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APRU
Multi-
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PROCEEDING

16th APRU MULTI-HAZARDS SYMPOSIUM 2021

"Building Partnerships for Sustainable
Disaster Risk Reduction (DRR) for All Hazards"

November 24th -25th, 2021

PROCEEDING BOOK OF

16th APRU MULTI-HAZARDS SYMPOSIUM 2021

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Universitas Indonesia, November 24th-25th, 2021

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"Building Partnerships for Sustainable Disaster Risk Reduction (DRR) for All Hazards"

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Pusat Pengurangan Risiko Bencana

Disaster Risk Reduction Center

Universitas Indonesia

Editorial Staff

Integrated Laboratory and Research Centre Building,

2nd Floor Kampus Baru UI Depok 16424, Indonesia

Phone: 0822-9889-0694

Email: drrc@ui.ac.id

Web: drrc.ui.ac.id

1st Publication on November 2021

Welcome Remarks from the Rector of Universitas Indonesia for the APRU Multi-Hazards Symposium

Welcome!

As you may know, 40% of the world's natural disaster events and 90% of the world's earthquakes occur in the Asia-Pacific region. In the region where disasters are inevitable, improving the coordination and sharing knowledge across borders is essential to deliver effective disaster reduction measures.

As the Rector of Universitas Indonesia, I am delighted to invite and welcome you to the 16th APRU Multi-Hazards Symposium 2021. This year, the 16th APRU Multi-Hazards Symposium 2021 is held online through a virtual platform due to the current global health conditions as well as various travel restrictions both inside and outside of the country. Thus, we came up with the decision to host this symposium online from 24th to 25th November 2021 because we believe that holding the conference through the virtual platform will not only ensure the health and safety of all the individuals involved, but also provide a more accessible symposium for everyone across the globe.

The objective of the 16th APRU Association of Pacific Rim Universities (APRU) Multi-Hazards Symposium is to provide a platform that facilitates APRU members, partners, academics, policy leaders, government, and communities to collaborate in disaster risk reduction and recovery. Indeed, it is also a forum to share expertise regarding disaster mitigation among some of the most vulnerable countries in order to establish a more resilient region, particularly in the Asia-Pacific region. During the symposium, I believe that the sharing of challenges and opportunities related to disaster risk reduction, as well as the panel sessions, can raise awareness of current and future issues concerning disaster risk reduction.

In the virtual symposium, a wide range of current topics in Disaster management issues from multiple perspectives will be discussed in both keynote speeches and parallel sessions.

We invite you to join this symposium to meet, discuss, connect and enhance professional network within the area of disaster risk management.

We hope that you will enjoy the symposium while connecting with international academics, policy leaders, researchers, and students across the globe.

Thank you!

Sincerely yours,
Prof. Ari Kuncoro, S.E., M.A., Ph.D.
Rector of Universitas Indonesia

Welcome Remarks by the Secretary General of APRU

On behalf of APRU, I welcome you to the 16th Annual APRU Multi-Hazards Symposium.

We are a network of 61 leading research universities around the Pacific Ocean, linking Asia, North and South Americas and Australasia, working together on the challenges facing across the region.

The APRU Multi-Hazards Program is one of our most successful and long-standing programs that addresses all-hazards approaches, disaster recovery and mitigations.

This year's conference theme "Building Partnerships for Sustainable Disaster Risk Reduction for All Hazards" highlights the importance of an all-hazards approach. It focuses on strengthening resilience and preparedness for future disaster management including natural and biological hazards such as we are experiencing right now with COVID-19. The UN Office for Disaster Risk Reduction (UNDRR) Strategic Framework 2022-2025 emphasizes that the world is changing. We must commit to addressing this accelerating transformation through our actions. As part of this, close integration of the DRR agenda with the climate agenda helps contribute towards comprehensive risk management and the advancement of the Sendai Framework (UNDRR, 2021).

The multidisciplinary nature of this symposium is attested to by the subsidiary themes of crisis management, innovative infrastructure, and sustainability. As a higher education network with research expertise across a very diverse region, we harness the collective capabilities of APRU universities for cutting-edge research to address such global challenges. One way we do this is by partnering with international organizations, the public and private sectors, and NGOs in policy development and raising public awareness.

The COVID-19 pandemic has presented our societies with cross-border crises which demand that we shape the new normal together. APRU as an international network is well-positioned to be highly effective in doing this.

We are very grateful to colleagues at Universitas Indonesia for their commitment and hard work in hosting this the annual symposium. Our appreciation goes to Professor Ari Kuncoro, Rector of the University, for his strong support, as well as

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to the scientific committee and organizing team at the Disaster Risk Reduction Center. We also thank Professor Fumihiko Imamura, Director of IRIDeS at Tohoku University, and Professor Osamu Murao and Dr Takako Izumi, APRU Multi-Hazards Program Chair and Director, for their collective leadership, and the program core group for their consultation over the past year.

I wish you a productive and fruitful event.

Dr. Christopher Tremewan

Secretary-General APRU

Welcome Remarks from the Symposium Chair

Greetings!

On behalf of the organizing and scientific committee the of 16th APRU Multi-Hazards Symposium 2021, I am delighted to welcome you to this event.

This year, the 16th APRU Multi-Hazards Symposium 2021 is held online through an online virtual platform due to current global health concerns, both inside and outside of the country and various travel restrictions. We came up with the decision to host this symposium online because we believe that holding the conference through the virtual platform will ensure the health and safety of all the individuals involved, as well as providing a more accessible Symposium for all.

This year, a wide range of current topics in Disaster management issues from multiple perspectives will be discussed in both keynote speech sessions and symposium sessions. With the theme of "Building Partnerships for Sustainable Disaster Risk Reduction (DRR) for All Hazards", we have adopted 10 sub-topics that will be discussed in the parallel sessions of the symposium. The 10 Sub-topics are:

1. Engineering and Infrastructures in Disaster;
2. Natural Hazards Triggering Technological Disasters (NaTech);
3. Pandemics and Public Health Issues;
4. Disaster Mitigation: Policies, Practices and Alternatives;
5. Emergency and Crisis Management;
6. Business Continuity Management and Disaster Insurance;
7. Social Science Perspective in Disaster;
8. Statistical and Modelling Tools for Disaster Management;
9. Community Empowerment for DRR;
10. Media and communication;

From the call for abstracts on these 10 sub-topics, we have received and reviewed more than 350 abstracts, full papers, and participants from across the globe. We are also able to collaborate with various national and international journals in helping scholars, academicians, and general public with their scientific publications.

Finally, we would like to express our utmost gratitude to all parties involved, because this event is a result of collaboration between multiple national and international

parties that took extra care to ensure a smooth conference through your important feedbacks and cooperation. It is expected that with these efforts, the 16th APRU Multi-Hazards Symposium 2021 will be an insightful event which provides valuable experience for everyone involved.

We hope that you enjoy this event to the fullest. Thank you.

Sincerely yours,
Prof. dra. Fatma Lestari, M.Si., Ph.D.
Symposium Chairperson

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Pandemics and Public Health Issues

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Emergency and Crisis Management

Business Continuity Management and Disaster Insurance

Social Science Perspective in Disaster

Statistical and Modelling Tools for Disaster Management

Community Empowerment for DRR

Media and Communications

POSTER PRESENTATION ABSTRACTS

Disaster Mitigation: Policies, Practices, and Alternatives

Emergency and Crisis Management

ABSTRACTS SUBMITTED TO THE SYMPOSIUM

ABSTRACT OF ORAL PRESENTATIONS

Disaster Mitigation: Policies, Practices and Alternatives

Emergency and Crisis Management

Social Science Perspectives in Disaster

ABSTRACTS OF POSTER PRESENTATIONS

Disaster Mitigation: Policies, Practices and Alternatives

Social Science Perspective in Disaster

Community Empowerment for DRR

Media and Communication

About APRU

As a network of 61 leading universities linking the Americas, Asia and Australasia, the Association of Pacific Rim Universities (APRU) brings together thought leaders, researchers, and policy-makers to exchange ideas and collaborate on effective solutions to the challenges of the 21st century.

We leverage collective education and research capabilities of our members into the international public policy process. In the post-pandemic era, our strategic priorities focus on providing a neutral platform for high-level policy dialogue, taking actions on climate change, and supporting diversity, inclusion, and minorities. APRU's primary activities support these strategic priorities with a focus on key areas such as disaster risk reduction, women in leadership, indigenous knowledge, population aging, global health, sustainable cities, artificial intelligence, waste management and more.

Universitas Indonesia

Universitas Indonesia (UI) is a modern, comprehensive, open, and multi-cultural university upholding humanism values that covers a wide range of scientific disciplines. UI was founded in 1849, representing a long-established higher education institution in Asia. UI is strategically located in two campus areas; Salemba and Depok. Most of the faculties are located in the city of Depok on 320 hectares areas of greeneries, with only 25% of the land is used for academic, research, and student facilities. The remaining 75% of the land is used to support the ecosystem in the form of an urban forest, an area that promises a vibrant campus life within a peaceful atmosphere.

UI strives to become one of the leading research universities in the region and the world. As a research university, UI is consistently committed to knowledge discovery, development, and transfer to bring positive impact in many different ways. Simultaneously, UI strengthens its capacity and efforts in the field of academic and research activities through a number of disciplines within its scope.

Having produced more than 400,000 alumni, UI continues to play an important role at the national and international levels. UI is now moving forward to becoming an entrepreneurial university characterized by a strong research tradition embedded into transformative innovation and collaborative endeavors with key stakeholders while maintaining quality and accessible education for the nation as the university's pivotal task. Universitas Indonesia's global presence is founded upon mutual engagements with many world-renowned universities and institutions in research, education, and community services. In addition, UI is currently strengthening its collaboration with several education and research associations including the Association of Pacific Rim Universities (APRU).

UI has been a member of APRU since the association was first established in 1997 and has been actively involved in various fields which are parts of APRU's concerns, including on the issues of multi-hazards. This year, along together with Disaster Risk

Reduction Center, UI becomes the host of the 16th APRU Multi-hazards Symposium: Building Partnerships for Sustainable Disaster Risk Reduction (DRR) for All Hazards to demonstrate its commitment in research activities and in facilitating a global dialogue in Disaster Management.

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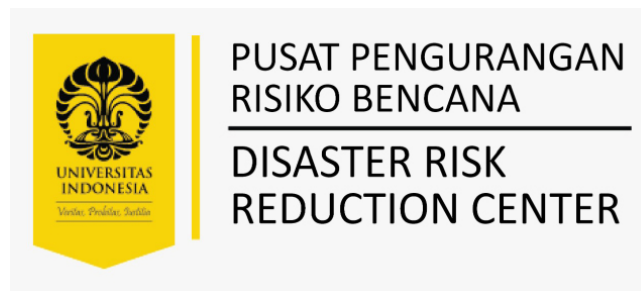
Disaster Risk Reduction Center (DRRC) Universitas Indonesia was established in 2014. It was previously known as the Disaster Research & Response Centre (DRRC) or *Pusat Riset & Respons Bencana* (PRRB) Universitas Indonesia. This center was officially established through the issuance of the Rector Decree No. 0140A/SK/R/UI/2014 on establishment of the Disaster Research & Response Centre (DRRC) or *Pusat Riset dan Respons Bencana* Universitas Indonesia on Februari 4, 2014. The first organizational structure of DRRC UI was stipulated in Rector Decree No. 3465/SK/R/UI/2014 on Organizational Structure of Disaster Research and Response Center or *Pusat Riset dan Respon Bencana* (PRRB) Universitas Indonesia dated 13 November 2014.

In 2021, the DRRC UI's name has been changed from Disaster Research & Response Centre Universitas Indonesia to Disaster Risk Reduction Center Universitas Indonesia, while maintaining the abbreviation of "DRRC UI".

The DRRC has the vision to become a center of excellence for disaster management assessment and community services, which is able to mobilize resources for implementing disaster and crisis responses in Indonesia.

PROGRAM SCHEDULE

DAY 1: NOVEMBER 24th, 2021

Time (Jakarta Time)	Agenda
	Introduction
08.00-08.20 AM	• UI-DRRC-APRU Video Profiles-Cultural events
08.20-08.25 AM	• Safety Induction
08.25-08.30 AM	• Indonesia Raya
	Opening Speech
08.30-08.35 AM	• Prof. Ari Kuncoro, S.E., M.A., Ph.D. (Rector of Universitas Indonesia)
08.35-08.40 AM	• Dr. Christopher Tremewan (Secretary General of APRU)
08.40-08.45 AM	• Prof. Takako Izumi (Program Director APRU Multi Hazards & Tohoku University)
08.45-08.50 AM	• Dr. Raditya Jati, S.Si., M.Si. (Indonesian National Board for Disaster Management - BNPB)
	Keynote Session 1
08.50-08.55 AM	• Introduction by moderator (Prof. Natt Leelawat - Chulalongkorn University)
08.55-09.10 AM	• Prof. dra. Fatma Lestari, M.Si., Ph.D. (Universitas Indonesia)
09.10-09.25 AM	• Mr. Ardito M Kodijat (UNESCO Jakarta)
09.25-09.40 AM	• Prof. Fumihiko Imamura, Ph.D. (IRIDeS Tohoku University)
09.40-09.55 AM	Poster Display - Break
	Panel Discussion
09.55-10.00 AM	• Introduction by moderator (Prof. Takako Izumi - Program Director APRU Multi Hazards & Tohoku University)
10.00-10.30 AM	• Prof. Dr. Riyanti Djalante (ASEAN)
10.30-11.00 AM	• Prof. Rajib Shaw (Keio University)
11.00-11.15 AM	Video - Break (Video playback "Disaster Lessons Learn from Indonesia")
11.15 AM-01.00 PM	Poster Display - Break
	PARALLEL SESSIONS
01.00-02.00 PM	Room 1- 16 Oral Presentation | Room 17 Poster Presentation
02.00-03.00 PM	Room 1- 16 Oral Presentation
03.00-04.00 PM	Room 1- 16 Oral Presentation

