



The 2nd ICHMGEP

The 2nd International Conference on Hazard Mitigation in Geographic And Education Perspectives

Theme

DISASTER MANAGEMENT FOR ENHANCING RESILIENCE, RISK REDUCTION, AND SUSTAINABLE DEVELOPMENT GOALS

Time & Venue

**11-12
September
2020**

Host:



Co-Host:



Publication

IOP Conference Series
Earth and Environmental Science
Indexed by:
Scopus

Dr. Suhadi Purwantara, M.Si.
(Universitas Negeri Yogyakarta, Indonesia)



Keynote Speakers

Assoc. Prof. Dr. Mohd Hairy Ibrahim.
(University Pendidikan Sultan Idris (UPSI), Malaysia)



Invited Speakers

Dr. Danang Sri Hadmoko, S.Si., M.Sc.
(Universitas Gadjah Mada, Indonesia)



Invited Speakers

Dr. Bayes Ahmed
(University College London (UCL), England)



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Preface

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E. Widodo and Hastuti

PREFACE

The Faculty of Social Sciences, Universitas Negeri Yogyakarta in collaboration with the Department of Geography of the Universiti Pendidikan Sultan Idris (UPSI) Malaysia, the Geography Department of Chulalongkorn University (CU) Thailand, the Geography Department of the University of Muhammadiyah Surakarta (UMS) Indonesia, and the Indonesian Geographical Association held The 2nd International Conference on Hazard Mitigation in Geographic and Education Perspectives (The 2nd ICHMGEP) on "Disaster Management for Enhancing Resilience, Risk Reduction and Sustainable Development Goals". This conference continues the tradition of scientific meetings (The 1st ICHMGEP) organized in 2018, which successfully gathered hundreds of participants and published conference papers in international publication outlets. The 2nd ICHMGEP 2020 provides a platform for researchers, lecturers, students, practitioners, and scientists to showcase their latest findings in areas of expertise, including geoscience, environment, science and technology innovation, mapping, and technological innovation. In addition, it aims to disseminate original research results, new ideas, innovations, practical experiments to promote scientific progress and achieve sustainable development goals.

The 2nd ICHMGEP 2020 had formerly been planned to be organized in an offline format. However, it was conducted online on September 11-12, 2020 mainly due to the Covid-19 pandemic impacts. The increasing number of Covid-19 positive cases in Yogyakarta Province since March 2020 forced the government to carry out various restrictions on activities gathering many people like a conference. This is supported by the issuance of the Covid-19 emergency response period in Yogyakarta, Indonesia from March 20 - May 29 2020. Moreover, the emergency response period was extended on May 30 - June 30 2020, 1 - 31 July 2020, 1 - 31 August 2020, and 1 - 30 September 2020. In addition, the Covid-19 pandemic offered uncertainty and was difficult to be predicted when it would end. Therefore, the organizing committee decided to change the offline format into an online format as the conference would provide great benefit for the wider community including giving solutions to cope with covid-19 related problems. Also, many supportive platforms such as zoom dan live youtube could facilitate the implementation of the online conference

The plenary session of the conference was held online on September 11, 2020, utilizing the zoom platform and broadcasted live via the official youtube channel of the Faculty of Social Sciences UNY (fis_unyofficial), with a keynote speaker Dr. Suhadi Purwantara, M.Sc. (UNY, Indonesia) and 3 invited speakers namely, Dr. Danang Sri Hadmoko, S.Si., M.Sc. (UGM, Indonesia), Assoc. Prof. Dr. Mohd Hairy Ibrahim (UPSI, Malaysia), and Dr. Bayes Ahmed (UCL, United Kingdom). The parallel session was on September 12, 2020, participated by 73 presenters via zoom. They were divided into seven groups using the zoom meeting rooms. Each presenter was given 20 minutes, consisting of 10 minutes for presentations and 10 minutes for discussions. The participants' enthusiasm during the discussion session was satisfactory, indicated by the presence of several questions addressed to the presenters. All participants were able to access the conference virtually well.

Zoom and youtube were used as they were the appropriate platforms to support the implementation of the online conference. They helped the 2nd ICHMGEP run smoothly and successfully amid the pandemic situation. To support the zoom and youtube operation, the committee utilized the facilities in the Communication Science laboratory of the Faculty of Social Sciences UNY, which was equipped with standard cameras for live streaming, mixers, and audio. Also, the committee used the FISNET laboratory, which was supported with adequate computer equipment, to host the online conference and ensure that the online conference run as expected. The conference's success was also supported by the readiness of human resources who were organizing the conference.

Overall, the implementation of The 2nd ICHMGEP was successful viewed from the number of conference participants, namely, 124 plenary session participants and 73 parallel session presenters.



