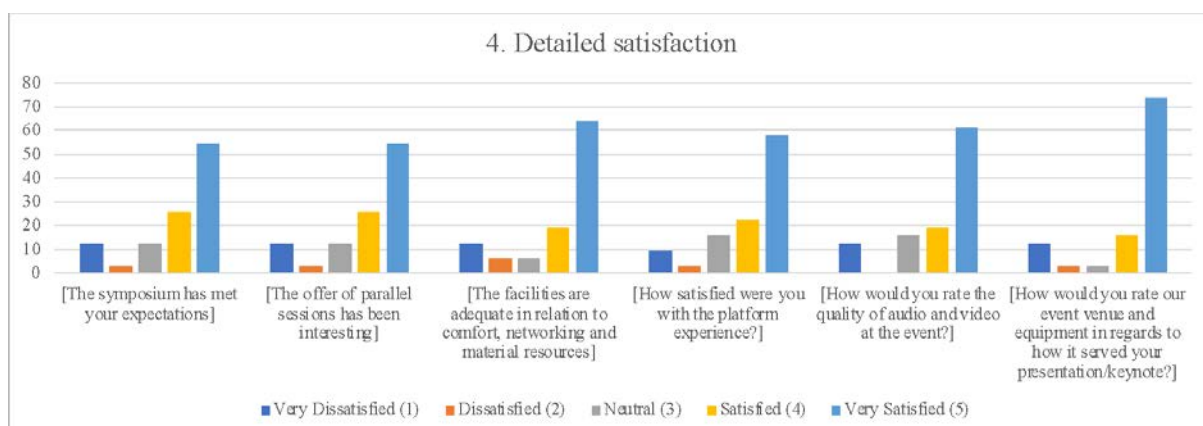
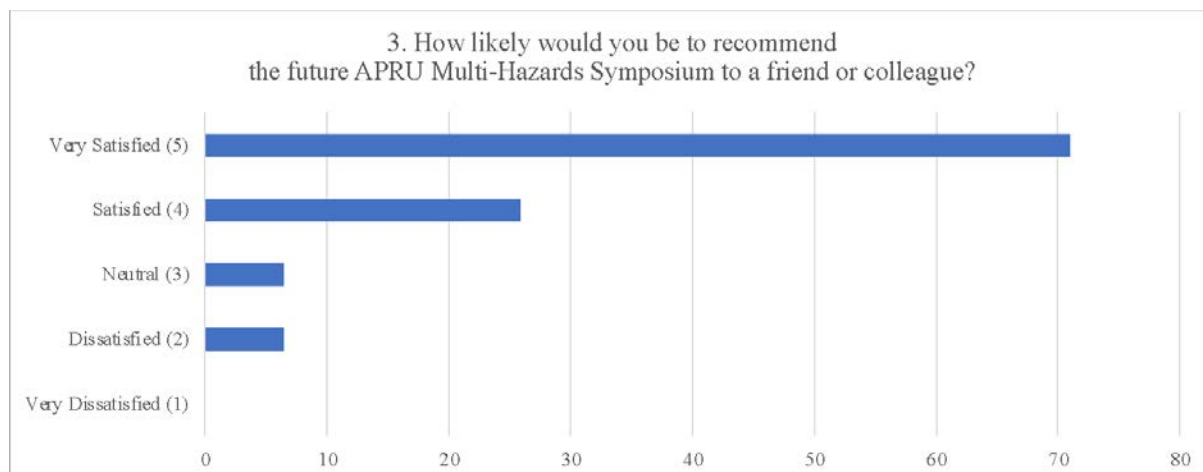
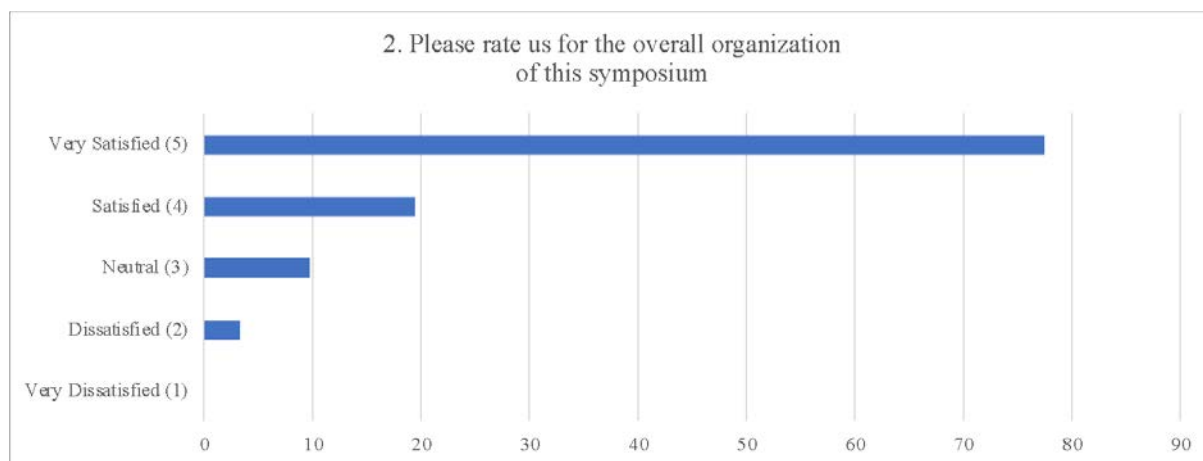
	None (1)	A little (2)	Some (3)	Most (4)	All (5)	Can't answer
5. Prior to the event, how much of the information that you needed did you get?	0.00%	2.94%	17.65%	38.24%	41.18%	0.00%