DAY 2: NOVEMBER 25th, 2021

Time (Jakarta Time)	Agenda
08.30-09.00 AM	**Cultural Events (Video Cultural Events & Learning from Disasters)**
	Keynote Session 2
09.00-09.05 AM	• Introduction by moderator (Prof. dra. Fatma Lestari, M.Si., Ph.D. - Universitas Indonesia)
09.05-09.35 AM	• Mizan Bustanul Fuady Bisri, Ph.D (U-Inspire Indonesia)
09.35-10.05 AM	• R. Alexander Hamilton, Ph.D. (UNICRI)
10.05-10.35 AM	• Prof. Karl Kim (University of Hawaii at Manoa)
10.35-11.05 AM	• Prof. Ir. Dwikorita Karnawati, M.Sc. Ph.D. (Head of BMKG Indonesia)
11.05-11.20 AM	**Break (Video Cultural Events & Learning from Disasters)**
11.20-11.50 AM	**Awards Announcement**
11.50-11.55 AM	**2022 Symposium Announcement (Chulalongkorn University)**
11.55-12.00 AM	**Closing Ceremony**

SPEAKERS

DAY 1: NOVEMBER 24th, 2021

Opening

Prof. Ari Kuncoro, S.E., M.A., Ph.D.
(Rector of Universitas Indonesia)

Dr. Christopher Tremewan
(Secretary General of APRU)

Prof. Takako Izumi
(Program Director APRU Multi Hazards)

Dr. Raditya Jati, S.Si., M.Si.
(Indonesian National Board for Disaster Management - BNPB)

Keynote Session 1

Prof. dra. Fatma Lestari, M.Si., Ph.D.
(Universitas Indonesia)

Mr. Ardito M Kodijat
(UNESCO Jakarta)

Prof. Fumihiko Imamura, Ph.D.
(IRIDes Tohoku University)

Moderator
Prof. Natt Leelawat
(Chulalongkorn University)

Panel Discussion

Prof. Dr. Riyanti Djalante
(ASEAN)

Prof. Rajib Shaw
Keio University

Moderator
Prof. Takako Izumi
(Tohoku University)

DAY 2: NOVEMBER 25th, 2021

Keynote Session 2

Mizan Bustanul Fuady Bisri, Ph.D.
(U-Inspire Indonesia)

Prof. Dwikorita Karnawati, Ph.D.
(Head of BMKG Indonesia)

R. Alexander Hamilton, Ph.D.
(UNICRI)

Moderator
Prof. dra. Fatma Lestari, M.Si., Ph.D.
(Universitas Indonesia)

Prof. Karl Kim, Ph.D.
(University of Hawaii)

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ABSTRACTS PRESENTED AT THE SYMPOSIUM

ORAL PRESENTATION ABSTRACTS

Engineering and Infrastructures in Disasters

Temporary Refuge Areas in Case of Earthquake: Engineering Design, Implementation and Policy Experiences in Quito, Ecuador

Fabricio Yepez, Juan P. Villacreses

Universidad San Francisco de Quito
Corresponding author's email address: fyepez@usfq.edu.ec

Abstract

The engineering design, location, and implementation of the temporary refuge areas (TRAs) in cases of earthquake for Quito – Ecuador is presented as a part of a general seismic risk program of the city. TRAs are open areas where people in the city could go to get help from the government and other agencies after a big earthquake strikes the city and people do not have any place to go. These areas must be easy to access, safe, and able to supply water, electricity, first aid and communications to the refugees during the first few days after earthquake. In these cases, the city was divided into regions and TRA locations were chosen with considerations on various technical, population, access, and logistic aspects. Necessary infrastructures in TRAs were designed to manage aid provisions and to store emergency equipment. Pilot TRA areas in the city were built and information about them was disseminated to the population. Years after, this disaster management activity is evaluated and various mistakes are elaborated in order to avoid them in the future.

Keywords: Refugee areas, earthquake, disaster management, risk policy.

Meta-ID: 442

Analysis of Pressure Vessel Safety Inspection Based on the Regulation of the Indonesian Minister of Manpower No. 37 of 2016

Maududi Farabi[1], Mila Tejamaya[2]

Departement of Occupational Health and Safety, Public Health Faculty, University of Indonesia, Indonesia
Corresponding author's email address: tejamaya@ui.ac.id

Abstract

Pressure vessels are the most widely used equipment in almost all workplaces in the industrial sector. The high number of pressure vessels used, which reaches 271,611 units or 48% higher than other equipment, has made them important objects in occupational health and safety (OHS) supervision. Every pressure vessel must be inspected to ensure its safety during use. However, occupational pressure vessels' accidents still occur despite the safety inspection done. The low quality of the implementation pressure vessel safety inspection can increase the risk of pressure vessel accidents. The purpose of this paper is to analyze the pressure vessel safety inspections' parameters stated in the Regulation of Indonesian Minister of Manpower (Permenaker) No. 37 of 2016 and compare them with other pressure vessel safety inspection standards, such as (ASME) Section VIII Division I part UG – 90 and the American Petroleum Institute (API) 510. This study used the literature review method with extraction tables with the narrative analysis technique. The results of the study indicates that pressure vessel safety inspections' parameters that have been accommodated in Permenaker No. 37 of 2016 are (1) inspection of documents, technical drawings, material and administrative certificates; (2) inspection of safety requirements and feasibility of pressure vessel components including safety devices; (3) measurement of pressure vessel dimensions; (4) non-destructive testing; (5) hyrostatic test; and (6) construction strength calculation. Several pressure vessel safety inspections' parameters that have not been accommodated in the regulation are (1) inspection planning; (2) risk-based inspection (RBI); (3) inspection preparation (based on API 510); (4) determination of the maximum permissible working pressure (MAWP); and (5) proof test (based ASME section VIII part UG-90). Hazard Operability Studies (HAZOPS) on processes that use pressure vessels also need to be carried out to ensure the safety and reliability of the pressure vessel.

Keywords: Pressure vessel, safety inspection, Regulation of Indonesian Minister Manpower No. 37 of 2016

Correspondence Address: Mila Tejamaya, Departement of Occupational Health and Safety, Public Health Faculty,
University of Indonesia Kampus Baru UI Depok - West Java 16424, Indonesia, E-mail : tejamaya@ui.ac.id

Challenges in Building Sustainable System for Resilience and Innovation in Coastal Community

Nobuhito Mori[1]*, Anawat Suppasri[2], Kojiro Suzuki[3] and Taro Arikawa[4]
and SATREPS-Indonesia team

[1]Kyoto University, Japan
[2]Tohoku University, Japan
[3]Port and Airport Research Institute, Japan
[4]Chuo University, Japan
*Corresponding author's email address: mori@oceanwave.jp

Abstract

We have launched a new research project developing green infrastructures/eco-disaster risk reduction (Eco-DRR) using the sandy beach and mangrove targeting Indonesia supported by JICA/JST since 2021. The project aims at (1) developing a monitoring system for coastal waves, currents, and beach morphology in different time scales from days, weeks, to years; (2) developing hazard models and multi-hazard risk assessment models for different intensity and probabilities; (3) making guidelines for the implementation of green infrastructures and existing natural barriers (e.g., coral reefs, small islands, dunes, sand bars, etc.) in integration with gray infrastructures depending on hazard characteristics; and (4) developing local communities' literacy on coastal areas and a consensus-building method based on the model.

Thus, to achieve the Sustainable Development Goals, monitoring, risk assessment, and sustainable systems for coastal areas will be established through science, technology, and innovative approaches.

Keywords: Coastal hazard, green infrastructures, sustainable development

Preliminary Result of Rheological Modeling of 2018 Lombok Earthquake Sequence Based on GPS Data

Risya Fauziyyah[1], Endra Gunawan[2], Sri Widiyantoro[2,3], Irwan Meilano[4], Syamsuddin[5]

[1] Geophysical Engineering, Faculty of Mining and Petroleum Engineering,
Institut Teknologi Bandung, Indonesia
[2] Global Geophysics Research Group, Faculty of Mining and Petroleum Engineering,
Institut Teknologi Bandung, Indonesia
[3] Faculty of Engineering, Maranatha Christian University, Indonesia
[4] Geodesy and Geomatics Engineering, Faculty of Earth Science and Technology,
Institut Teknologi Bandung, Indonesia
[5] Physics Department, Faculty of Mathematic and Natural Sciences, University of Mataram, Indonesia
Email: fauziyyahrisya@gmail.com

Abstract

A series of earthquakes struck the northern region of Lombok from July to August 2018 due to the tectonic processes of an east-west trending fault beneath the northern part of Lombok Island with thrust fault mechanism. The responsible fault of the 2018 Lombok earthquake sequence is a parallel fault structure with the Flores thrust located further south towards Lombok. This study aims to investigate the postseismic deformation of the 2018 Lombok earthquake sequence using 2.5 years of Global Positioning System (GPS) data. A continuous GPS network was installed soon after the 2018 earthquake sequence with GPS stations located in northern Lombok. A postseismic deformation strategy analysis was performed to simultaneously quantify the multiple mechanisms of afterslip and viscoelastic relaxation. While afterslip occurs in the elastic region surrounding the fault, the viscoelastic relaxation occurs in the asthenosphere. We used the gravitational Maxwell viscoelastic response in our rheology model, and obtained a preliminary model of an elastic layer thickness, i.e. 55 km, and the Maxwell viscosity of 8.0×10^{17} Pa s. This study highlights the importance contribution of GPS data for investigating afterslip and viscoelastic relaxation of the 2018 Lombok earthquake sequence.

Keywords: 2018 Lombok earthquake sequence, afterslip, viscoelastic relaxation, rheology model, GPS.

Numerical Study of Elevated RC Pile Cap Group Fondation in Cohesionless Soil

Fathia Handayani Kamal[1*], Widjojo Adi Prakoso[1], Mulia Orientilize[1]

[1] Civil Engineering Department, Universitas Indonesia, Indonesia 16424
* Corresponding author's email address: tiiafathia16@gmail.com

Abstract

Elevated RC Pile Cap (EPC) is a partially embedded foundation that is vulnerable under seismic loadings since it suffers more flexural moment due to the exposure of the pile compared to a fully embedded foundation. A numerical study based on the Beam-on-Linear-Wrinkler-Foundation (BNWF) was performed using the OpenSees according to the experiment conducted by Liu et al. (2020). The rectangular EPC groups consisting of 1x1, 2x2, and 2x3 EPCs were modeled and validated by the test results. Each group of partially is embedded in one layer of sand with different relative densities of 0.3, 0.45, 0.5, and 0.7. A different value of p-multiplier for different pile positions was considered in the numerical model. Monotonic pushover analysis was performed, and the forming of the plastic hinge and pile-soil responses were investigated. The study found that all models suffered double plastic hinges on the leading row, shown by its bending moment that was exceeding the plastic moment. The first plastic hinge was formed next to the pile cap, while the second hinge was formed 0.8 to 1.9 m underground, depending on the soil density. The ratio of each pile row response to the average pile group response is used as an indicator to examine the forces distribution among the pile groups. The ratios are affected by p-multiplier value, while the soil density does not contribute to that ratio. The shear strength that occurs on soil was investigated to observe whether the soil is still in its elastic state or has changed into a plastic state under this circumstance. The observation was conducted when the pile group had reached its yield and ultimate condition and when the plastic hinges were formed. The p-multiplier value affects the soil strength for each pile row, which is also true for soil type variation. The denser the soil is, the faster it reaches its plastic state.

Keywords: Elevated RC Pile Cap, group foundation, plastic hinge, P-multiplier, pushover analysis

Numerical Studies of Spun Pile to Pile Cap Connections with and without Concrete Infill due to Cyclic Loading

Vania Callista[1*], Yuskar Lase[1], Widjojo Adi Prakoso[1], Mulia Orientilize[1]

[1] Civil Engineering Department, Universitas Indonesia, Indonesia 16424
* Corresponding author's email address: vaniacallista31@gmail.com

Abstract

According to SNI 8640, the design of a spun pile as a part of a bottom structure is not allowed to adopt a performance-based design (PBD) to avoid damage. However, several studies have been conducted to understand the behavior of spun pile connections under seismic load. The results have been adopted in several design codes, where the PBD is allowed for bottom structures. According to the 2017 seismic zone, the increasing seismic demand in Indonesia results in an inefficient foundation design. An experimental study is needed to investigate the behavior of spun pile connections that commonly used in Indonesia since limited studies have been performed on this topic. Due to economic reasons, three whole scales of spun pile connections were tested until failure. A finite element (FE) analysis using the Abaqus software was conducted for a more in-depth study. A three-dimensional (3D) FE model was validated based on the experimental results to ensure that it can represent the experiment. One of the problematic parts in the FE model was to build the spiral, which was used as the shear reinforcement and act as the concrete confinement of spun pile. Most of the previous FE studies changed the spiral to hoops. None of those studies investigated the effect of this on the behavior of the spun pile connection. Since the spun pile produced in Indonesia has limited confinement, it is crucial to model the spiral as per its actual condition. In this study, the effect of spiral and hoop was investigated. The study also explored the effect of concrete infill in the spun pile regarding strength, ductility, and performance level of the spun pile connection. ASCE 61-14 was used as a reference to justify whether it could be categorized as minimum damage (MD), controlled and repairable damage (CRD), or life safety protection (LSP). Since the maximum lateral displacement allowed due to severe earthquakes in Indonesia is limited to 25mm, the performance at this stage was also investigated.

Keywords: Spun pile connection, performance based design, the effect of concrete infill, ductility

Towards Public Vaccination Data Resilience during Natural Disaster using Blockchain-Based Decentralized Application

Jauzak Hussaini Windiatmaja[1], Riri Fitri Sari[1]

[1] Faculty of Engineering, University of Indonesia, Indonesia
Corresponding author's email address: riri@ui.ac.id

Abstract

This paper presents a platform development plan for a public blockchain-based vaccination decentralized database. Vaccination is a medical practice that allows a human body to produce a specific antibody as a preventive measure and reducing the risk of contracting a particular disease. Systematic vaccination data recording is an utmost important system, particularly during the Covid-19 pandemic. The recording mechanism should utilize the state of the art information and communication technology (ICT). For faster vaccination data recording, it is common to use the digital technology to accelerate the health care process, thus decreasing the time needed for the vaccination process.

Data related to medical records, i.e. vaccination data records, are essential for the continuity of care of the patients. For health professionals, medical records provide an insight on the clinical judgment being exercised at the time. The presence of a complete, up-to-date and accurate medical record including information on all vaccination received by a patient can make all the difference to the outcome of a treatment. Although today the digital medical records have been implemented in different traditional database, these database is still very much disintegrated and prone to damage during natural disasters. Access to medical records will become increasingly important as medical treatments become more complicated, especially with aging population, while disasters will likely continue to occur in regular basis.