Viewed from the content, the four outstanding speakers delivered insightful and important topics via zoom during the plenary session including, "Never Stop to Think about Mitigation", "Building Multi-Dimensional Resilience to Disasters", "Resilience toward SDGs", and "Social Vulnerability Assessment in Disaster Risk Reduction (DRR)". All of these materials complement the conference theme: "Disaster Management for Enhancing Resilience, Risk Reduction and Sustainable Development Goals". To support the dissemination of research results, new inventions, insight via the conference papers, the organizing committee carried out a rigorous review of the conference paper before the conference, conducted a paper coaching clinic by inviting Prof. Dr. Sri Rum Giyarsih, M.Sc. (UGM, Indonesia) on September 21, 2020, using the zoom platform, and final review before submitting papers to the IOP publisher.

Finally, we would like to thank the Rector of Universitas Negeri Yogyakarta, who provided financial support to organize this conference. We would also like to thank all the invited speakers and participants from various cities in Indonesia, Malaysia, Thailand who have taken the time to participate in this online conference. Our gratitude also goes to IOP publishing as our partner to publish quality conference papers. We also thank all the organizers who have successfully organized this conference. Finally, I hope that this conference can contribute valuable insights for the Indonesian people and the world in general.

Lampiran

Day	Link
The 2 nd ICHMGEP: Day 1	
Sep 11, 2020 02:00 PM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/abBec1EVI4
	Join You tube https://youtu.be/Us_l dyYS00Y and https://youtu.be/qHy30SY6qJA
The 2 nd ICHMGEP: Day 2	
2 nd ICHMGEP Room 1 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/94888826866?pwd=U1ZaanZvOHJ1VnQ5R2txN21JSEFrUT09 Meeting ID: 948 8882 6866 Passcode: ICHMGEP
2 nd ICHMGEP Room 2 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/91818811030?pwd=TINoWFBIzUw0SIByLzg2Wk9DU2xBUT09 Meeting ID: 918 1881 1030 Passcode: ICHMGEP
2 nd ICHMGEP room 3 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/95203796535?pwd=YTNoOUFnbGRyckxwM1NCcHloVDE1dz09 Meeting ID: 952 0379 6535 Passcode: ICHMGEP
2 nd ICHMGEP Room 4 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/94764057731?pwd=NWY1S0V1QndjVDdvTkJmeEx0VEINZz09 Meeting ID: 947 6405 7731 Passcode: ICHMGEP
2 nd ICHMGEP room 5 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/97688860031?pwd=L0JtclZtWk1GZfVWsvYwYXFJN3IUUT09 Meeting ID: 976 8886 0031 Passcode: ICHMGEP
2 nd ICHMGEP room 6 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/99125187476?pwd=VzRpMVZiNis2b3JUd3lBcHA0eUZMQT09 Meeting ID: 991 2518 7476 Passcode: ICHMGEP
2 nd ICHMGEP room 7 Sep 12, 2020 08:30 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/98019514967?pwd=U0VIS3hZMG9yU3BKWnRFdFZyeWJRQT09 Meeting ID: 980 1951 4967 Passcode: ICHMGEP

The 2 nd ICHMGEP: Article Coaching Clinic	
Online Article Coaching Clinic September 21 st , 2020 09:00 AM Jakarta	Join Zoom Meeting https://uny-ac-id.zoom.us/j/94010441223?pwd=cGtwVzVXdHRva3B4OXdsdFZpQlVSZz09 Meeting ID: 940 1044 1223 Passcode: ICHMGEP

**RUNDOWN THE 2ND INTERNATIONAL CONFERENCE ON HAZARD MITIGATION
IN GEOGRAPHIC AND EDUCATION PERSPECTIVES (ICHMGEP) 2020**

Platform: Zoom and Youtube

Friday, September 11, 2020		
Time	Program	PIC
03.00-03.10 p.m (Indonesian Time) 04.00-04.10 p.m (Malaysia Time) 09.00-09.10 a.m (UK Time)	Conference Opening Sing National Anthem Indonesia Raya	Committee
03.10-03.20 p.m (Indonesian Time) 04.10-04.20 p.m (Malaysia Time) 09.10-09.20 a.m (UK Time)	Welcoming Speech	Prof. Dr. Margana, M.Hum., M.A. Rector of Universitas Negeri Yogyakarta (UNY)
03.20-03.40 p.m (Indonesian Time) 04.20-04.40 p.m (Malaysia Time) 09.20-09.40 a.m (UK Time)	Plenary Session & Discussion	Dr. Suhadi Purwantara, M.Si. - Associate Professor in Faculty of Social Sciences UNY - Dean of Faculty of Social Sciences UNY
03.40-04.00 p.m (Indonesian Time) 04.40-05.00 p.m (Malaysia Time) 09.40-10.00 a.m (UK Time)		Dr. Danang Sri Hadmoko, S.Si., M.Sc. - Lecturer in Faculty of Geography UGM - Director of Partnership, Alumni and Global Initiatives of UGM
04.00-04.20 p.m (Indonesian Time) 05.00-05.20 p.m (Malaysia Time) 10.00-10.20 a.m (UK Time)		Assoc. Prof. Dr. Mohd Hairry Ibrahim - Associate Professor in Faculty of Social Sciences and Humanities UPSI Dean of Faculty of Social Sciences and Humanities UPSI
04.20-04.40 p.m (Indonesian Time) 05.20-05.40 p.m (Malaysia Time) 10.20-10.40 a.m (UK Time)		Dr. Bayes Ahmed - Lecturer in University College London, United Kingdom
04.40-05.20 p.m (Indonesian Time) 05.40-06.20 p.m (Malaysia Time) 10.40-11.20 a.m (UK Time)		Moderator
05.20-05.30 p.m (Indonesian Time) 06.20-06.30 p.m (Malaysia Time) 11.20-11.30 a.m (UK Time)	Conference Closing	Committee