	Yes	No	Can't answer
6. Were the before, during, and post-event communications clear?	94.12%	6.45%	0%
7. Are you satisfied with the results of this event in regard to the impact it has made on your department?	97.06%	2.94%	0%

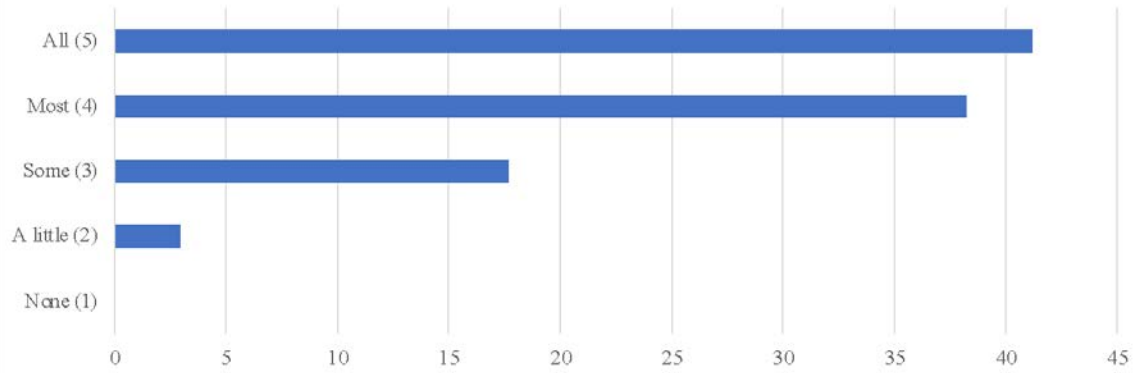
8. Is there anything else you would like us to know/we could have done to make your event experience easier or more convenient or/you would like to have for the future APRU Multi-Hazards Symposium?

- The number of presentations was relatively small, and the format might have been condensed to one day or included other activities to better fill two days.
- Too few people in sessions. Not enough feedback on research.
- The temperature in the room is too cold.
- Equipment issues.
- Allow the payment in USD.

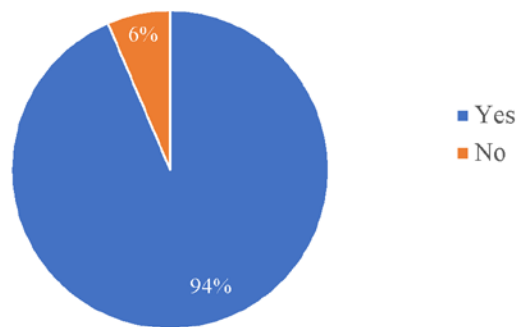




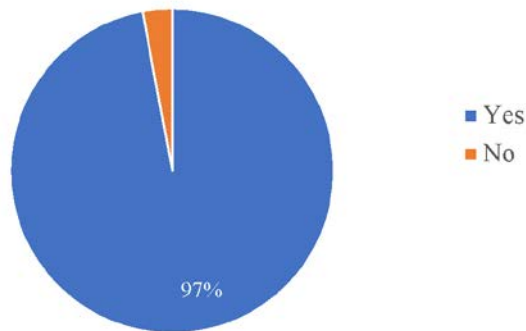
5. Prior to the event, how much of the information that you needed did you get?