In order to tackle the problem, we propose a blockchain-based application with decentralized storage to provide easy tracing of vaccinated people while maintaining the availability and the resilience of the data stored. Blockchain technology is applied to ensure that the data remain available and secured even during natural disasters. The decentralized application proposed in this paper is built using Hyperledger Fabric, Django, and cURL and deployed in the cloud using Amazon Web Services (AWS).

Keywords: Vaccine, patient medical records, natural disaster, blockchain, decentralized application

Fault Source of the 2018 Situbondo Earthquake Investigated Using GPS Data

Sindi H Patimah[1*], Endra Gunawan[2], Sri Widyantoro[2,3], Munawar Kholil[4]

[1] Geophysical Engineering, Institut Teknologi Bandung, Indonesia
[2] Global Geophysics Research Group, Institut Teknologi Bandung, Indonesia
[3] Faculty of Engineering, Maranatha Christian University, Bandung, Indonesia
[4] Geospatial Information Agency, Indonesia
* sindihajahpatimah30@gmail.com

Abstract

Indonesia is located in a region with a high level of seismic activities associated with the presence of plate boundaries and active land faults. This causes a high potential for earthquakes. While major faults have been identified and studied in detail, many sources of destructive earthquake events are not known. One of such earthquakes is the 2018 Situbondo earthquake. In this study, we investigated the coseismic slip distribution of the Situbondo 2018 earthquake using timeseries data of seven GPS stations operated by the Indonesian Information Geospatial Agency (*Badan Informasi Geospatial*, BIG). Using the timeseries data, we calculated the coseismic displacement and used the result for estimating the slip distribution of the 2018 Situbondo earthquake. The fault source of the earthquake was investigated and it is revealed that the responsible fault is an unidentified dipping to the northeast fault. Our investigation suggests that the seismic moment of the mainshock corresponds to Mw 6.2. Finally, we showed that the implementation of satellite-based tools is very useful to understand the detailed fault source of the 2018 Situbondo earthquake.

Keywords: Situbondo earthquake, GPS, slip distribution, coseismic deformation

Development of Examination Model in Pandemic Era using Safe Exam Browser and Bring Your Own Device Method

Verry Fitra Nata Rahman, Lutfi Rahmatuti Maghfiroh

Statistics Polytechnic STIS, Indonesia
Corresponding author's email address: 221710038@stis.ac.id

Abstract

Evaluation is an important thing in the learning process. One form of evaluation is examination. To contribute to preventing the spread of the COVID-19 virus and tightening health protocols, not only lectures but also evaluation exams have to be done online. The Institute of Statistic Jakarta or STIS using the help of the Learning Management System (LMS) have implemented the online learning approach to circumvent the pandemic situation. This also has triggered the institute to implement offline exams with the concept of Bring Your Own Device (BYOD). This decision is based on the results of observations and preliminary surveys that distance exams as a learning evaluation form is still not ideal for the institute due to the lack of secured system for the exams and supervision systems which results in the potential for cheating. To implement the online exam model, an application that enables ideal conditions for exams is needed. Safe Exam Browser is an online exam security application that allows access the web in a full-screen view. This browser is integrated with the LMS to administer exams. This study examines the application of the Safe Exam Browser in the Bring Your Own Device (BYOD) exam system at the STIS. The test model was built based on the observation data obtained and the evaluation results was obtained from penetration testing using the Hacker Attack Representation Method (HARM). It is demonstrated that the BYOD exam model, which is named the advanced exam model, passed the penetration test and the evaluation of the test results. Thus, this exam model has met the expected indicators to recommend BYOD exam approach both for online and offline exams.

Keywords: Pandemic, safe exam browser, Learning Management System, HARM, BYOD

Numerical Study of Spun Pile to Pile Cap Connection with Reinforced Concrete Infill Under Cyclic Loading

Alfetra Henoch Tandita[1]*, Yuskar Lase[1], Widjojo Adi Prakoso[1], Mulia Orientilize[1]

[1] Civil Engineering Department - Universitas Indonesia, Indonesia 16424
*Corresponding author's email address: alfetra.henoch@ui.ac.id

Abstract

Indonesia's design code of bottom structure, SNI 8640, requires a fixed connection between piles and pile cap. For spun pile, this connection can be achieved by anchoring the pre-stressed bar to the pile cap. Since the connection suffers a higher moment, the spun piles in this region needs to be filled with concrete and reinforcement bar with an approximate depth of one meter to increase the strength, which is a standard practice in Indonesia. However, most of the spun pile produced in Indonesia has little shear reinforcement, below the minimum requirement set by ACI 318-19. A numerical study has been performed to study the effect of different reinforced concretes on the connection behavior. The Abaqus software was employed with a 3D solid model. The model was validated with the experimental results to ensure that the model could represent the actual condition. The effect of different concrete strengths was investigated. One specimen had a 30 MPa concrete infill and pile cap concrete. Another specimen was filled with non-shrinkage concrete with fc' 54 MPa. Pushover analysis with cyclic load was conducted on two specimens. The results were compared in terms of P-lateral displacement curve, moment-rotation curve, strength degradation, energy absorption, performance level, and ductility. Ductility is one of the critical parameters to describe the behavior of spun pile connections. Different approaches to determine yield and ultimate displacement led to four different ductility values. The ductility of the spun pile with concrete infill was in the range of 3.2 to 4.8. Therefore, it is necessary to explore the true meaning of ductility to avoid any misleading interpretations. The study also found that the behavior of the two specimens is similar. Non-shrink concrete only slightly improves the behavior of spun pile.

Keywords: Ductility, spun pile-pile cap connection, non-shrinkage concrete

Development of Basic Tsunami Countermeasure Policies
for Reconstruction Project in Central Sulawesi, Indonesia

**Taro Arikawa[1], Yoshihiko Takeda[2], Masahiro Kitano[2], Junichi Fukushima[2],
Makoto Murata[2] and Fumihiko Imamura[3]**

[1] Chuo University, Japan
[2] Yachiyo Engineering Co., Ltd., Japan
[3] Tohoku University, Japan
Corresponding author's email address: author@email.com

Abstract

On September 28, 2018, a 7.5-magnitude earthquake struck Palu, the capital city of Sulawesi Province, Indonesia, with an epicenter located 80 km north of the city. The main earthquake damages were caused by liquefaction, tsunami, and seismic activities in coastal areas. According to the information published by Central Sulawesi Province in April 2019, 4,547 people died or missing and 172,999 people were affected with an economic loss of IDR 5 trillion.

In response to a request from the Indonesian government, the Japan International Cooperation Agency (JICA) conducted an emergency aid and dispatched a survey team to collect information on the disaster situation immediately after the disaster, as well as assisting the Indonesian government in formulating the reconstruction M/P. The Indonesian government also had requested Japan to implement a project for disaster recovery, which was then referred to as the "Project for Development of Regional Disaster Risk Resilience Plan in Central Sulawesi in the Republic of Indonesia".

This article describes the outline of the tsunami countermeasure plan on the south coast of Palu Bay, which is one of the sites that received assistance from JICA project. Based on the lessons learned from the 2011 Great East Japan Earthquake in Tohoku, the basic policy for tsunami countermeasures includes the placement of "gray infrastructures" with ridged dike structures to protect human lives from tsunamis. However, considering that the coastline is also used by the residents for various activities such as fishing and tourism activities, "green infrastructure" such as trees and mangroves were proactively developed to mitigate tsunami energy through multiple protections.

To confirm the tsunami mitigation effect of the latter green infrastructure, physical model tests and tsunami simulation analysis were conducted under a cooperation between Japanese universities and Indonesian research institutes.

Keywords: Tsunami countermeasure, grey infrastructure, green infrastructure, tsunami mitigation effect, multi-protection

Estimating Urban Residential Fire Smoke Plume Spatial Trajectories and PM2.5 Dispersions and Their Respiratory Consequences in North Jakarta District

Fatma Lestari[1,2*], Yulianto Sulistyo Nugroho[3], Devie Fitri Octaviani[2], Andrio Adiwibowo[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[3] Department of Mechanical Engineering, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Fire is not the only risk in urban settings. A fire incident in urban settings and residential areas can produce smoke plumes that can travel far distances to cover large areas with dense population. This raises concerns as the smoke plume can carry PM2.5 that can cause severe respiratory consequences. This study aims to model the smoke plume size, coverage and PM2.5 contents measurement based on several fire incidents, representing six sub-districts of the North Jakarta District. This district has a dense population with crowded residential areas and is high-risk for fire. North Jakarta also has a high prevalence of several respiratory-related illnesses, including asthma and upper respiratory tract infection.

The smoke plume trajectory modeled based on a GIS-based model developed by (Mcgrattan 2003) and (Magalhães et al. 2019). Results showed that smoke plumes from a single fire incident hotspot could travel more than 20 km. The smoke plume can expand and reach area of 46.52 km^2 - 182.00 km^2. The PM2.5 content inside the plume ranged from 1.0e-13 mg/m^3 to 1.0e-7 mg/m^3. Simulated smoke plume in North Jakarta showed that smoke can travel to the neighboring areas, leading to transboundary impacts. A smoke plume could travel across two sub-districts. Thus, it is crucial to incorporate smoke plume development surveilance and its PM2.5 content into fire management efforts.

Keywords: Dispersion, plume, PM2.5, smoke, trajectory

External Fire Spread Risk in Buildings with Combustible Cladding

Yulianto Sulistyo Nugroho, Viliasio Sirait, Reza Adyanto Nugroho, and Wiratama Dhaneswara Sungkono

Department of Mechanical Engineering, Universitas Indonesia, Indonesia
Corresponding author's email address: yulianto.nugroho@ui.ac.id

Abstract

Building fire safety remains a challenge in modern society living in various big cities of the world. The challenge to improve energy conservation aspects in high-rise buildings has been accommodated by designing a cladding system that seeks to reduce the building's thermal load due to sunlight. In terms of energy conservation, efforts to install shading systems and other building envelope systems have succeeded in reducing the thermal energy load of buildings. However, high-rise building fire accidents, particularly in the form of external fire spread involving combustible cladding, have raised concerns due to the extremely fast spread of fire ragging the combustible cladding [1]. This study provides an overview of the trend in the design of building envelopes for public buildings, especially hospitals and offices, and the intensity of the use of aluminum composite panel (ACP) materials in Jakarta. An overview of the risk of external fire spread in buildings constructed using combustible cladding materials will be provided through laboratory-scale experimental results and numerical modeling by fire dynamic simulator of NIST [2]. Initial laboratory-scale experiments showed that an ACP board with combustible insulation materials could be ignited with a torch flame. It then followed by sustainable flame spread vertically and dripping of combustible liquid fuels, creating a new ignition source at the bottom floor. The consequences of combustible cladding behavior in fires were then analyzed by means of numerical modeling. In the full paper, numerical modeling results and the risk of external fire spread in the building are explained in more details. A fire risk assessment tool, i.e., Exterior Facade Fire Evaluation & Comparison Tool (EFFECT™) developed by NFPA [2], is also considered in understanding factors affecting building external fire spread.

Keywords: External fire spread, combustible cladding, fire risk

Seismic Vulnerability and Risk Assessment based on Building Typologies in Yangon

Saw Htwe Zaw and Wai Yar Aung

Structural Engineering Department, Myanmar Earthquake Committee, Myanmar
Corresponding author's email address: waiyar.aung1892@gmail.com

Abstract

Myanmar is exposed to multiple natural hazards such as earthquakes, floods and cyclone. Among them, earthquakes are the most unpredictable but have a very high potential for devastating consequences. Therefore, mitigation measures are needed depending on the location and the built environment. Yangon is close to the Sagaing Fault, one of Myanmar's major earthquake faults, and is also one of the most densely populated cities in Myanmar. Therefore, earthquake mitigation in Yangon is a key factor for the country's sustainable development. Seismic risk analysis investigates the consequences of earthquakes and damages in the interest area based on the built environment. In recent years, most studies rely on 2014 national census data for developing the building inventory.

However, the building classifications used in the census data is out of date and unclear to identify their structural system, which may lead to errors in vulnerability calculations and different result loss estimations. MNBC 2020 is officially launched to regulate the construction of new buildings. The building code only covers concrete and steel buildings in general. There are several other building types such as brick noggin, timber, and bamboo buildings which are not included in the building code. Moreover, there is no mandatory requirement for the maintenance and safety of the existing buildings There is thus a need to develop standard building typology catalogues according to the local construction practice in Yangon and to further determine the seismic vulnerability of each building typology. This paper presents the building typology in Yangon in terms of construction materials, structural system, dominant structural irregularities, building height, and building related earthquake risks. It is also proposed to update the housing condition data in future censuses.

Keywords: Seismic vulnerability, risk assessment, building typology

Meta-ID: 728

Transportation Network Vulnerability in Emergency Responses during Floods

Yi Wang[a,*], Peter Lustenberger[a,b], Jonas Joerin[a]

[a] Future Resilient Systems, Singapore-ETH Centre, Swiss Federal Institute of Technology (ETH) Zürich, Singapore
[b] Zurich Insurance Company Ltd., Zürich, Switzerland
*Corresponding author's email address: yi.wang@sec.ethz.ch

Abstract

Due to the wide spatial distribution of transport infrastructure, many transport assets are exposed and vulnerable to natural hazards. Economic and social impacts from disruptions caused by natural hazards, such as floods, do not only come from the cost of physical damages to the assets themselves but also to the services they provide. To analyze and evaluate the performance of the transportation network against floods, it is important to look at the system as a whole, since the widely differing topological characteristics substantially shape its respective vulnerability and coping capacity. Our research objective is to identify the criticality or vulnerability of the transportation networks in terms of supporting medical, fire, and rescue services during flooding of varying magnitudes. Leveraging graph theory and network analysis, we adopt a topological metric, i.e., a modified betweenness centrality as the major criterion to determine how the critical individual links (i.e., road segments) are when prioritizing emergency service(s) supply. By characterizing how the road traffic reconfigures in a degraded transportation network, our results show that even low-magnitude floods can lead to a significant change in the pattern of vulnerability in the road transportation of Ho Chi Minh City. Underpinning this vulnerability are policies leading to pre-disaster mitigating measures, such as prioritizing the planning or maintaining identified critical roads or connections. This also makes the effectiveness of the emergency response particularly sensitive to the expected impacts on road networks and route capacities from flood risks, such as optimizing the distribution of response stations and developing contingency plans for stranded sites.