Platform: Zoom

Saturday, September 12, 2020		
Paralel Session	Presenter	PIC
09.00 a.m - 01.00 p.m (Indonesian Time)	Room 1,2,3,4,5,6,7	Committee

ROOM DISTRIBUTION FOR PARALLEL SESSION
12 September 2020, Platform: Zoom

ROOM 1**Moderator: Diana Trisnawati, S.Pd., M.d****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Dyah Respati Suryo Sumunar	Identification of Spatial Clusters of Covid-19 In Yogyakarta Using Global Moran's Index
2	Edi Nursantosa	Image Pattern Recognition In Spatial Data Using Artificial Neural Network
3	Assriyani	The Roles of Human Geography in Disaster Studies
4	Tanasiva	Tsunami Vulnerability Assessment and Its Implications for Disaster Risk Management in the coastal area of Purworejo Regency
5	Norawit Suwannakarn	Assessment of Human Impact on Flooding for Thai East Coast - Gulf Basin
6	Saegita Adi	Assessment of Soil Erosion Hazard in Prambanan District Using RUSLE (Revised Universal Soil Loss Equation)
7	Muhammad Asrori Indra Wardoyo	Geomorphological Hazard at Some Area of The Outer Dieng Volcanic Complex Post Explosive Eruption Era
8	Nungki Febriliana Wardaya	Student's Level of Understanding on Mobile Learning based Volcano Eruption
9	Husnanda Arief Adhandika	Community Preparedness of The Fire Hazard in Jetis District, Yogyakarta City

ROOM 2**Moderator: Dyah Ayu Anggraheni, M.A****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Kharisma	The Potential of River Discharge at The Peak of the Dry Season in Some Disaster-Prone Area of Merapi Volcano
2	I Gede Tunas	Impact of Extreme Rainfall on Flood Hydrographs
3	Raras Gistha Rosardi	The Role of Village Tourism in Environmental Education and Social Disaster Management
4	Ernawati Tarmizi	Community Education Model Design in Management Household Waste in Padang City
5	Fitria Nucifera	Assessing local community resilience to tsunami in a small port (Case Study: Sadeng Port, Indonesia)
6	Pandhu Yuanjaya	The Local Wisdom of The Tenggerese People to Coexist with Disaster of The Mount Bromo
7	Antonius Ranauria Timur	Current States of Demographic Education for Indonesian Youths: Notes and Challenges
8	Dewi Febriani	Description of the dynamics of the resilience of people victims of the 2018 North Lombok earthquake
9	Eko Sulistyono	Student Satisfaction to the Communication Process During Online Learning in the Covid-19 Pandemic

10	Wahyono	Making Disaster Monument and Mural as Disaster Education to The Community of Padang
11	Irfiani Triastari	Developing Disaster Mitigation Education with Local Wisdom: Exemplified in Indonesia Schools

ROOM 3**Moderator: Danu Eko Agustinova, M.Pd****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Indreswari Suroso	The Analysis of Dry Weather Aerial Photography in Sermo Kulonprogo Reservoir using DJI Spark Drone
2	Salsabila Aulia Putri Zakaria	Seismicity Map to Analyze the Depth and Magnitude Earthquake Zone in Kwandang Area of North Gorontalo Regency
3	Rani Muliarti	Disaster Risk Analysis of Merapi Volcano Eruption in Cangkringan District Sleman Regency
4	Wahyu Sabani	Participatory Mapping of Tsunami Evacuation Routes (Case Study of Karangbenda Village Cilacap Regency)
5	Arif Fahrizal Nugraha	Spatial Evapotranspiration Modeling Assisted With Landsat 8 Image Using Sebal And Geographically Weighted Regression Methods In Magelang District
6	Nazar Nurdin	Perceptions of Youth Religious Understanding of Natural Disaster Resilience and Preparedness
7	Kurnia Nur Fitriana	Disaster Mitigation for Elderly: The Challenges of Social Welfare Services for Elderly in The COVID-19 Pandemic
8	Saryono	Disaster Preparedness in Physical Aspect of Students in Bantul and Balikpapan Indonesia
9	Alifi Nur P N	Disaster mitigation and resiliency learning strategies of teachers during Covid-19 pandemic from several provinces in Indonesia