6. Were the before, during, and post-event communications clear?



7. Are you satisfied with the results of this event in regard to the impact it has made on your department?



• *Participants Data*

Type of participant	Number
Committee and Staff	58
Presenter	50
Listener	13
Keynote Speakers	9
Total	121

Country	Number
Thailand	72
Japan	16
Indonesia	8
Philippines	8
Singapore	5
Australia	4
Poland	3
Taiwan	4
United Kingdom	3
Mexico	2
Nepal	2
Canada	1
Greece	1
Sri Lanka	1
Total	121

University/Organization	Number
Chulalongkorn University	62
Universitas Indonesia	7
University of the Philippines	7
Nanyang Technological University	5
Kyoto University	4
University of Huddersfield	4
Tohoku University	4
Wroclaw University	3
National Taiwan University	3
Chiagmai university	2
Keio University	2
MDREIECK SA DE CV	2
Navamindradhiraj University	2
Osaka University	2
Southasia Institute of Advanced Studies (SIAS)	2
The University of Tokyo	2
Asian Disaster Preparedness Center	1
Bangkok Metropolitan Administration	1
Ming Chuan University	1

University/Organization	Number
Monash University	1
Nagoya Institute of Technology	1
Naresuan University	1
Ritsumeikan University	1
RMIT University	1
Simon Fraser University	1
Sumitomo Mitsui Construction Company Limited	1
Thai Network for Disaster Resilience	1
The University of Sydney	1
United Nations Economic and Social Commission for Asia and the Pacific	1
University Brunei Darussalam	1
University of Newcastle	1
Xavier University	1
Yokkaichi University	1
Total	121

- **Presentation Programs**

Day 1 – November 29, 2022 (Tuesday)

Session 1A **Topic:** Engineering and Infrastructure for Disaster Risk Reduction (Part 1)

Mandarin A room

Time	Abstract ID	Abstract title and Author(s)
13:30 - 13:50	MH12010	Title: Seismic Fragility of Selected Public High School Buildings in Cagayan de Oro City, Philippines
		<u>Jameson Glen Lim</u> *, Jerson Castro, Marvin Alisson Alama, Daisy Chris Salugsugan, Dexter Lo, Arash Nassirpour
13:50 - 14:10	MH12070	Title: Traffic jams on flooded streets: quantifying flood-related traffic disruption in Singapore with an agent-based traffic micro-simulation model
		<u>Indraneel Kasmalkar</u> *, David Lallemand
14:10 - 14:30	MH12130	Title: Flood damage and economic loss assessment by Google Earth Engine in case of Ayutthaya Province, Thailand
		<u>Souliya Keola</u> *, Pongsak Suttinon

Session 1B **Topic:** Social and Governance Policies/Socio-Economic Issues in Disaster Management (Part 1)

Mandarin B room

Time	Abstract ID	Abstract title and Author(s)
13:30 - 13:50	MH14020	Title: Subjective perception of risk and willingness to insure against flood risk
		<u>Maria Forlicz</u> *, <u>Patrycja Kowalczyk-Rólczyńska</u> , Zdzisław Kes, <u>Łukasz Kuźmiński</u> , Michał Nadolny
13:50 - 14:10	MH14040	Title: Education Continuity Planning Amidst Compound Disasters: Lessons Observed from Teachers of Higher Education Institutions in the Philippines
		<u>Joanna Rose T. Laddaran</u> *, Maricris B. Acido-Muega, Michael Arthus G. Muega
14:10 - 14:30	MH14210 (Online)	Title: Quantifying Economic Impacts of Flooding in North America – Insights into overcoming contemporary challenges
		<u>Zafar Adeel</u> *

**Day 1 – November 29, 2022
(Tuesday)**

Session 1C **Topic: Building Community Resilience in Disaster Management (Part 1)**