Keywords: Transportation resilience, vulnerability, road network, emergency service, surface flooding

Development of A Laboratory-Scale Peat Fire Simulator

Hafizha Mulyasih, Bintang Farhan Muhammad, Reza Adyanto Nugroho, Jeihan Kartika Hapsari, and Yulianto Sulistyo Nugroho

Department of Mechanical Engineering, Universitas Indonesia, Indonesia
Corresponding author's email address: yulianto.nugroho@ui.ac.id

Abstract

Peat fires remain significant challenges in many parts of the world, especially in tropical forests as it triggers haze problems. During the past ten years, many scientific publications have been studying different aspects of smoldering peat [1,2]. These include smoldering spread behavior, gaseous emissions, particulate emissions, and peat fire suppressions. As peat fires problems affects large scale areas, it is ideal to study the dynamics of peat fires and their effects in situ. However, these attempts require huge resources, manpower, and specific timing depending on weather conditions. On the other hand, a laboratory-scale simulation faces challenges of peat soil transportation from the field to the laboratory as well as challenges in adjusting the research methodology to a reduced scale experiment while maintaining the quality of data obtained. We addressed this issue by developing of a laboratory scale peat fire simulator that enables comparative analyses with a comprehensive set of experimental data collection covering ignition, mass loss rate, temperature profiles of peat sample, subsidence, gaseous emission, and particulate matter released. The simulator facilitates analysis of the relationship between smoldering parameters which may help in understanding smoldering combustion of peats. Photos showing the progress of the design and manufacturing the peat fire simulator are included in the paper. The mainframe of the system is made of steel frame to support the reactor, thermocouple wires, thermal camera system, data acquisition system, and electric heater. A buoyancy calorimeter is installed above the smoldering reactor to collect gases and particulate matter emitted by the process for measurement and further analysis. Measurement of volumetric rate of the exhaust gas and readings of other sensors enable analysis on important correlation of smoldering in different peat samples. This simulator can also be used to study suppression mechanism for smoldering combustion of peat. Further detailed explanation on the simulator and some initial results are provided in the full paper.

Keywords: Peat, smoldering, laboratory scaled, peat fire simulator

Fidela EWS (Early Warning System): Inexpensive Device for Sea Level Measurements

Nurhadi Santosa[1], Nadjadji Anwar[2], Bangun Muljo Sukojo[3], Umboro Lasminto[4]

[1] Doctoral Student of Civil Engineering Department, ITS Surabaya, Indonesia
[2] Professor of Civil Engineering Department, ITS Surabaya, Indonesia
[3] Professor of Geomatics Engineering Department, ITS Surabaya, Indonesia
[4] Doctor Technic of Civil Engineering Department, ITS Surabaya, Indonesia

Abstract

One of the important aspects in reducing Tsunami Risk is understanding the existing Natural Hazards. The loss of INA TEWS equipment worth hundreds of billions of rupiah and the occurrence of the Tsunami in Aceh and other parts of Indonesia are warnings that our society needs the help of effective early warning tools at affordable prices. For this purpose, a device consisting of Primary/Transmitter and Secondary/Receiver equipment is required. Primary equipment is placed on the beach and will automatically send a signal when Tsunami symptoms occur to a secondary equipment that is placed on buildings around the coast. The secondary device or receiver will trigger the siren automatically when it receives a tsunami signal from the primary device. This device is also equipped with a Security Guard equipment system that serves to reduce the risk of theft. The use of this device will make it easier for the community to monitor natural events and reduce disaster risk. Currently the government has purchased hundreds units of JRC-UNESCO products, IDSL (Inexpensive Device for Sea Level); however, this device requires 21 minutes for the information to reach the community. Therefore, an improved device is needed. Fidela Early Warning System (FEWS) is a tool that involves the Equipment sector, Operations sector and Community sector. The expected result of this device is to provide an inexpensive device to reduce the time required for information to reach the community into only 5 minutes. This device is currently installed in Pacitan.

Keywords: Tsunami, device, automatic, transceiver, receiver, security guard, IDSL 21 minute, FTEWS 5 minute, inexpensive, Pacitan.

Hydrological Model and Geographic Information System Assisted for the Estimation of Flood Inundation in Bandung City

Miga Magenika Julian[1,2], Dian Afriyanie[3], Atik Nurul Aini[4], Haifa Aulia Nugraha[5]

[1] Hydrography Research Group, Faculty of Earth Sciences and Technology,
Institut Teknologi Bandung (ITB), Indonesia
[2] Department of Geoinformatics, Institut für Geographie,
Friedrich-Schiller-Universität Jena (FSU-Jena), Jena, Germany
[3] Lokahita, Research Center on Ecology and Geospatial, Indonesia
[4] Study Program of Geodesy and Geomatics Engineering, Faculty of Earth Sciences and Technology,
Institut Teknologi Bandung (ITB), Indonesia
[5] Study Program of Urban and Regional Planning, School of Architecture, Planning, and Policy
Development, Institut Teknologi Bandung (ITB), Indonesia
Corresponding author's email address: miga@gd.itb.ac.id

Abstract

Bandung City, West Java Province Indonesia, is a naturally flood-prone area due to its location at a natural basin formed by a prehistoric lake. Many factors contribute to the incidence of flooding in the city of Bandung, such as extreme rainfalls and peak discharges that can be caused by the conversion of land from forest to agriculture to urban areas. This study aims to simulate the flood depth inundation in Bandung. The Upper Citarum River Basin, where the Bandung Metropolitan Area (Bandung City and Bandung District) is situated, is considered as the contributed study area. The distributed hydrological model will be implemented to reconstruct the hydrological processes over Bandung City. In addition, the hydrological model will estimate the extreme runoff as the primary input for flood modeling. This model requires hydrometeorological inputs (e.g., precipitation, temperature, humidity, wind speed, and sunshine duration) and morphological data for topographic details (e.g., land use, soil, and geological information). A Geographic Information System (GIS) for hydraulic analysis will be applied to estimate the distribution and depth of flood inundation. A digital elevation model will be used to create river segment models as an entity for hydraulic analysis. Several modeling scenarios will be applied to implement a combination of temporal land-use change and climate variability to estimate flood depth inundation. Preliminary results show that the effect of land-use change is more meaningful than climate variability on the extreme runoff. Moreover, surface runoff increases noticeably during the wet season. From this study, the resulting hydrological model and GIS can be expected to be a powerful tool to estimate the flood depth inundation so that it can support flood risk adaptation and mitigation efforts related to the direction of patterns and effective use of space in Bandung City.

Keywords: Flood depth inundation, distributed hydrological model, geographic information system, temporal land-use change, climate variability

Meta-ID: 790

Slope Mass Rating Analysis on the Reservoir Slope Area of the Tugu Dam, Trenggalek District, East Java Province, Indonesia

Alya Safitri, Mujahid Alhaq, Hendy Setiawan

Department of Geological Engineering, Faculty of Engineering, Universitas Gadjah Mada, Indonesia
Corresponding author's email address: hendy.setiawan@ugm.ac.id

Abstract

Construction of the Tugu Dam is one of the national strategic projects in Indonesia as a part of the development of the Ngrowo River Sub-basin in East Java Province. The Tugu Reservoir is planned for irrigation, raw water supply, flood control, electric micro-hydro power plant, and local tourism areas. Geologically, Tugu Dam is located on the Mandalika formation which consists of volcanic breccia, andesitic lava and tuff, with intercalation of sandstone and siltstone. In addition, the location of the main dam and planned spillway is intersected with the estimated regional fault. Due to these conditions, the stability of dam construction, spillway, and particularly the reservoir slope area has raised concerns.

This paper aims to analyze the stability of the reservoir slope area through engineering geological mapping, kinematic analysis, and Slope Mass Rating (SMR) methods. Results indicated that the geomorphological condition of the study area mainly presented as the alluvial plain and structural hills with steep slopes. The lithological condition consists of volcanic breccia, andesitic lava, colluvium and alluvium sedimentation with moderate (Geological Strength Index, GSI of 36-55), poor (GSI 21-35) to very poor quality (GSI<20). The joint structure is mainly found in andesitic lava with the main stresses pointed to a northeast-southwest direction. The kinematic analysis for 16 observation points (16 STA) of the reservoir slope area shows that the wedge failure and toppling failure are dominantly identified and may occur.

The SMR results implied that the northern reservoir slopes are dominantly stable (SMR 61-80) and partially stable (SMR 41-60), while unstable slopes (SMR 21-40) and very weak slopes (SMR 0-20) are found at the southern reservoir slopes. According to these results, slope reinforcement and stabilization including slope adjustment and reinforcement through shotcrete and anchor with drainage system improvement are critical for the reservoir slope area to avoid slope failures that can affect the sustainability of reservoir dam operation in the near future.

Keywords: Kinematic analysis, slope mass rating (SMR), reservoir slope, Tugu Dam, East Java

Natural Hazards Triggering Technological Disasters (Na tech)

Natech Risk Management in Indonesia

Fatma Lestari[1, 2,*]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center Universitas Indonesia, Indonesia
Corresponding author's email address: fatma@ui.ac.id.

Abstract

Indonesia is located in an area that is prone to diverse types of disaster. Many of the major industries in Indonesia are located in a high-risk zone for disaster, making it vulnerable to major hazards caused by disasters. Thus, the implementation of Natech (Natural Triggered Technological Hazards) in these industries becomes important as it will influence the sustainability of the industry and public health. This paper describes risk management implementation in Indonesia for selected industry's locations. Data were collected from literature review, in-depth interviews, and focus group discussions and were then analyzed using content analysis or thematic analysis. Results suggested that several Natech risks have been identified, and some risk management and risk mitigation efforts are already implemented. Relevant policies have also been developed. However, there are still gaps identified, and best practices in Indonesia for selected industries have been reviewed. From these results, several challenges, gaps, opportunities, and best practices related to Natech risk management in Indonesia have been determined to provide future recommendations.

Keywords: Natech, risk management, Indonesia Natech Risk Management, Natech Disasters.

Indonesian Tsunami Non-Tectonic Monitoring System (InaTNT) for Sunda Strait Region

Januar Arifin[1], Ridwan Kusnandar[1], Melki Adi Kurniawan[1], Litanya Octonovrilna[1], Karyono[1]

[1] Center for earthquake and tsunami, BMKG, Indonesia
*Email: jarcorp@yahoo.com

Abstract

In order to enhance the role of InaTEWS, the Indonesian Tsunami Non-Tectonic (InaTNT) monitoring system has been developed and implemented for Sunda Strait Region since July 2021. InaTNT is a single integrated synergy of comprehensive sea level monitoring among several government institutions such as Water level monitoring from the Meteorological, Climatological, and Geophysical Agency (BMKG); Tide gauge from the Geo-spatial Information Agency (BIG); Buoy from the Agency for the Assessment and Application of Technology (BPPT); and IDSL from the Ministry of Marine Affairs and Fisheries (KKP). InaTNT utilizes real-time sea level observation data taken from several sources. Automatic anomaly event detection of sea level is applied by using the Anti-triggering algorithm STA/LTA (Short Time Average over Long Time Average) method to propose tsunami warning triggered by non-tectonic events. This InaTNT method has been successfully tested by using real sea level data of tsunami in Sunda Strait (December 22, 2018), Lombok (August 5, 2018), Palu (September 17, 2018), and Tojo Una-una (July 26, 2021). A manual interactive analysis tool is also provided to operators on duty to ensure proper error-free non-tectonic tsunami event identification.

Keywords: InaTEWS, non-tectonic tsunami, Sunda Strait, sea level anomaly

Meta-ID: 581

Land Use Planning as A Risk Reduction Tool for NATECH Disasters in India

Krishnakali Ghosh[1], Ranit Chatterjee[1,2], Rajib Shaw[1,3]

[1] Resilience Innovation Knowledge Academy, India
[2] Graduate School of Informatics, Kyoto University, Japan
[3] Graduate School of Media and Governance, Keio University, Japan
Corresponding author's email address: krishnakali@rikaindia.com

Abstract

According to GAR 2019, NATECH events refer to the natural hazards triggering technological disasters such as industrial accidents and structural collapse. Industrial installation and critical infrastructures are vulnerable to both slow and rapid onset hazards. Risk reduction of an industrial installation should account for probable interactions with the nearby communities, connected services, and economy to capture the potential for cascading events and the impact on resilience and recovery. Land use planning as a tool is capable to consider disaster risks and their spatial distribution, steer sustainable use of land, and reduce the vulnerability of communities settled in unsafe locations in proximity to industries with significant risks. While safety codes and zoning measures are implemented for future land use development, there is a scope for delving into land use planning as a practice for pre-disaster prevention, mitigation, and preparedness for possible NATECH disasters in and around existing industrial sites.

Risk management in industrial sites majorly concerns chemical accidents, environmental impacts, and engineering safety codes but may not be sufficient in conditions associated with NATECH accidents. This paper provides an overview of NATECH risks prevalent in India, the status of its reflection in law, and identification of gaps in the existing NATECH risk reduction approach. It highlights the good practices in land use planning implemented around the world that have influenced NATECH risk reduction. The findings emphasize the importance of land use planning in contributing to the management of NATECH and provide recommendations drawn from the global good practices to develop land use planning sensitive to NATECH risks, multi-stakeholder cooperation, and strategies that promote safer territories.