ROOM 4**Moderator: Benni Setiawan, S.H.I., M.S.I****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Noor Hamidah	The Function of "WHITE BOX" Sterilization in Anticipation of Covid-19 Pandemic Prevention
2	Ratih Probosiwi	Disaster Mitigation for Women: Learn from 2018 Pandeglang Tsunami, Indonesia
3	La Ode Amaluddin	Disaster Mitigation of Dry and Clean Water Crisis in Dana Sub-District Watopute District Muna Regency
4	Hanip Hendra Setyawan	The community adaptation strategy in dealing with landslide disaster in Banaran Village Ponorogo Regency
5	Isnani Nurkholifah	Senior High School Students' Preparedness In Facing Earthquake Disaster
6	Sareta Selaby	Landslide Susceptibility in Majalengka Regency, West Java Province

7	Sasqia Fathaya Syahar	Characteristics of Landslide and Rainfall Areas in Majalengka Regency, West Java Province
8	Fitriana Yuli Saptaningtyas	Determination of the level of seismic hazard in Yogyakarta using fuzzy simple additive weighting method
9	Abdul Latif Rifa Fakhrurozi	Community Resilience Against Tsunami Disaster in the Coastal Areas of Purworejo Regency
10	Westi utami	Settlement Suitability Analysis Based on the Catastrophic Eruption Of Sinabung
11	Marita Ahdiyana	Collaborative Governance in Realizing An Inclusive Workforce for People with Disabilities to Achieve Sustainable Development Goal's

ROOM 5**Moderator: Chatia Hastasari, M.I.Kom****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Triyanto	Strengthening Disaster Literation As An Effort To Reduce The Risk of Disaster In D.I. Yogyakarta society
2	Erry Ersani	Disaster Mitigation Snake and Ladder Game to Improve Earthquake Disaster Preparedness (A Case Study: Yogyakarta 5 Senior High School)
3	Diana Septi Purnama	Development of Pictorial Card "Kencana" (Disaster Preparation) as a Media of Group Guidance Services In SMP N 1 Wonosari
4	Ira Putri Ariyani	School Community Preparedness in Anticipation of Earthquake and Tsunami Threats in Temon Sub-District
5	Bambang Syaeful Hadi	The Effect of Google Earth-Assisted Remote Sensing Learning on Students "Spatial Thinking Ability In Solving Disaster Mitigation Problems"
6	Muhammad Nursa'ban	Spatial Representation Developing Geographical awareness for Disaster Risk Reduction
7	Nurul Khotimah	Spatial Analysis of Covid-19 Distribution: cases studies in Indonesia and Malaysia
8	Pratiwi Wahyu	Kindergarten Teacher Online Resilience in the Implementation of Online Learning in Mlati District of Sleman
9	Arif Ashari	The challenges and obstacles of teaching geography in senior high schools during the COVID-19 pandemic: Lesson learned from several provinces
10	Nurhadi	Developing Sustainable School in the Shadow of Active Stratovolcano: A Study at Disaster-Prone Area of Merapi Volcano