Karaked room

Time	Abstract ID	Abstract title and Author(s)
13:30 - 13:50	MH15030	Title: Resilience construction of different types of communities after the 2021 Henan floods from the perspective of social capital
		<u>Wang Yixuan</u> *, Otani Junko, Mo-Hsiung Chuang
13:50 - 14:10	MH15040	Title: A Study of Measures to Improve Resilience of Residents in Disaster-Prone Areas
		<u>Yuwen Gao</u> *, Junko Otani
14:10 - 14:30	MH15050	Title: HANDA: Community of Practice for Entrepreneurship for MSMEs to Build Forward Better
		Joanna Rose T. Laddaran*, <u>Allysa Anne M. De Guzman</u>

Session 1D **Topic: Building Community Resilience in Disaster Management (Part 2)**

Kannika room

Time	Abstract ID	Abstract title and Author(s)
13:30 - 13:50	MH15110	Title: Analyzing the Resilience and Vulnerabilities of the Dumagat-Remontado in Sitio Masla in General Nakar, Quezon in the Philippines Using the Element of Collective Action
		<u>Chiarra C. Cleto</u> *, Sharon Feliza Ann P. Macagba, Almira Geles L. De Mesa, Sandra S. Samantela
13:50 - 14:10	MH15120	Title: Policies and programs for housing recovery in three Asian countries – India, Thailand, and Japan
		<u>Titaya Sararit</u> *, Liz Maly, <u>Mittul Vahanvati</u>
14:10 - 14:30	MH15170	Title: Youth Participation in Disaster Risk Reduction and Management of a Coastal Village in Calamba City, Philippines
		<u>Zyryl F. Palomares</u> *, Almira Geles L. de Mesa, John Ceffrey L. Eligue, Kristina Cordero-Bailey

**Day 1 – November 29, 2022
(Tuesday)**

**Session 1E Topic: Engineering and Infrastructure for Disaster Risk Reduction
(Part 2)**

Rodsukon room

Time	Abstract ID	Abstract title and Author(s)
13:30 - 13:50	MH12060 (Online)	Title: Recent Developments on Hazard and Risk Assessment for Multi-source Tsunamis
		<u>Anawat Suppasri*</u> , Kwanchai Pakoksung, Tsuyoshi Nagasawa, Yuya Narita, Ryunosuke Tawatari, Shohei Iwai, Yukio Mabuchi, Fumihiko Imamura
13:50 - 14:10	MH12110	Title: Report on Architecture and Urban Design for Disaster Risk Reduction about the 2011 Great East Japan Earthquake and Tsunami
		<u>Osamu Murao*</u>
14:10 - 14:30	MH12140	Title: Flood Warning Platform using Overland Flow Simulation
		<u>Yong-Jun Lin</u> , Hsiang-Kuan Chang*, Jihn-Sung La, Yih-Chi Tan

**Session 2A Topic: Engineering and Infrastructure for Disaster Risk Reduction
(Part 3)**

Mandarin A room

Time	Abstract ID	Abstract title and Author(s)
14:45 - 15:05	MH12080 (Online)	Title: Initiatives towards a Seismic Resilient Campus
		<u>Richelle G. Zafra*</u>
15:05 - 15:25	MH12160 (Online)	Title: Seismic Performance Assessment of an Irregular School Building in the University of the Philippines Los Baños Based on Incremental Dynamic Analysis
		Carla Mae B. Pilapil*, <u>Carmina B. Borja</u> , Richelle G. Zafra, Bien David B. Papasin
15:25 - 15:45	MH12190 (Online)	Title: Reduction in the Environmental Impacts of Blasting at Pyrophyllite Mine, Saraburi, Thailand
		<u>Arif Khan*</u>

**Day 1 – November 29, 2022
(Tuesday)**

Session 2B Topic: Social and Governance Policies/Socio-Economic Issues in Disaster Management (Part 2)

Mandarin B room

Time	Abstract ID	Abstract title and Author(s)
14:45 - 15:05	MH14130	Title: Rebuilding Strategies after the wildfire in San Francisco Bay Area, USA
		<u>Chiho Ochiai*</u>
15:05 - 15:25	MH14180	Title: Marginality shaping vulnerability and risk of disaster in Kathmandu
		<u>Rojani Manandhar*</u> , Dilli P. Poudel, Binod Adhikari
15:25 - 15:45	MH14160 (Online)	Title: Towards HPC-assisted High-resolution Evaluation of Economic Impacts of Disasters
		<u>Amit Gill</u> , Maddegedara Lalith*, Joshua Panganiban, Tsuyoshi Ichimura, Kohei Fujita, Muneo Hori