Keywords: NATECH, India, disaster risk reduction, land use planning, zoning

Natech Hazard Case Assessments of Tourism Affected by 2018 Tsunami Disaster in Banten

Andrio A. Wibowo[1]

[1] Universitas Indonesia, Depok, West Java, Indonesia
E-mail: AAWHealth@outlook.com

Abstract

Natech is an abbreviation for Natural Hazards Triggering Technological disasters which refers to a natural disaster in the forms of flood, typhoon, and landslide that can cause a collapse of anthropogenic structures and lead to a secondary disaster. This secondary disaster can be triggered by a release of a material ranging from debris to hazardous and toxic materials. An example of Natech is the tsunami that caused the collapse of Fukushima nuclear plant, which was followed by a release of radioactive materials. Several determinant factors may make a region becoming vulnerable to Natech disasters, including the natural conditions and the presence of anthropogenic activities and structures, including tourism activities. Since Indonesia is an archipelago country, one of the potential disasters is tsunami. At the same time, tourism activities are concentrated in the coastal areas considering the beach has become popular destinations. This study aims to assess the Natech hazard case assessments of tourism activities in Banten Province affected by the tsunami disaster following the eruption of Krakatau volcano in 2018. The tsunami brought significant impacts on Pandeglang District, with 611 houses, 69 hotels, 71 vehicles, and 350 fisherman boats were damaged due to the disaster. The significant Natech implications of tsunami in Banten were the release of post tsunami debris to the environments. Since the tsunami happened in tourism area and most structures in the area were made of woods and concretes, a significant amount of non-organic, organic, and concrete debris were released to the environments. Based on the measurement, the average weight of the debris was ranging from 0.5 to 2 tonnes. Thus, it is strongly recommended that the future developments of tourism sectors in tsunami or natural hazard prone areas should deliberately considered the uses of eco-friendly materials for structural constructions.

Keywords: Debris, eco-friendly, Natech, tsunami, tourism,

Pandemics and Public Health Issues

Combination Between "Lewu Isen Mulang" A Local Wisdom in Central Kalimantan and Public Health Mitigation for Combating COVID-19

Fatma Lestari[1,2,*], Adang Bachtiar [3], Aryo Wibowo[1], Devie Fitri Oktaviani [2]

[1]Occupational Health & Safety Department, Faculty of Public Health, Univeritas Indonesia, Indonesia
[2]Disaster Risk Reduction Center Universitas Indonesia, Indonesia
[3]Health Administration & Policy, Faculty of Public Health, Universitas Indonesia, Indonesia
*Corresponding author's email address: author@email.com

Abstract

A local wisdom in Central Kalimantan known as "Lewu Isen Mulang" or "never retreats" has been adopted in conjunction with public health mitigations in dealing with COVID-19 pandemic. This study explores the implementation of "Lewu Isen Mulang" in combination with public health mitigation for fighting against the COVID-19. The method used in this study includes literature review, in-depth interviews, and focus group discussions. Data collected were analyzed qualitatively using thematic and content analysis. Several local wisdoms, gaps, challenges faced by the community and lessons learned in combating COVID-19 in Central Kalimantan were retrieved for future recommendations. Results suggested that several local wisdoms including the community belief "lewu isen mulang" or "never retreats" has been able to maintain the good spirit among the community in facing this prolonged COVID-19 pandemic. In addition, local people also use bajakah root, which is traditional herb that has been used long before the pandemic, to increase the immunity. Hence, new strategies and approaches in disaster risk communication and community engagement that combine local or traditional approach and with public health mitigation can be implemented for fighting against COVID-19 and can be considered for future recommendations related to the pandemic mitigations in the future.

Keywords : COVID-19, local wisdom, public health mitigation, disaster risk communication.

Impact of the COVID-19 Pandemic on Eyes Health Problems:
A Literature Review

Alvian Sanjaya[1] , Ridwan Meidiansyah[1], Fatma Lestari[2,3], Debby Paramitasari[3], Abdul Kadir[2]

[1]Public Health Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center Universitas Indonesia (DRRC UI), Indonesia

Abstract

Since the enactment of regulations related to online learning and working from home as a way to break the chain of COVID-19 transimission, the use of smartphones and laptops has increased. Staring at the screen continuously will have an impact on the emergence of eye health problems. The purpose of this study is to understand the impact of the COVID-19 pandemic on eye health and provide recommendations regarding the prevention measures. The method used in this article was literature review through collecting studies from several sources such as Google Scholar, Pubmed, NCBI and Science Direct by using keywords of "eye health", "pandemic COVID-19", "home confinement", and "digital eye strain". The literature obtained was analyzed to gain comprehensive information. Results found that the onset of eye health problems, such as digital eye strain (DES), dry eye disease (DED), myopia or astenopia, as a result of the blue light rays produced by gadgets were aggravated by the increased screen time due to the needs for prolonged staring at the screen during COVID-19 pandemic. There has been an increased prevalence for eye health problems such as DES and DED and, when compared to the prevalence rate of myopia in 2015-2019, the prevalence of myopia reached the highest in 2020. The increase of eye health problems can be minimized with various preventive measures and public awareness campaigns need to be carried out and supported by all parties as an effort to maintain eye health during this pandemic.

Keywords : COVID-19, pandemic, eye health, smartphone, digital eye strain

Proof of AEFI as the Cause of COVID-19 Vaccine Rejection in Indonesia: Observations Study from Canada and New Zealand

Dinda Ramadhina[1], Vallery Violila[2], Fatma Lestari[3,5*], Hendy Risdianto Wijaya[4,5], Debby Paramitasari[5], Abdul Kadir[3,5], Amin Subandrio[6]

[1]Environmental Health Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Public Health Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[4]Biostatistics and Population Studies Department, Faculty of Public Health, Universitas Indonesia, Indonesia.
[5]Disaster Risk Reduction Centre, Integrated Laboratory and Research Centre, Universitas Indonesia, Indonesia
[6]Faculty of Medicine, Department of Clinical Microbiology, Universitas Indonesia, Indonesia

Abstract

The Indonesian government has started the COVID-19 vaccination program since January 2021 as an effort to create herd immunity against this disese. COVID-19 Vaccines, as immunity-producing antigenic materials, is one the possible solutions to end the COVID-19 pandemic. An unavoidable part of the vaccination process is the Adverse Event Following Immunization (AEFI). Indeed, data show that one of the reasons for the rejection of vaccination in Indonesia is due to concerns about AEFI. This paper was written to increase public participation in vaccination programs by proving that AEFI is not something that people should worry about. The methods used were literature study and analysis process. The literature study include the Decree of the Indonesian Ministry of Health's Director General on Prevention and Disease Control Number HK.02.02/4/1/2021 and WHO publications regarding AEFI. Meanwhile, the analysis performed was based on statistical data about vaccination in some countries and ministry of health websites of several countries that published AEFI data. Data were then analyzed using content analysis. Processed data show that AEFI commonly seen in Canada and New Zealand consists of non-serious effects. Regardless of the present challenges, the government has taken the correct steps regarding the planning and execution of the vaccination process. To increase public confidence and achieve herd immunity, recommendations are provided for future corrective actions in this article.

Keywords: AEFI, vaccination, COVID-19

Role of Sports in Preventing COVID-19

Agfa Al-Latief[1], Nabila Sephia Arisanti[1], Fatma Lestari[1,2], Debby Paramitasari[2], Abdul Kadir[1], Herlina J. EL- Matury[3]

[1]Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia,
[2]Disaster Risk Reduction Center Universitas Indonesia (DRRC UI),
[3]Public Health Faculty, Institut Kesehatan Deli Husada Deli Tua, Deli Serdang Sumatera Utara, Indonesia
Corresponding author's email address: fatma@ui.ac.id

Abstract

Sports in one of the easiest ways to maintain body imunity. A healthy and robust body immunity can help preventing the effects of Covid-19 on our bodies, especially during the current COVID-19 pandemic condition in Indonesia. Body immunity can affect the amount of COVID-19 exposure on the body. This study seeks to understand how Sports plays a vital role in preventing COVID-19. The method used in this study was literature study, through reading and collecting data from various sources such as government's data, community group's data, journals, websites, news sites, and other relevant sources. After reading various literature sources, the author analyzed, re-wrote, and developed the language core idea which resulted in retrival of information in line with the author's intentions. It is concluded that sports can help maintaining body immunity because by doing sports, various organs will produce positive reactions towards the body's immunity activities. A good body immunity is very effective in preventing the Covid-19 disease, resulting in the possibility of individuals to avoid the disease altogether. Thus, sports plays a vital role in the prevention of COVID-19.

Keywords: Sports, body Immunity, COVID-19

Importance of Mental Health for Students During COVID-19 Pandemic in Indonesia

Muhammad Ilhan Khazin[1], Darryl Yurmansyah[2], Fatma Lestari[2,3], Debby Paramitasari[3], Abdul Kadir[2]

[1]Public Health Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center Universitas Indonesia (DRRC UI), Integrated Laboratory and Research Centre Building, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

The infectious coronavirus disease 2019 or COVID-19 has spread rapidly around the globe since 2019. In Indonesia, the policies implemented that limitation of academic activities within the vicinity of the school grounds as a prevention measure of COVID-19 spread have significantly affected the mental health of the students to varying degrees. This study aims to analyze the importance of mental health of Indonesian students during the pandemic. This study used a literature study method by collecting literatures from several sources such as Google Scholar, Pubmed, and NCBI with several keywords such as "Mental Health", "*kesehatan mental*", "COVID-19", and "Psychological effects of COVID-19". Results showed that the implementation of online learning has caused several problems such as the lack of social interaction, burden caused by the large number of assignments given, and lack of sleep which affect the quality of the student's mental health as an effect of COVID-19. Nevertheless, further studies regarding the impact of COVID-19 on student's mental health are still needed to understand the importance of maintaining good student's mental health during COVID-19 in Indonesia.

Keywords: Covid 19, pandemic, students, mental health

Health-DRR Nexus: Where's the Rub?
A Case Study on the Philippines' Response to the COVID-19 Pandemic

Ebinezer R. Florano

National College of Public Administration and Governance, University of the Phillippines, the Phillippines

Abstract

This paper reviews the theoretical, legal, and operational links between health emergency management and disaster risk reduction (DRR) in the context of the COVID-19 pandemic. While the Sendai Framework for Disaster Risk Reduction recognizes epidemics and pandemics as among the biological hazards that should be addressed in DRR, there seems to be a disconnect in the way the world and national governments treat DRR of the SFDRR and the Health Emergency Disaster Risk Management (Health-EDRM) framework adopted by the WHO in 2019. An initial study on the topic notes the "silo" between the two when it stated that "there is no mention of disaster at all within the WHO Coronavirus disease (COVID-19) technical guidance" and "it is not clear whether COVID-19 is leading to collaborations between the WHO and the UN Office for Disaster Risk Reduction." At the country level, it has been noted that countries took dramatically different implementation approaches in managing the pandemic. This paper examines the theoretical, legal and inter-operational relationships between DRR and Health-EDRM at the national and local levels as the Philippine government responds to the threats of COVID-19. The case at the national level, and three case studies at the local level, were analyzed. The study revealed that the COVID-19 pandemic management in the Philippines, both at the national and local level, has been led mostly by the health sector. However, the DRR sector closely collaborates with it on a case-to-case basis because different local governments have different levels of pandemic management capabilities. There are still lingering questions whether the DRR sector should just focus on responding to disasters caused by natural hazards and/or still be at the forefront of pandemic management. If in the case is the latter, the follow up question is – could and should its roles/tasks be standardized nationwide?

Keywords: Public health emergency, disaster risk reduction, COVID-19 pandemic

Why After Fully COVID-19 Vaccinated, We Are Still Obliged to Implement Health Protocols: An Evidence-Based Agent-Based Simulation

Lutfi Rahmatuti Maghfiroh, Tiodora Hadumaon Siagian

Statistics Polytechnic STIS, Indonesia
Corresponding author's email address: lutfirm@stis.ac.id

Abstract

The current outbreak of COVID-19 has affected many countries in the world, including Indonesia. The government has taken various actions to prevent the spread of COVID-19 in the country, including applying the 3M health protocols (masking up, washing hands, and keeping your distance). Considering that vaccines is a critical tool in the battle against COVID-19, the government has begun the COVID-19 vaccination program on January 13, 2021. When a person has received 2 doses of COVID-19 vaccines, he or she is considered fully vaccinated. Unfortunately, many people believe that the vaccines can fully protect against COVID-19 so that they are not applying the 3M health protocols anymore. Although COVID-19 vaccine has a protective nature against the disease, albeit not one hundred percent, the virus can still mutate and even spread more massively. Several simulations of the spread of the COVID-19 have been carried out by several researchers. However, none has included variables of compliance with health protocols and vaccine programs. In our study, we conducted 12 scenarios of agent-based simulations to understand the effect of complying and not complying to the 3M protocol and vaccine progrm. The simulation results will be able to show why after fully COVID-19 vaccinated, people are still obliged to implement health protocols.

Keywords: Agent-based, simulation, COVID-19, health protocols, vaccine

Occupational Medicine Management for Return to Work of Emergency Room Nurses with Erythroderma Psoriasis After COVID-19.

Dewi S.Soemarko[1], Kasyunnil Kamal[1], Firly Ratsmita[2]

[1]Departement of Community Medicine, Faculty of Medicine, Universitas Indonesia, Indonesia
[2]Occupational Medicine Specialist Program, Faculty of Medicine, Universitas Indonesia, Indonesia.
Corresponding author's email address :firlyratsmita@gmail.com

Abstract

Psoriasis is a dermatological disease with chronic residual inflammation that can be caused by various factors, including causes related to occupations. Systemic treatment that affects immunomodulation/ immunosuppression and comorbid disease in psoriasis create a greater risk of COVID-19 infection. In addition to the increase in the risk for COVID 19 infection, the degree of severity of psoriasis experienced by the patient. For those patients whose job may create a higher risk of infection and more severe psoriasis condition, such as nurses, the risk should be reduced by modifying the patients' job, especially for those who are in the recovery process from COVID-19 infection. Thus, an appropriate return to work analysis for such patients. This study aims to understand how COVID 19 infection affects psoriasis severity and how to determine appropriate return to work in nurses with this condition.

A-44-year-old woman who works as a private hospital emergency room nurse had experienced reddish patches accompanied by thick scales all over her body for five months, which became more severe in the last 3 months. The patient had a history of psoriasis vulgaris for 3 years at the time of presentation. She also experienced COVID 19 with obesity as the comorbid 6 months ago. Identification of hazard in performed at her workplace consisted of physical, chemical, biological, ergonomic and psychosocial aspects that may contribute to trigger factors that aggravate psoriasis and presented a high risk of infection for the patient.

Emergency nurses who develop erythroderma psoriasis after covid infection can return to work with occupational medicine management by modifying her tasks to reduce potential hazards and risks to them. It is also necessary to give education on diseases and trigger factors that can aggravate their psoriasis condition.