ROOM 6**Moderator: Aris Martiana, M.Si.****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
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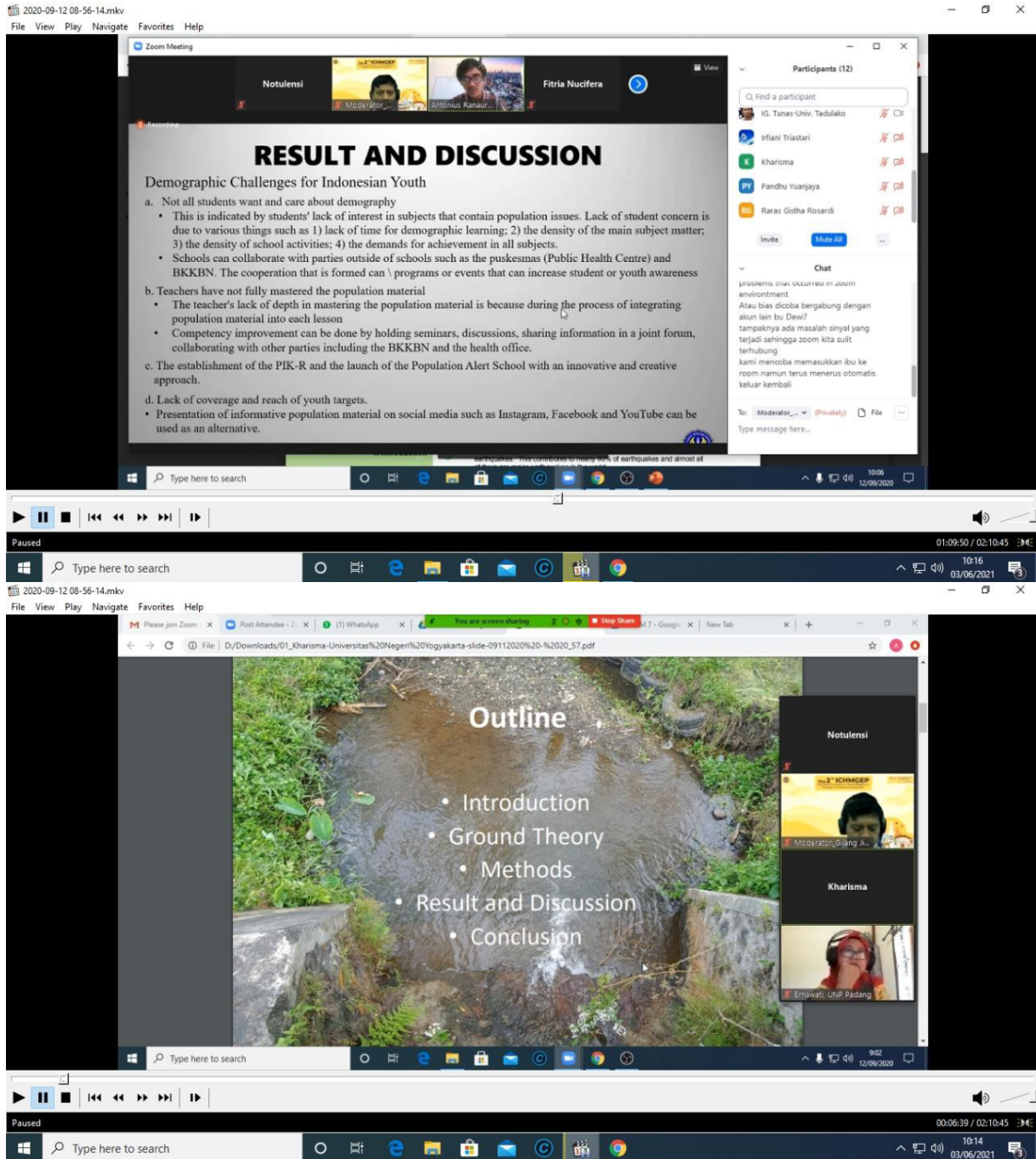
1	Sutanto Trijuni Putro	Commercial Multirotor UAV Campaign on Data Acquisition for Disaster Management
2	Akalili Zhafirah Syarafina	Physical Vulnerability Assessment of Settlements in Lahar Hazard Prone Areas along the River originated from Merapi Volcano
3	Rita Noviani	The Multi-Risk Analysis of Various Disasters in Karanganyar Regency
4	Soni Nopembri	Constructing Student's Physical Preparedness through Game-Based Activities in Disaster-Safe School
5	Amalia Gita Ayudyanti	Impact of Optical Aerosol Depth (AOD) on Light Pollution Level: a spatio-temporal analysis
6	Listyo Yudha Irawan	The Use of Machine Learning for Accessing Landslide Susceptibility Class: Study Case of Kecamatan Pacet, Kabupaten Mojokerto
7	Sukmaniar	Hazard Level of Slum Areas in Palembang City
8	Agnes Putri Devinta	The Utilization of Sentinel-2a And Aster Imagery for Monitoring The Changes Of Public Green Open Space and Oxygen Needs In Sukoharjo Regency In 2004-2019
9	Revi Hernina	Assessment of potential locations for evacuation in Depok Municipality using images from UAV
10	Thitirat Panbamrungkij	A Flood Damage and Shelter Need Assessment: A Case Study of Mueang Sing Buri, Thailand
11	Dinda Zannuba Arifah	Spatial modelling of tsunami exposure areas at Ujung Genteng coastline, Sukabumi, West Java

ROOM 7**Moderator: Gilang Jiwana Adikara, MA****Time: 09.00 a.m – 01.00 p.m**

No	Name	Paper Title
1	Syarif Jamaludin	Rethinking local genius of the Merapi's community in eruption disaster risk reduction. Does it still work?
2	Muhammad Badri	The Risk Communication Disaster of COVID-19 Community Based Through "Keep the Village" Program
3	Sovia Husni Rahmia	Disaster Resilient Village: Building Community-Based Disaster Management in Indonesia
4	Herdiyan Maulana	The Role of Sense of Coherence and Social Capital on Perceived Risk: Salutogenic Model Approach on Flood Survivors in Indonesia
5	Susiana herawati	Effectiveness of Communication to Prevent Covid-19 Transmission: A Case Study of the Kare Village
6	Anggarani Berliana Surindar	Community Preparedness for Tsunami Hazard in Galur District, Kulon Progo Regency, Special Region of Yogyakarta
7	Dwi Harsono	Disaster Rehabilitation for People with Disabilities (PWDs in Facing of COVID-19 Pandemic)
8	Fauziah Latifah	The Preparedness Level of Housewives in Dealing with the Earthquake Disaster in Tempel, Sidomulyo, Bantul