Session 2C Topic: Building Community Resilience in Disaster Management (Part 3)

Karaked room

Time	Abstract ID	Abstract title and Author(s)
14:45 - 15:05	MH15190	Title: Participatory GIS (PGIS) for locally informed planning and future resilient city: A case from urbanizing Kathmandu, Nepal
		<u>Binod Adhikari*</u> , Dilli Prasad Poudel, Rojani Manandhar, Mani Ram Banjade
15:05 - 15:25	MH15200	Title: Collecting Local Practice on Flood Management by Gaming Simulation and Focus Group Discussion
		<u>Yusuke Toyoda*</u> , Puntita Tanwattana
15:25 - 15:45	MH15210 (Online)	Title: Dynamic Prediction and Enhancement of Social Resilience in Highly Disaster Sensitive Urban Areas in Japan
		<u>Kenji Watanabe*</u>

15:45 - 16:05	MH15130	Title: How to Help Government to Enhance the Flood Reduction and Prevention by Volunteer Servants
		Kuang-Chih Chang, Yi-Sheng Lin, Yi-Chi Tan, <u>Wu-Chueh Hung*</u>
Day 1 – November 29, 2022 (Tuesday)		
Session 2D	Topic: Building Community Resilience in Disaster Management (Part 4)	
Kannika room		
Time	Abstract ID	Abstract title and Author(s)
14:45 - 15:05	MH15060 (Online)	Title: Bridging gaps in community based DRR in Fiji: policy review
		<u>Sainimere Veitata*</u> , Ayako Fujieda, Hirohide Kobayashi
15:05 - 15:25	MH15070 (Online)	Title: Women and Intersectionality in Disasters: toward Critical Disaster Studies in Japan
		Paola Cavaliere*, <u>Junko Otani</u>
15:25 - 15:45	MH15250 (Online)	Title: Incorporating Community Engagement within Multi-hazard Preparedness: An Evaluation of Two Community-based Planning Sessions in Sri Lanka
		<u>Thushara Kamalrathne*</u> , Dilanthi Amaratunga, Richard Haigh, Lahiru Kodituwakku
15:45 - 16:05	MH15080	Title: Earthquake hazards in the Kashmir basin can cascade into major disasters; time to reflect on minimizing the risk
		<u>Afroz Ahmad Shah*</u> , Muhsana Mahoor, Gazali Rahman

Session 2E Topic: Community Health and Well-being for Disaster Risk Reduction		
Rodsukon room		
Time	Abstract ID	Abstract title and Author(s)
14:45 - 15:05	MH13010	Title: Lessons Learned from COVID-19 Management in Sri Lankan Hospitals
		<u>Nimali Lakmini Munasinghe</u> *, Gerard O'Reilly, Peter Cameron
15:05 - 15:25	MH13040	Title: A Qualitative Study Exploring the Impact of COVID-19 Pandemic on Schools: Multi-Perspective Approach
		<u>Abdul Kadir</u> *
15:25 - 15:45	MH13050	Title: Analysis of the relation between processability and accessibility to prevent respiratory infectious disease in Thai hospitals (Pilot-review study)
		<u>Opor Chaisangapong</u> *, Tanut Waroonkun, Titaya Sararit
Day 1 – November 29, 2022 (Tuesday)		
Session 3B Topic: Social and Governance Policies/Socio-Economic Issues in Disaster Management (Part 3)		
Mandarin B room		
Time	Abstract ID	Abstract title and Author(s)
15:45 - 16:05	MH14190 (Online)	Title: Socio-economic and governance challenges of pandemic preparedness in urban agglomerations and the way forward
		<u>Asitha De Silva</u> *, Richard Haigh, Dilanthi Amaratunga, Harkunti Rahayu
16:05 - 16:25	MH14140 (Online)	Title: The COVID-19 Pandemic and Vulnerable Communities: Multi Hazard Disaster Risk Governance Discourse through a Social Justice Lens
		<u>Anuradha C. Senanayake</u> *, Dilanthi Amaratunga, Richard Haigh
16:25 - 16:45	MH14200 (Online)	Title: Significance of Policy Implementation in Disaster Risk Governance
		<u>Mahesh Senanayake</u> , D. Amaratunga*