Keywords: Psychological erythroderma, covid 19, nurses, health care workers, occupational management

Implications of Land Use Conversions Linked to Forest Fire Transboundary Disasters on COVID 19 Cases in Batanghari River Basin, Jambi, Indonesia

Andrio A. Wibowo

University of Indonesia, Indonesia
(E-mail: AAWHealth@outlook.com)

Abstract

Recently, Asian countries including Indonesia are dealing with two important challenges: first is the COVID 19 pandemic and second is the land use conversion that induces transboundary forest fire and haze. The land use conversion using slash and burn method leads to forest fires, leading to haze. Since COVID 19 is a respiratory disease, the presence of haze containing hazardous materials in the atmosphere can risk the respiratory health condition. This problem may also spread to other countries. In fact, most Asian countries are bordered directly to other Asian countries like several areas in Sumatra that bordered directly with Singapore and Malaysia, making haze a potential transboundary implication. this study aims to comprehend the implications of forest fires related to land use conversions on COVID-19 cases in eight sub districts located in Batanghari River Basin District of Jambi Province, Sumatra, Indonesia. This basin is a fertile ground that has experienced frequent land use conversions that triggerforest fires and haze. The study used remote sensing method to assess the land use conversion and forest fire patterns combined with COVID 19 cases for year of 2020 and 2021. Data were then analyzed using Pearson's correlation and validated using Receiver Operating Characteristic (ROC) indicated by the Area Under the Curve (AUC) value. In August 2020, eight fires were recorded in the sub districts and 12 cases were recorded in last March 2021. Based on the correlation analysis, the COVID-19 cases were positively correlated (p = 0.1321) (r = 0.8174) with the number of forest fire cases and the correlation was significant. The AUC value was 0.917 (95%CI: 0.686-0.999), confirming that forest fire and related haze can be used to indicate the presence of COVID 19 cases.

Keywords: AUC, Batanghari, COVID, correlation, forest fire, remote sensing

Preconception Care of Batak Women in Indonesia: An Ethnographic Qualitative Study

Evi Karota, MNS[1], Yati Afiyanti[2]

[1]Faculty of Nursing, Universitas Sumatera Utara, Indonesia
[2]Faculty of Nursing Science, Universitas Indonesia, Indonesia
*Corresponding author's email address: yatikris@ui.ac.id

Abstract

This qualitative ethnographic study aims at exploring Batak cultural preconception care for a healthy pregnancy practice. The samples were 12 Batak women aged twenty six to sixty seven years old who were recruited based on a purposive method under certain criteria and classified into five groups. Three themes were constructed, namely Batak women's efforts in conducting preconception care; cultural practices of preconception care; and barriers of preconception care. The findings show that preconception care has not been conducted optimally by Batak women. Philosophies, values, beliefs, social-environmental context, and cultural dimensions of Batak people influence the Batak women's efforts for preconception care. Batak women perform several methods to prepare their pregnancies according to Batak cultural practices that have been preserved from generation to generation.

Keywords: Batak culture, ethnography, preconception care.

Effect of Sexual Psychoeducation Intervention on Sexual Function and Quality of Life of Women with Gynecological Cancer: A Systematic Review

Atun Raudotul Ma'rifah[1], Yati Afianti[2], Mega Hasanul Huda, MS[3], Yelmi Reni Putri[4]

[1]Faculty of Nursing, Harapan Bangsa University Purwokerto, Indonesia
[2]Faculty of Nursing, Universitas Indonesia, Indonesia
[3]School of Nursing, College of Nursing, Taipei Medical University, Taipei, Taiwan
[4]Faculty of Nursing, Universitas Fort De Kock Bukittinggi, Indonesia
Corresponding author's email address: yatikris@ui.ac.id

Abstract

Sexual psychoeducation interventions are recommended for clinical gynecological cancer patients to improve patient care outcomes. However, the evidence of their effectiveness is far from conclusive. The objective of this study was to identify the best available research evidence related to the effects of sexual psychoeducation intervention on sexual function and quality of life of gynecological cancer patients. A systematic review was conducted to identify English articles from databases during the period of 2010 to 2021 in PubMed, Medline, CINAHL, ProQuest, and Scopus. The search resulted in 9 articles. A critical review was carried out following the Critical Appraisal Skill Program guideline from Cochrane. In the sexual functioning aspect, psychoeducational interventions appeared to have benefits in improving the sexual life of patients. Findings of this study confirm the effectiveness of sexual psychoeducation interventions on sexual function and quality of life of women with gynecological cancer. Health professionals, especially nurses, must play an active role in addressing the complex problems in these patients by providing interventions that utilize a multidisciplinary approaches tailored to meet the individual needs of patients to improve the patient's quality of life.

Keywords: Gynecological cancer patients, sexual psychoeducation intervention, sexual function, quality of life, systematic review

Stress Among Healthcare Workers During The Pandemic COVID-19, How Come?

Muhammad Reza Aditya[1], Muchtaruddin Mansyur[2*], Muhammad Ikhsan Mokoagow[3], Nuri Purwito Adi[4], Dewi Yunia Fitriani[5], Heriani Tobing[6], Jean Marc Pujo[7], Hatem Kallel[8]

[1]Occupational Medicine Specialty Programme, Faculty of Medicine, Universitas Indonesia, Indonesia
[2, 4, 5]Division of Occupational Medicine, Departement of Community Medicine, Faculty of Medicine, Universitas Indonesia, Indonesia
[3]Departement of Internal Medicine, Fatmawati General Hospital, Indonesia
[6]Departement of Psychiatry, Ciptomangunkusumo General Hospital, Jakarta, Indonesia6
[7]Emergency Department, Cayenne General Hospital, Cayenne, French Guiana
[8]Intensive Care Unit, Cayenne General Hospital, Cayenne, French Guiana
*Corresponding author's email address: Muchtaruddin.mansyur@ui.ac.id

Abstract

During the COVID-19 pandemic, there is an increase in workload, as well as greater vigilance and compliance at work due to standard operational procedures that healthcare workers (HCWs) must follow while doing their job, which is worsened by the fear of getting infected with COVID-19. This may trigger and/or aggravate stress in HCW. This observational and cross-sectional design study was held from January 2021 until March 2021 using an online questionnaire, which consisted of a personal and occupation questionnaire and s stressor and stress questionnaire created by the author that had passed the validity and reliability tests (Cronbach's alpha 0.8 and 0.9, respectively). Multivariate analysis was performed using multinomial regression to identify the determinants factor ($p < 0.05$). Data analysis was performed using SPSS version 20. **Results showed that** more than half of respondents had a moderate stress (56.1%), followed by severe and mild stress of 27% and 17%, respectively. Determinant factors in the occurrence of severe stress were level of worker stressors alteration (aOR 8 and aOR 11) and working in the red zone (aOR 3.2). The determinants of moderate stress events were level of worker stressors alteration (aOR 25), working in the red zone (aOR 2.6), and age less than 30(aOR 1.8). **In conclusion,** the determinant factors for the occurrence of severe stress in health workers are worker stressors alteration and work zone while the determinants for moderate stress events are worker stressors alteration, work zone, and age.

Keywords: Stress, healthcare workers, COVID-19 pandemic, hospital

Stressors Experienced by Healthcare Workers in Hospitals During Pandemic COVID-19

Muhammad Reza Aditya[1], Muchtaruddin Mansyur[2*], Muhammad Ikhsan Mokoagow[3], Nuri Purwito Adi[4], Dewi Yunia Fitriani[5], Jean Marc Pujo[6], Hatem Kallel[7]

[1]Occupational Medicine Specialty Programme, Faculty of Medicine, Universitas Indonesia, Indonesia
[2, 4, 5]Division of Occupational Medicine, Departement of Community Medicine, Faculty of Medicine, Universitas Indonesia, Indonesia
[3]Departement of Internal Medicine, Fatmawati General Hospital, Indonesia
[6]Emergency Department, Cayenne General Hospital, Cayenne, French Guiana
[7]Intensive Care Unit, Cayenne General Hospital, Cayenne, French Guiana
*Corresponding author's email address: Muchtaruddin.mansyur@ui.ac.id

Abstract

The specific stressors faced by healthcare workers during pandemic COVID-19 include, among others, the need to maintain biosecurity; risk of disease transmission; limited resources and preparation; personal and work demands; and stigma, both internal and external. This study used a cross-sectional method with an online questionnaire from Januari 2021-March 2021. The Stressor Alteration Questionnaire (SAQ) containing of question regardin gspecific stressors in before and during pandemic, constructed by the researchers and has been valid based on the validity test was used. The alteration in stressors were determined by subtracting the number of stressors from conditions during the pandemic to the equivalent number before the pandemic. Univariate analysis was carried out for all variables while bivariate analysis was carried out to compare stressors between before pandemic and during pandemic COVID-19 and their correlation with other variables (gender, age, working zone, hospital type and location of hospital). Based on the 474 HCWs in this study, all stresors increased significantly (p 0.00) in general, specifically related to work zones and specific stressors on limited preparedness and resources (p 0.047). The hospital's location was shown to be significantly correlated to stigma experienced by healthcare staff(p 0.02). Thus, the increase in stressors, both generally and specifically (biosecurity, risk of disease transmission, limited facilities and resources, personal and work demands, internal and external stigma) among HCWs in hospitals during the COVID-19 pandemic is apparent. The work zone and the location of the hospital are factors that are associated with the incidence of stressors, especially with limited preparedness and resources, as well as the presence of stigma.

Keywords: : Stressor, healthcare workers, COVID-19 pandemic, Indonesia

A Systematic Review of Qualitative Studies on Family Support for A Successful Breastfeeding Experience Among Adolescent Mothers

Vetty Priscilla[1,2], Yati Afiyanti[1], Mega Hasanul Huda[3]

[1]Faculty of Nursing, Universitas Indonesia, Indonesia
[2]Faculty of Nursing Universitas Andalas, Indonesia
[3]School of Nursing, Taipei Medical University, Taipei
*Corresponding author's email address: yatikris@ui.ac.id

Abstract

Family support for adolescent mothers is important in decision making and sustaining breastfeeding because adolescents are vulnerable due to identity crisis. Therefore, it is important to synthesize qualitative evidence in order to obtain the type of family support provided. This study aims to identify, synthesize, and understand the qualitative evidence of family support for successful breastfeeding among adolescent mothers. A systematic review of qualitative studies was performed by collecting studies published from 2000 to 2020 from six electronic databases regarding family support in breastfeeding among adolescent mothers. The quality of the studies were assessed using the Critical Appraisal Skills Programs (CASP). Data were extracted by two investigators and analyzed by using thematic analysis with three steps: coding the text line-by-line; development of descriptive themes, and generating analytical themes. A total of eight eligible study were identified. The common themes were identified and integrated into types of family support (emotional, informational, instrumental, appraisal) as new insights. Appraisal support is the main support required by adolescent mothers for successful breastfeeding. To conclude, breastfeeding a baby and becoming a mother at a young age is not an easy process. Family support is needed to deal with this situation. Appropriate supports provided by family has an impact on successful breastfeeding.

Keywords: Family support, adolescent mothers, breastfeeding

Effectivenes of Internet-Based Electronic Technology Interventions on Psychological Adaptations in Patients With Breast Cancer: A Systematic Review

Yelmi Reni Putri[1], Yati Afiyanti[2]* Mega Hasanul Huda, MS[3] Atun Raudotul Ma'rifah[4]

[1]Faculty of Nursing, Universitas Fort De Kock Bukittinggi, Indonesia
[2]Faculty of Nursing, Universitas Indonesia, Indonesia
[3]School of Nursing, College of Nursing, Taipei Medical University, Taipei, Taiwan
[4]Faculty of Nursing, University of Harapan Bangsa Purwokerto, Indonesia
*Corresponding author's email address: yatikris@ui.ac.id

Abstract

Breast cancer remains a concern both in the world and in Indonesia, where breast cancer is found in 42.1 people per 100 thousand populations. Problems that arise in breast cancer patients include physical, psychological, and social problems. However, psychological problems are the dominant problems that patients suffer from and may trigger other problems to arise. Since nursing care is provided regularly to these patients, nurses need to improve their knowledge and skills help with the psychological adaptation of breast cancer patients so that they are able to accept and settle with their breast cancer status. This study aims to identify the characteristics of current internet-based interventions on psychological adaptation patients with breast cancer. In this study, a systematic review with Randomized Control Trials method was conducted on articles published from 2016 to 2021. Data were collected from five databases (SpringerLink, ProQuest, Science Direct, Scopus and Mendeley.com). Ten studies published between 2015 and 2021 with 3032 patients with breast cancer in 7 countries were included in this study. The characteristics of the interventions were grouped based on (1) mode of delivery (web-based, mobile phone apps, and computer kiosk), (2) purpose of the interventions (education and support), and (3) key strategies (online discussion forum, web-based consultation). Combining educational activities with web-based personalized support through discussion forums appeared to be the most effective way to improve psychological adaptation. Hence, there is a variety of internet-based e-technologies that professionals can use to promote, educate, and support patient with breast cancer. Future internet-based interventions for psychological adaptation employing e-technologies might consider improving interactions with breast cancer patients and personalizing the content of the proposed interventions.

Keywords: Breast cancer, internet-based electronic technology intervention, psychological adaptation,

Role of Church and Nurse Visit in Improving Self Awareness in Preventing HIV Infection in Batak Karo Environment

Elysabeth Sinulingga[1], Agung Waluyo[2], Sri Yona[3], Tris Eryando[4]

[1]Doctoral Program Student, Faculty of Nursing, Universitas Indonesia, Indonesia
[2]Medical Surgery Nursing Department, Faculty of Nursing, Universitas Indonesia, Indonesia
[3]Medical Surgery Nursing Department, Faculty of Nursing, Universitas Indonesia, Indonesia
[4]Department of Demography and Biostatistics, Faculty of Public Health, Universitas Indonesia, Indonesia
Email: elysabeth.sinulingga2021@gmail.com

Abstract

People with HIV/AIDS (PLHAs) do not only experience physical impacts but also emotional and psychological impacts, making it necessary to provide approprite interventions to these patients. These interventions can be provided by health workers and spiritual leaders. Churches reserves the right to influence one's behaviors through teachings about ethical values and norms for living, thereby raising awareness of the congregation in preventing HIV transmission. In addition to the church, nurses also have a role in reducing the stigma against PLHAs in order to prevent the transmission of HIV/AIDS and to make HIV/AIDS management becomes more accurate. This study seeks to identify the most influential factors in the prevention of HIV transmission in Batak Karo cultural environment. This was a cross-sectional correlationl analytic design on 420 members of the GBKP church congregation in Karo district who were sampled purposively. **Results showed** that there was a significant effect between work (p= 0.023), personal stigma (p=0.049), negative self-image stigma (p=0.03), PAS Nurse (P=0.007), Religion (p= 0.0005), and self-awareness (p=0.048) on behaviors preventing HIV/AIDS in Karo district, while the variables of age (p=0.136), education (p=0.985), income (p=0.989), disclosure stigma (p=0.059), public stigma (p=0.311) did not seem to affect the behaviors. The results of the multivariate analysis showed that there were 2 variables that were significantly related to HIV prevention behavior: age and religion, with religion as the dominant variable. Meanwhile, the personalized stigma and negative self-image stigma variables were identified as the controlling variables. The results of the analysis showed that the Odds Ratio (OR) of the religious variable was 3.5 (5% CI: 2.324-5.329), meaning that members of the GBKP congregation with a strong religious belief will have an odds (risk) of preventing HIV transmission behavior 3.5 times higher than GBKP congregation members who do not have a strong religious belief in Karo district. Therefore, religious factor is the most influential factor on HIV/AIDS prevention behavior in Karo district, in addition to the age factor.