9	Listyati Setyo Palupi	Psychological preparedness for potential disaster of university students in response to covid-19
10	Cahyadi Setiawan	The Relationship Between Socioeconomic Status And Household Water Requirement In Muara Angke Inundation Area, Jakarta
11	Listyati Setyo Palupi	The Impact of Covid-19 Pandemic on the Psychological wellbeing of university students
12	Marinda Indayani	We are getting stronger as we stay longer: the influence of place attachment to urban community
13	Listyati Setyo Palupi	Psychological Preparedness for Potential Disaster of Resident around Lapindo Mud Disaster: A Descriptive Study

Documentation of The virtual conference of The 2nd ICHMGEP 2020





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- **Conference submission management system:**

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- **Number of submissions received:**

The 2nd ICHMGEP 2020 organizers received 83 papers

- **Number of submissions sent for review:**

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- **Number of submissions accepted:**

There were 60 papers accepted for publication

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- **Average number of reviews per paper:**

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- **Any additional info on review process:**



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The Risk Communication of COVID-19 Disaster Community Based Through “Keep the Village” Program

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Abstract. The spread of COVID-19 is increasingly massive and it involves local transmission. Facing these issues, community-based risk reduction is truly needed. This study aims to describe the society-based risk communication for COVID-19 disaster prevention through “Keep the Village” program, called *Jaga Kampung*. This study used a qualitative approach by collecting data through interviews with COVID-19 response volunteers in the *Jaga Kampung* program in Riau Province, Indonesia. This study finds out that the *Jaga Kampung* program has the aim to prevent the spread of COVID-19, maintain security stability, and protect people's food needs. The implementation of these activities involves the collaboration of communication actors from the police and the army who works in the village, village leader, village health worker, society leader, and volunteer. The officers of *Jaga Kampung* convey education and socialization of health risks humanistic and persuasively to villagers and newcomers. Communication is done through face-to-face, outdoor media, and social media such as WhatsApp, Facebook, YouTube, and Instagram. This community-based risk communication can increase society's participation in the prevention of COVID-19 so that the health and socio-economy of society is maintained.

Keywords: Risk communication, COVID-19, Community, Keep the village.

1. Introduction

The Law of the Republic of Indonesia Number 24 of 2007 concerning Disaster Management places the epidemic of disease as non-natural disasters, namely the disasters caused by non-natural events or series of events [1]. The Coronavirus disease (COVID-19) pandemic is a non-natural disaster that has recently damaged people's lives. Moreover, the spread of COVID-19 is no longer between countries and regions, however, it has involved the local transmission. The risk of transmission has also begun to threaten rural societies. Facing this phenomenon, the reduction of COVID-19 risk at the society level is very essential.

Considering this pandemic situation, strong risk communication is needed especially in the affected countries [2]. Understanding risk is a systematic way of dealing with handling the hazards and insecurities [3]. Awareness of risks is the best way to prevent and slow down the transmission of the COVID-19 pandemic. Risk awareness is achieved through risk assessment communication [4]. Knowledge about risk exists in a social context and is connected to the actor's activities [5].

One way to reduce risk at the village level is through community-based prevention of COVID-19. The program to protect villages from COVID-19 is widely implemented in various regions in Indonesia, one of which is in Riau Province, with “Keep the Village” program (called *Jaga Kampung*).



Jaga Kampung is a socialization and education activity aimed at preventing the transmission of COVID-19 in village areas. This concept emphasizes the importance of preventing COVID-19 through communication and educational activities by communication actors from government elements and volunteers at the village level. The *Jaga Kampung* activity is also expanded through a food security program.

COVID-19 risk communication at the village level is needed to address information gaps and misinformation. It is due to the era of social media, information related to COVID-19 can be disseminated to the wider community through various media to create private information spaces for the public [6]. As a result, the public gains information from many informal and anonymous sources whose accuracy and the fact cannot be guaranteed. Through society-based communication, the residents discover who the communicator is, can measure their credibility, so that communication on COVID-19 prevention is expected to be more effective.

Disease knowledge and awareness, in addition to risk perception, are determining factors in how people respond to and engage in preventive behavior [7]. In general, there are four objectives of risk communication: (1) Ensure that all message recipients are able to understand its content and increase their knowledge of the risks; (2) Build a trusting relationship between senders and recipients of risk messages; (3) Persuade recipients of messages to change their attitudes or behavior regarding the causes of risk; and (4) Provide space for the involvement of stakeholder which is effective on risk issues [8].

One of the important factors in disaster management is communication between the government and the affected communities. Communication should not only happen in an emergency. Indeed before a disaster, contextual communication must be needed by educating the public about the threats faced. There are three things that must be precise in communicating with the affected society, namely: (1) the content of the message (information), (2) the communication media used, and (3) the speed of sending information [9].

Effective risk communication is very important in risk management to build public confidence in the government's ability to face risks [10]. In the study of disaster risk communication in rural areas, communication is positioned as a dialogue and knowledge exchange to facilitate risk understanding and decision making. Thus, it is recommended to build existing strengths in the society, collaborative partnerships with local organizations, local media usage, empower local organizations, and accommodate the needs of rural communities [11].