***Time depends on ICT (GMT+7)

**Day 2 – November 30, 2022
(Wednesday)**

Session 5A Topic: Innovation for Disaster Risk Reduction

Kannika room

Time	Abstract ID	Abstract title and Author(s)
11:30 - 11:45	MH11090 (Online)	Title: Integrating Tsunami Evacuation Route Planning in Web Applications for Disaster Risk Reduction (Case Study: South Lampung, Indonesia)
		<u>Dita Wahyu Primastuti*</u> , Mahisa Ajy Kusuma

Session 5B Topic: Social and Governance Policies/Socio-Economic Issues in Disaster Management (Part 3)

Karaked room

Time	Abstract ID	Abstract title and Author(s)
11:30 - 11:45	MH11060	Title: Dynamic Capability for Area-BCM: A Case Study of Industrial Complex in Thailand
		<u>Yuko Iwasaki*</u>
11:45 - 12:00	MH16030	Title: Identifying A Leverage Point of Business Continuity at Industrial Complexes through Causal Inference
		<u>Akira Kodaka</u> , Natt Leelawat*, Jing Tang, Kenji Watanabe, Naohiko Kohtake
12:00-12:15	MH16020	Title: Applying southwestern monsoon weather factor to improve a probabilistic flood warning model based on a Nest-SOM
		<u>Lo-Yi Chen</u> , Tsung-Yi Pan*, Yi-Huan Hsieh, Jihn-Sung Lai, Hsin-Hsing Chia

**Day 2 – November 30, 2022
(Wednesday)**

Session Poster

Mandarin B room

Time	Abstract ID	Abstract title and Author(s)
11:30 - 12:00	MH21040	Title: Quantifying the Benefits of Nature-based Solutions in Disaster Management: A Review of Literature
		<u>Joeylyn Marty*</u> , U Hiroi, Kensuke Otsuyama
	MH21080	Title: A Preliminary Study in Interoperability Assessment Model for Area Business Continuity Management
		<u>Penpitcha Arayachookiat</u> , Jing Tang*, Natt Leelawat, Akira Kodaka, Eri Ino, Kenji Watanabe, Yuko Iwasaki, Kunruthai Meechang, Kritchavit Thippayajindakul, Theekadhas Chantarasanarm
	MH22100	Title: Influential Factors in Tsunami Evacuation Modeling: A Literature Review
		<u>Wanit Treeranurat</u> , Jing Tang, Natt Leelawat*, Kodchakorn Krutphonng, Kumpol Saengtabtim, Ampan Laosunthara, Penpitcha Arayachookiat, Boonthicha Saejia, Noppawan Sriksirin
	MH24110	Title: Drivers and Pathways of Climate Change-Induced Human Migration in Southeast Asia
		<u>Sonali Manimaran*</u>
	MH24150 (Online)	Title: The impact of subjective well-being on risk perception and disaster preparedness actions: Re-examining a survey of the Kinki region, Japan, through structural equation modeling
		<u>Ryo Ashida</u> , Ana Maria Cruz*, Dimitrios Tzioutzios
	MH24220	Title: Comparing Non-Asset-Based Disaster Loss Models for Equitable Planning Outcomes
		<u>Jeanette Jiawen Choong*</u> , Dennis Wagenaar, David Lallemant
	MH25090	Title: Time Series Analysis for Identifying the Correlation among the COVID-19 Prevention and COVID-19 Impact Indices: A Case of Thailand
		<u>Kumpol Saengtabtim</u> , Jing Tang, Natt Leelawat*, Ampan Laosunthara, Penpitcha Arayachookiat

***Time depends on ICT (GMT+7)

- *Photo*



Preparation period



Registration process



Main session



Opening ceremony by dean of faculty of engineering, Chulalongkorn University



Group photo (Keynote speaker and committees)



Conference presentation



Group photo (Among committees and session's chair



Closing ceremony



APRU
MULTI-HAZARDS
SYMPOSIUM 2022

INNOVATION TOWARD
SUSTAINBLE GROWTH
AND DISASTER RISK
REDUCTION

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Mandarin Hotel, Bangkok, THAILAND

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