Keywords: HIV/AIDS, prevention, behavior, religion, stigma

Institutional Arrangements and Crisis Leadership in COVID-19 Pandemic: Experiences From Selected ASEAN Countries

Kristoffer B. Berse[1], Patricia B. Reyes[2], Micah Angela M. Nazal[3], Lianne Angelico C. Depante[4]

[1]Research and Creative Work, University of the Philippines Resilience Institute, University of the Philippines National College, the Phillippines
[2,3]Research and Creative Work, University of the Philippines Resilience Institute, the Phillippines
[4]National Chengchi University, Taiwan
Corresponding author's email address: kbberse@up.edu.ph

Abstract

COVID-19 pandemic is regarded as an invisible enemy that has altered life as we know it and no region in the world is spared from its social, economic, and political impacts. While various studies in different fields have been conducted on the public health crisis, only a few researches focused on the governance, leadership, and institutional aspects of the pandemic specifically in the context of ASEAN countries. This study serves to fill the research gap by studying the institutional arrangements and crisis leadership of Indonesia, Vietnam, Thailand, Singapore, Malaysia, and the Philippines. Through a qualitative desk review of English-language literature spanning January 30 to July 31, 2020, the researchers assessed the composition of national, COVID-19-dedicated task forces, their crisis leadership approaches, and how these influence the COVID-19 measures of each country. The study finds that countries have existing institutions to fight COVID-19 but some have proven to be more prepared than others. Inclusive and multidisciplinary compositions allow for more seats to be added to the table to participate in policy imagining; this also means including representatives from vulnerable sectors. Countries have adopted similar measures but experience different emerging issues and outcomes. While not a rule, for Vietnam and Malaysia, a centralized, top-down system of leadership has proven effective for control and containment of the virus and while no two crises are alike, Singapore, Thailand, and Vietnam, as countries that recently faced and managed major outbreaks, seem to be better equipped to manage the COVID-19 crisis. All country leaders have relied on scientific, expert advice to different degrees, but then issues of disinformation often come from leaders themselves (Thailand, Philippines, Indonesia, and Malaysia) to the detriment and confusion of the public. However, good messaging and communication practices shine through especially when transparency, clarity, and consistency are prioritized.

Keywords: ASEAN, COVID-19, leadership

Distribution of Dentists, Healthcare Facilities, Dental Care Utilization, and DMF-T Index Use During COVID-19 Pandemic Using Geographic Information System: An Overview

Ayu Asri L, Risqa Rina D, and Melissa A

Departement of Dental Public Health and Preventive Dentistry,
Faculty of Dentistry, Universitas Indonesia
E-mail: ayyulestari@yahoo.com

Abstract

Indonesia is one of the countries participating in the achievement of Sustainable Development Goals (SDGs). One of the goals in the SDG is efforts to improve health. These efforts are inseparable from various supporting factors such as availability of medical personnel, availability of health facilities, access to health facilities, and access to necessary treatment. Dental and oral care are among services that also support to prevent spread of COVID-19. This study aims to evaluate distribution of dentists, health care facilities, use of dental services, and DMFT index using a geographic information system to map data presentation by region. A secondary data analysis using Indonesia Basic Health Research 2018, Health Facilities Research 2019, and Health Workforce Research 2017 were performed. Data on the number of dentists per area, health care facilities, and dental utilization were calculated using Ms.Excel version 16.45 as ratio to population. A spatial distribution map using the Quantum Geographic Information System (QGIS Desktop version 3.18.3) were then used. Findings this study shows inequality in dentist and healthcare facility distribution. The ratio of dentist to population was 1:15.309, while the ratio of dentist practice to population was 1:10.455. The highest distribution of dentists was seen on Java and Bali islands while the lowest was seen in Papua and East Nusa Tenggara. Inequality of healthcare facilities is apparent in the eastern part of Indonesia. Distribution of the utilization of dental health service presents a close relationship between presence of dentist and health facilities. Indonesia's geographical condition that consists of a vast number of islands and underdevelopment infrastructure were factors supporting of this inequality. From this study we can conclude that there is an inequality in distribution dentist and healthcare facilities between areas in Indonesia.

Keywords: Dentist, healthcare facilities, dental service utilization, Geographic Information System (GIS)

COVID-19 Education Visual Media Pre-Test in Keju Lasi Tourism

Yelmi Reni Putri[1], Bangga Agung Satrya[2], Jessica Apulina Ginting[3], Indri Paradillah[4], Oktrina Gustanela[5], Sri Utami[6], Hadi Pratomo[7]

[1]Doctoral Program Student, Nursing Faculty, Universitas Indonesia, Indonesia
[2]Postgraduate Program Student, Biostatistics Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3,4,5,6]Postgraduate Program Student, Health Education and Behavior Science Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[7]Health Education and Behavior Science Department, Faculty of Public Health, Universitas Indonesia, Indonesia
Corresponding author's email address: pratomohadi@gmail.com

Abstract

COVID-19 pandemic gives tremendous impacts for all countries by causing 181,007,816 cases and 3,927,222 deaths as of June 29, 2021 globally. Indonesia, at the same time, has 2,156,465 confirmed positive. Many sectors are affected, including tourism. Keju Lasi tourism is one of tourism objects which is located in Nagari Lasi, West Sumatra, Indonesia that is affected by the COVID-19 pandemic. However tourism sector is still operating, requiring more attention to prevent new cases which may occur in tourism attraction places. The Education and Empowerment Observers Team of Universitas Indonesia has developed and distributed visual media for Information, Education, and Communication (IEC) on COVID-19. This study was a qualitative study using pre-test approach on the visual media tested in Keju Lasi tourism. The data used were primary data obtained directly from key expert informants in the form of in-depth interviews to explore in-depth information about the IEC visual media pre-test related to the prevention of COVID-19 by the Educational and Empowerment Observers of COVID-19 Team using the Rapid Assessment Procedure (RAP). The informants consisted of 2 males and 4 females. Data were then analyzed using a qualitative data matrix and thematic analysis. It was demonstrated that all informants had a basic knowledge of COVID-19 and its prevention. The majority of informants said that the visual media was easy to understand and the content was interesting because it was accompanied by pictures and interesting fonts. The contents were considered good in explaining about COVID-19, so it is suitable to be used in Keju Lasi in the form of a poster. Most informants have direct contacts with visitors, so they are involved in ensure the implementation of COVID-19 relted health protocols. Overall, informants had a positive perception of the visual media for COVID-19 prevention.

Keywords: COVID-19, prevention. educational media, pre-testing, tourism

Sex and Age Group Differences in Tuberculosis Spread in Indonesia: An Agent Based Modeling Approach

Dwi Ari Suryawan S[1], Tiodora Hadumaon Siagian[2]

[1,2]Statistics Polytechnic, STIS, Indonesia
Corresponding author's email address: 211709644@stis.ac.id

Abstract

Tuberculosis (TB) is a serious contagious disease that is considered as one of the top ten main causes of death worldwide. According to the WHO, there were around 10 million cases of the population worldwide affected by TB in 2019, with estimated 1.4 million deaths. In Indonesia, it is estimated that there are 842,000 TB cases in 2018 and around 32% of this cases have not been reported. Data and information on the number and distribution of TB cases are very limited in Indonesia, as it requires certain expertise and large costs in the data collection. Numerous studies have found that the incidence of TB vary among different age groups and between men and women. The elderly population are more susceptible to exposure to TB due to multiple comorbidities and deficient immune response, while men are more likely to be exposed to infectious TB by other men. This condition highlights the importance of studies on the spread of TB by age groups and sex in Indonesia. Therefore, this study used an agent based model to enhance the understanding of the aggregate and the spread of TB in the country. The study results confirmed that at national level, TB incidences varied among different age groups and sexes. The results of this study also reveal the need for further studies on the spread of TB in the age group under 15 years. It is expected that the findings of this study will be useful for informing the TB control program in Indonesia.

Keywords: Tuberculosis, agent-based modeling, age group, sex, Indonesia

Spatial Autocorrelation of COVID-19 Transmission and Population Density in Banyumas District, Central Java

Dyah Nursmarastri S.[1]*, Martya Rahmaniati M.[2]

[1]Undergraduate Student of Department of Biostatistics and Population Studies Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Department of Biostatistics and Population Studies Faculty of Public Health, Universitas Indonesia, Indonesia Corresponding author's email address : dyah.nursmarastri@ui.ac.id

Abstract

Since the rapid spread of COVID-19 in many countries, COVID-19 is declared as a Pandemic by the WHO. Indonesia is also among countries affected by this disease, with an uncontrolable spread of cases. Banyumas District is the district with the second highest number of cummulative cases of COVID-19 in Central Java Province. This study aims to determine the spatial correlation between COVID-19 and population density as risk factors using space-time approach from March 2020 to March 2021. The result found that the number of COVID-19 cases in Banyumas District had a significant spatial correlation (p-value < 0.05; z-value > 1.96) with population density from March 2020 until March 2021, except at October 2020 that showed no spatial correlation. The result of the spatial autocorrelation also identified the spatial pattern of COVID-19 on population density in Banyumas District to have a tendency to be clustered every month. These findings provide more information on the relationship between COVID-19 infection and population density in Banyumas District. The prevention efforts against COVID-19 related to population density should be strengthened to stop the spread by applying social distancing, ensuring compliance to wearing masks, and restricting population mobility.

Keywords: COVID-19, Spatial Autocorrelation, Population Density

Life of Urban Poor Women in Slum Areas during Pandemic: A Case Study in Several Cities in Indonesia

Sri Sunarti Purwaningsih, Ade Latifa, Widjajanti Santoso, and Nina Widyawati

Indonesian Institute of Sciences, Indonesia

Abstract

In Indonesia, rural-urban migration involves people with low skill or education, working in the informal sector, and low income. Many of them migrate with their families and live in slum areas with very poor housing quality and limited sanitation facilities. They are also prone to the effects economic, social, and environmental stressors, as well as the effects of insecurity. They are also vulnerable in terms of access to health care and are prone to diseases particularly communicble infectious diseases. In the current COVID-19 pandemic situation, women of these families seem to suffer most and they may experience the harshest social, economic, and mental health challenges. These women live in impoverished conditions that are subject to high levels of stress and the threat of experiencing health problems will be doubled. They are exposed to be infected with the COVID-19 virus, the risk of lack of protein-energy due to the reduced ability of the family's economy to provide nutritious food, and even the risk of stress resulting in neglecting their health. This paper aims to explain the resilience of women from urban poor migrant families who are facing these various pressures or stressors based on the social capital approach. The data for this paper were mainly collected from our studies related to poor migrant families in Bandung, Surabaya, Makassar, and Bekasi. In addition, we also use the existing publications related to this issue. The results of the analysis show that several elements of social resilience, such as social capital, as well as experiences in dealing with stressors and ability to access health services are very significant enabler for these women to survive. Several cases show that women from poor migrant families can develop social capital to build strong solidarity among their group. The population in vulnerable urban settings, especially in informal settings and slums, rely on each other to fulfil basic needs and access to health services. Although the current focus of attention in the health sector is handling the pandemic, the health of these women should also be prioritized.

Keywords: women, urban poor migrants, informal sectors, access to health care, COVID-19 pandemic

Tolvaptan Response Predictors: A Strategy Toward Better Therapeutic Decision in Patients with Heart Failure

Hindun W. Risni[1], Rani Sauriasari[1*], Oriza Satifa[2]

[1]Department of Pharmacy, Faculty of Pharmacy, Universitas Indonesia, Indonesia
[2]Pharmacy Department, Harapan Kita National Heart Center, Indonesia
Corresponding author's email address: rani@farmasi.ui.ac.id

Abstract

Heart failure as a global pandemic is reflected in its high prevalence, mortality, and health expenditure incurred by the disese. Tolvaptan is a relatively expensive drug that is not covered by the national health insurance scheme to treat acute heart failure (AHF) patients. Cost-effective treatment can be achieved by identifying which patient population benefits the most from tolvaptan, which is referred to as responders. Therefore, this study aims to identify responders and predictors to the use of this treatment. Seventy-five AHF patients with volume overload who received tolvaptan were analyzed retrospectively. Overview of effectiveness and safety of tolvaptan was provided by evaluating clinical parameter changes after treatment. Potential variables that affect tolvaptan response were collected and analyzed using logistic regression. Diuresis responder was defined as peak fluid balance of > -1000 ml, while sodium responder was defined as a > 3.5 mEq/l sodium increase. While urine volume and fluid balance after tolvaptan were not significantly different, eGFR, serum creatinine, sodium, potassium, and blood pressure differed significantly. Hypernatremia occurred in one patient. Regression analysis demonstrated that diabetes (OR = 4.856; P = 0.006) and systolic blood pressure (SBP) (OR = 1.031; P = 0.046) predict diuresis response while sex (OR = 0.159; P = 0.033) and serum sodium (OR = 0.83; P = 0.045) predict sodium response. Administration of tolvaptan significantly changes several important clinical parameters. Patients without diabetes and those with higher SBP might respond well to the diuretic effect, while those who are male and have lower sodium levels might respond well to the sodium increase. The predictors are expected to be used as a part of strategies to achieve better therapeutic decisions and indirectly control public health burden of heart failure.