Several previous studies related to COVID-19 risk communication explained that a good level of knowledge of COVID-19 indicates a high-risk perception of the disease [7]. Efficient strategies that rely on socio-economic factors in which it should be further enhanced in countries, regions, and cities with serious epidemics [15]. To develop a local-level response strategy, democratic access to information, and participatory decision-making is needed [4]. Considering the differences in response capabilities between urban and rural areas, it is imperative to develop action plans, response scenarios, and strategies to optimize the use of the equipment and human resources in the fight against COVID-19 [16]. The publicity service of Village society in preventing COVID-19 has a major impact on society [6].

Many research-related to COVID-19 prevention has not been discussed yet about society-based risk communication approaches at the village level. This study aims to describe society-based risk communication for COVID-19 prevention through the *Jaga Kampung* activity. This research is conducted to cover the research gap on COVID-19 prevention communication at the village level. The *Jaga Kampung* program is interesting to be discussed because the model of risk reduction for COVID-19 is not limited to disease transmission factors, but it also food security factors to maintain the socio-economic immunity of the society.

2. Method

This study used a qualitative approach by collecting data through online interviews with COVID-19 response volunteers in the *Jaga Kampung* program in Riau Province, Indonesia. The research subjects

were those involved in the *Jaga Kampung* program in the border areas. The assumption is the border area is the vulnerable area to the transmission of COVID-19. The data that had been collected, it was analyzed and presented descriptively together with secondary data from the news of mass dealing with *Jaga Kampung*.

3. Result and Discussion

The *Jaga Kampung* program is an implementation of the archipelago tough village program (called *Kampung Tangguh Nusantara*) launched by the Chief of the Indonesian Police and the Commander of the Indonesian National Army, in the context of handling COVID-19 in the health, security and socio-economic fields. The name of the program at the regional level is adjusted to the socio-cultural community. The aim of the program is to prevent the spread of COVID-19, maintain the stability of society security, and protect food needs by empowering the land. The Indonesian Police Chief stated:

“We hope that the whole society to the RT/ RW level (neighborhood and hamlet level) will participate in preventing the transmission of COVID-19. We are optimistic that if the RT level is already strong then Indonesia will be strong.” [17]

The social movement of *Jaga Kampung* is carried out in a structured manner through the command line down to police personnel who are tasked with fostering community security and order at the village level (called *Bhabinkamtibmas*) and soldiers tasked with fostering village societies (called *Babinsa*). The implementation of these activities involves village leaders, community leaders, health workers, and village volunteers. The *Jaga Kampung* team routinely educates the public to comply with health protocols and socializes the importance of providing handwashing facilities in every home, maintaining distance, and wearing masks when going outside [18]. Apart from involving society, the *Jaga Kampung* program also links to the company's Corporate Social Responsibility (CSR) activities with society, especially to assist the production of food crops [19].

3.1. *Jaga Kampung* as an Educational Arena for COVID-19

Jaga Kampung is said to be the front line for COVID-19 prevention at the village level. To support the implementation of Keep Village, a guard post has been established at the village entrance. The post is guarded by *Bhabinkamtibmas*, *Babinsa*, village leaders, health workers, and volunteers, alternately. The post of *Jaga Kampung* is an arena for educational activities to the public about all things related to COVID-19.

The *Jaga Kampung* team conducts educational activities on the use of masks, washing hands using soap, maintaining distance, not crowding, and other COVID-19 prevention health protocols. Education is carried out directly (face to face) with the society, through outdoor media, and through social media. Direct education through outreach to family, neighbors, and residents. Outdoor media through banners posted at various strategic points in the village. Education on social media using WhatsApp and creating creative content on Facebook, YouTube, and Instagram which is followed by the residents.

The COVID-19 educational material is provided by the Indonesian government through the COVID-19 Handling Task Force (called the COVID-19 Task Force) and can be accessed on its official website (<https://covid19.go.id>). The COVID-19 Task Force provides more than 300 educational materials aimed at groups of people at risk, the general public, parents, health workers, religious and community leaders, teachers and students, mothers and children, travelers, and business people. Educational materials in the form of narration, images, and audiovisuals, with content tailored to the target group.

Official educational materials from the COVID-19 Task Force can be downloaded and distributed to the public. In addition, parties with an interest in educating COVID-19 can modify and develop creativity in reproducing educational content. The delivery of educational messages, both face-to-face and through the media, is adjusted to the socio-cultural aspects of the community, such as the use of local languages, local social norms, local culture, and local wisdom.

The education that is most often carried out is reminding the public about the importance of washing hands and using masks. People who are not used to wearing masks often neglect not to wear

masks when they go outside. It is important that messages like this are continuously conveyed so that the public has awareness of the importance of masks to prevent transmission of COVID-19. Moreover, the research also found that wearing masks throughout the community can contribute to the control of COVID-19 by reducing the emission of infected saliva [20]. Meanwhile, increasing the awareness of the population about handwashing will provide the greatest benefit for reducing the pandemic [21]. The research informant said:

“Public awareness grows because we often urge it to prevent COVID-19. The message that we often convey is that the public will be more disciplined and orderly in the rules of the new normal era by still paying attention to health protocols, such as washing hands frequently and using masks.”



Covid-19 education at the village level, such as that carried out by the *Jaga Kampung* team, is relatively effective in preventing the spread of the virus. At the time this article was written, the village that was the research location had not experienced a positive case of COVID-19. The COVID-19 cluster, which continues to increase in Riau Province from June to August 2020, generally clusters of transmission in offices, companies, and urban areas. Dealing with this phenomenon, an inclusive and community-based approach to public health resilience and preparedness is urgently needed [25].

3.2. The Model of Risk Communication for the Prevention of COVID-19

Risk communication is one way to protect and reduce risks faced by society [12]. With risk communication, there will be an exchange of assessments, estimates, and opinions about hazards and risks among the various stakeholders involved [13]. Professionals and risk researchers consider public participation in risk assessment and management important [14]. People-centered risk communication is more effective than top-down government communication approaches. Risk communication must utilize the social networks that already exist in society because it has a significant effect on taking protective action [22].

Risk communication in *Jaga Kampung* is carried out through a persuasive approach. Persuasive communication puts forward a strategy of inviting, not coercing. Persuasive communication is in accordance with the characteristics of the people of Riau, who generally have a Malay culture, namely avoiding conflict, being soft, tolerant, and peaceful. The *Jaga Kampung* team delivers messages on the risk of COVID-19 to the community passing the *Jaga Kampung* post.

In addition, the team on duty also visit the houses and stalls to convey health protocols to residents. If there are residents from outside the village who come to the village, they are required to report to the *Jaga Kampung* post to undergo temperature checks and health checks. The society has also not

been allowed to hold activities that invite crowds, such as weddings, because they have the potential to trigger transmission. This research informant said:

“When conducting socialization and educating the public to always pay attention to health protocols, we use a humanist communication approach, including when warning residents not to get together.”

This humanist and persuasive approach make communication to be more effective because there is no resistance from residents. The society receives the *Jaga Kampung* team well and participates in the success of preventing COVID-19. In fact, many residents and shop owners have the awareness to build an independent handwashing place in front of their house or place of business. When in early August 2020, Riau Province experienced a spike in COVID-19 cases, *Jaga Kampung* officers intensified their communication activities and sprayed disinfectants.

Reducing the risk of COVID-19 through *Jaga Kampung* also targets food security. The activities include planting food crops on village-owned land and unused society lands. The goal is to create food security at the community level and revive the society's economy. Planting activities are carried out in mutual cooperation with society. Mutual Assistance is a distinctive culture of the Indonesian people and is an important social asset to overcome COVID-19 [23]. The crops are then distributed to people who need them to reduce the cost of spending on food.

The issue of economic risk needs to be considered because the economic recovery is expected to be long-lasting [24]. Facing this condition, Indonesia needs to strengthen economic resilience [25]. Moreover, COVID-19 pandemic is likely to affect global food supplies [26]. It is hoped that this model of maintaining food supply at the village level will strengthen the food security of society. If the majority of villages in Indonesia, even globally, are able to do this, it can reduce the burden on countries that are threatened with the economic recession.

The construction of a risk communication model for COVID-19 prevention through *Jaga Kampung* can be seen as a collaborative model involving the police (*Bhabinkamtibmas*), soldiers (*Babinsa*), village leaders, village health workers, community leaders, and volunteers. The message conveyed was in the form of health risks and socio-economic risks due to COVID-19. The communication channel, the *Jaga Kampung* post as the main arena, is implemented through interpersonal communication and social media. The message delivery strategy is persuasive and humanist. The target audience is the villagers and outsiders who come. Communication feedback is in the form of community participation who are volunteering to be involved in preventing COVID-19. The expected effect is a reduction in the risk of COVID-19 and socio-economic immunity.

This village-level communication model is similar to that of rural communities in China, in which both of them involve volunteers and the police, through face-to-face communication, persuasion, with the aim of prevention. Communication channels are also interpersonal and multimedia. This type of communication has strong direction, interaction frequency, and high feedback. This model is considered to be the most effective for COVID-19 communication [6]. The difference is, *Jaga Kampung's* communication does not involve party members and it does not use coercive strategies.

4. Conclusion

The “Keep the Village” program model is one of the best practices in society-based risk communication for COVID-19 disaster prevention. This is in accordance with the program's mission, to create the resilience of society against COVID-19 which will have implications for resilience at the national level. The success of risk communication at the village level is determined by a humanist and persuasive communication strategy, through education, not through implementation. This approach model can create public awareness to comply with health protocols, as well as participate in COVID-19 prevention activities. The idea of society-based COVID-19 disaster risk reduction is interesting to disseminate because the context of its activities is not only on health issues but it also concerns the security and socio-economic issues. In the future, security and socio-economic issues are important to pay attention to because the effects of the COVID-19 pandemic are not only on public health but also on the security and economic resilience of a country.

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