Keywords: Heart failure, diuresis response, sodium response, tolvaptan

Effectiveness of Prophylactic Administration of Low Molecular Weight Heparin versus Unfractionated Heparin in Hospitalized Patient with COVID-19 and Its Safety Profile

Ariska Deffy Anggarany[a], Rani Sauriasari[a*], Muhammad Alkaff[b]

[a] Faculty of Pharmacy, Universitas Indonesia, Indonesia
[b] Department of Internal Medicine, Persahabatan Central General Hospital, Indonesia
Corresponding author's email address: rani@farmasi.ui.ac.id

Abstract

Even though prophylaxis anticoagulant such as Unfractionated Heparin (UFH) and Low Molecular Weight Heparin (LMWH) are each being used for healing mitigation of COVID-19 associated coagulopathy and thrombosis event, differences in clinical outcomes comparing "vis-to-vis" the two anticoagulants are still to be investigated in the Indonesian population. The purpose of this study was to examine the associations prophylactic administration LMWH and UFH with mortality and its safety profile in patientw with COVID-19. **W**e analyzed medical records of 206 patients with COVID-19 who were admitted to the Persahabatan Hospital, Jakarta, during the period August–November 2020. Among this patients, we compared cohorts of patient who received different prophylactic anticoagulants. The clinical outcomes assessed were in-hospital mortality, coagulation parameters, length of stay (LOS), and bleeding, which were compared in LMWH group and UFH group. We find that the administration of UFH prophylaxis in COVID-19 patients was associated with higher in-hospital mortality than the administration of LMWH albeit strongly affected by age, severity of COVID-19, and presence of kidney disorder (adjusted RR 1.047, 95% CI 0.319-3,436). Subgroup analysis revealed that UFH prophylaxis was associated with a higher risk, although not statistically significant, of in-hospital mortality in those who were severe and critically ill, after controlling for age and kidney disorder (RR 1.363, 95% CI 0.412-4.511). Based on the decrease in the D-dimer value, both types of anticoagulant significantly improved the patients' coagulation state. Phrophylactic LMWH, on the other hand, exhibited a shorter average LOS than UFH (10.92 5.54 vs 13.29 6.55) and a lower incidence of bleeding than UFH for both minor bleeding (n=6 (5.8%) vs. n=22 (21.4%)) and major bleeding ((n=2 (1.9%) vs. n=4 (3.9%)). **Thus,** LMWH prophylaxis has a lower risk of in-hospital mortality, LOS, and bleeding compared to UFH. Nevertheless, both anticoagulants are able to significanly improve D-dimer.

Keywords: Anticoagulant, COVID-19, LMWH, UFH, mortality, bleeding

Strengthening Maternal and Child Health of Urban-Poor Families during Pandemic: Unfinished Agenda

Sri Sunarti Purwaningsih, Ade Latifa, Fitranita

Indonesian Institute of Sciences, Indonesia

Abstract

Maternal and child health in Indonesia remains a problem as indicated by the high number of maternal mortality and infant mortality rates. Despite every individual having the right to access quality health services equally, the poor have more limited access to health services. If the need for health services cannot be met or is delayed, the subsequent impact on people's health conditions can be more severe or worse, which in turns will lead to loss of livelihood. Meanwhile, the need to finance health services increases rapidly. This condition is more difficult for the poor migrant population due to their 'mobile' status, moving from one place to another, making them often escape from health monitoring and cannot obtain optimum health services. This paper discusses the problem of accessibility to integrated as well as continuum maternal and child health services using the five dimensions of access from Obrist et al. (2007) that comprise of availability, affordability, accessibility, adequacy and acceptability. All women should have access to a variety of reproductive health services and care during pregnancy and childbirth, and all babies should be able to grow and develop into healthy children. The COVID-19 pandemic creates a challenge and exacerbates the maternal and child health services in Indonesia. The implementation of maternal and child health programs needs to be integrated effectively through the 'continuum of care'. The data source for this article is based on a study conducted in Surabaya in 2016. Data were collected through a survey of 200 respondents and the results of in-depth interviews with various sources, including medical officers, health cadres, and women who have certain experiences related to maternal and child health services. Existing publications related to the issue are also used for this article. In this current COVID-19 pandemic, strengthening maternal and child health needs to be prioritized. Otherwise, the problem of maternal and child health will remain unsolved.

Keywords: maternal and child health, continuum of care, urban poor families, unfinished agenda, COVID-19 Pandemic, Indonesia

Meta-ID: 619

Analysis on COVID-19 Infection Prevention & Control in Indonesia's Primary Health Care Workers

Robiana Modjo[1,2*], Fatma Lestari[1,3*], Hendra Tanjung[1,2], Riskiyana Sukandhi Putra[4], Meilisa Rahmadani[2,5], Ali Syharul Chaeruman[2], Fetrina Lestari[2], Abdul Kadir[1,3]

[1]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Indonesia Occupational Health Experts Association, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
[4]Directorate of Occupational Health and Sports, Ministry of Health, Republic of Indonesia
[5]Universitas Indonesia Hospital, Indonesia
*Corresponding author's email address: bian@ui.ac.id

Abstract

Workers in Primary Health Care are facing a high risk of COVID-19 transmission. In Indonesia, there has been regulations established to protect healthcare workers from COVID-19 including the Indonesian Ministry of Health regulation No. 413 and No. 327 of 2020. The objective of this study is to analyze the implementation of COVID-19 infection prevention and control in 17 (seventeen) Puskesmas or Primary Health Care facilities (PHCs) in 6 (six) provinces in Indonesia. Eleven variables were analyzed, involving leadership and incident management system; coordination and communication; surveillance and information management; risk management and public involvement; administrative; financial; business continuity; human resources; essential support services; patient management; occupational health; mental health; psychosocial support; rapid identification and diagnosis; and infection prevention and control. Results suggested that several Primary Health Care facilities had complied to these ministry of health regulations in a certain level of compliance, while others still had several areas that needed to be improved. In conclusion, 12 (twelve) out of 17 Primary Health Care (71%) has achieved a category of "very good" and 5 (five) Primary Health Care (29%) are categorized as "good". However, there are several areas of improvement that need to be followed up including occupational health, mental health and psychosocial support (41% compliance); human resources (50% compliance); risk communication and community engagement (RCCE) (57% compliance); and administrative, financial and business continuity (58%). Policy makers, government, and PHCs need to improve workers' protection to prevent and control COVID-19 in health sectors and to improve human resources management. In addition, a new RCCE strategy and business continuity management for COVID-19 pandemic need to be implemented.

Keywords: COVID-19 infection, prevention & control, primary health care facilities, occupational health, healthcare workers protection

COVID-19 Infection Prevention and Control in Indonesia's Hospital Workers

Robiana Modjo[1,2]*, Fatma Lestari[1,3]*, Hendra[1,2], Riskiyana Sukandhi Putra[5], Meilisa Rahmadani[2,5], Ali Syahrul Chaeruman[2], Fetrina Lestari[2], Abdul Kadir[1,3]

[1]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Indonesia Occupational Health Experts Association, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
[4]Directorate of Occupational Health and Sports, Ministry of Health, Republic of Indonesia
[5]Universitas Indonesia Hospital, Indonesia
*Corresponding author's email address: bian@ui.ac.id; fatma@ui.ac.id

Abstract

The COVID-19 pandemic has become a global pandemic. Hospital workers are at the forefront of efforts to deal with COVID-19 infection prevention and control. Hospital facilities are expected to remain functioning, operational, and able to continue providing services during this difficult time. In Indonesia, measures have been established to protect healthcare workers from COVID-19 in the workplace. Several regulations have been released including the Indonesian Ministry of Health regulation No, 413 of 2020 and No. 327 of 2020 for COVID-19 transmission and infections prevention and control. The objective of this paper is to evaluate the implementation of COVID-19 infection prevention and control in 27 (twenty seven) hospitals in 6 (six) provinces in Indonesia in compliance to the Indonesian Ministry of Health Regulations. There were 16 (sixteen) variables evaluated: leadership and incident management system; coordination and communication; surveillance and information management; risk management and public involvement; administrative; financial; business continuity; human resources; surge capacity; essential support services; patient management; occupational health; mental health; psychosocial support; rapid identification and diagnosis; and infection prevention and control. Results suggested that several hospitals had been in compliance with these ministry of health regulations at a certain level of compliance, while others still had several areas to improve. In conclusion, 17 out of 27 hospitals (63%) achieve the category of "very good", 9 hospitals (33%) are categorized as "good", and 1 hospital (4%) is categorized as "sufficient". However, there are several areas of improvement, including surveillance and information management; occupational health; mental health; psychosocial support; and patient management that need to be followed up.

Keywords: COVID-19 Infection, prevention and control, evaluation, hospital, occupational health, hospital workers protection, Indonesian Ministry of Health Regulations

Meta-ID: 630

Organizational Resilience Dynamics of Volunteer Organizations facing Multi-hazards: A Case of Rotary Clubs in RI District 3820

JE Francisco*, RP Dangcalan, JS Amparo & MB Dapito

Department of Social Development Services, College of Human Ecology
University of the Philippines Los Baños, the Phillippines
*Corresponding author's email address: jefrancisco2@up.edu.ph

Abstract

The Philippines, being part of the Asia Pacific region, is regularly bombarded with multiple hazards such as typhoons, volcanic eruptions, and, recently, the global COVID19 pandemic. The risks posed by these hazards add another layer of challenges to organizations and communities who need to cope, adapt, and transform amidst these shocks and events. Using the adaptive cycle framework, the paper aims to identify the organizational resilience dynamics of voluntary organizations in facing multiple hazards, specifically by identifying mechanisms that trigger each adaptive phase, as well as the enabling and hindering factors affecting organizational resilience. The study utilized the case of Rotary Clubs in RI District 3820 covering the provinces South of Luzon. There were 119 surveys with club presidents and key informant interviews of selected District officers conducted in July–August 2021. Initial insights from the study showed the importance of planned, adaptive, and everyday resilience strategies of the organization. Various factors affecting organizational resilience as the organization faces multi-hazards include material resources, social capital, human capital, preparedness and planning, information management, leadership, governance processes, redundancy, and organizational culture.

Keywords: Organizational resilience, daptive cycle framework, multi-hazards, volunteer organizations

Under-Five Children' Growth and Development Monitoring by Cadres During COVID-19 Pandemic

Allenidekania Allenidekania*, Luvie Mevia Azzahra

Faculty of Nursing, Universitas Indonesia, Indonesia
Corresponding author's email address: alleni@ui.ac.id

Abstract

Since the start of pandemic of COVID-19, it is not known whether the activities for monitoring the growth and development of the under-five children at the Posyandu have been carried out or not. The purpose of this study is to identify the activities of Posyandu cadres in monitoring the growth and development of under-five children. This is a cross-sectionl study on randomly clustered sampled cadres from several urban villages in West Jakarta. A total of 327 cadres participated in this study and data collection were conducted online through the use of a google-form. Data were analyzed with chi-square to identify the relationship between cadres' characteristics, cadres' activities, and cadres' beliefs. The result of this study shows that the mean age of cadres was 49.05 years + 9.34 (min-max: 23:80 years), with most cadres (58.1%) were over 49 years old. It was also identified that 67.3% cadres had been working as cadre for less than 11 years and were high school graduates (63%), with 87.2% had income below the minimum wage for Jakarta Province. Monitoring activities for under-fives children's growth and development were still being carried out by cadres with some modifications, and 83.5% of cadres believes that under-five children's growth and development were monitored during the COVID-19 pandemic. Furthermore, length of working as a cadre and cadre's activities during the COVID-19 pandemics significantly related with the cadre's guarantee of under-five children's growth and development being monitored. To conclude, not all cadres perform growth and development monitoring activities for under-five children. Consequently, under-five children in the West Jakarta area are at risk of growth and development problems during the COVID-19 pandemic. This study recommends determining the posyandu activity policy and the role of cadres implemented by the Integrated Health Post (*Posyandu*) to prevent under-five growth and development from being unmonitored.

Keywords: Under-five children, cadre, Posyandu, growth and development, under-five children.

Optimization of Hospital Shift Schedules Amidst The COVID-19 Pandemic: A Personnel Scheduling Problem

Reiniel D. Allanic, Shahira S. Herrera, Stephanie Christine D. Landicho, Aracely Ruth DC., Ramiro, Ma. Teodora E. Gutierrez, Romalyn L. Galingan

Department of Industrial Engineering, College of Engineering and Architecture
Technological Institute of the Philippines
Corresponding author's email address: qrdallanic@tip.edu.ph

Abstract

This study examines an actual personnel scheduling problem in the context of the COVID-19 pandemic, comprising schedules for doctors, nurses, and health aides, in a designated COVID-19 facility in the Philippines. The objective of this study is to improve labor efficiency by lowering hospital and medical center expenditures and to increase the productivity of the medical personnel through the generation of an appropriate timetable to provide a satisfactory level of service and cost control. The researchers applied the cost-benefit trade-off analysis to prescribe the size of hospital personnel needed on duty for a given period. It answers the question of how many hospital personnel of each shift should begin work? And what is their start time over each 24 hour day of a seven-day week? The Linear Interactive and Discrete Optimizer (LINDO) software were used to solve the working time scheduling problem. The initial cost for the employee scheduling included monthly total labor cost of $ 5188.35 and resulted in a monthly total labor cost of $ 1880.13 with the use of Operations Research methodology. In this paper, the hospital savings is 63.61%, which reflects an improvement to reducing the labor costs, and the recommended number of hospital staff shows to improve labor efficiency to 64.07%.

Keywords: Personnel scheduling, operations research, cost-benefit-trade-off, LINDO, COVID-19

Covid-19 Has No Religion: Indonesian Experiences in Facing Pandemic

Amanah Nurish

Universitas Indonesia, Indonesia
Email: amanah11@ui.ac.id

Abstract

The world of virology, like humans, religion, and culture, has evolved along with the development and changing times, including when the COVID-19 outbreak emerged at the end of 2019, amidst the rapid world of technology and globalization. The prevention of the covid-19 outbreak is becoming increasingly difficult because human lifestyles in the age of globalization, combined with the advancement of cross-border transportation systems, cause humans to have a proclivity to go and move and cross borders. On the other hand, this has exacerbated and increased the statistically increasing number of Covid-19 victims. Although the discourse of vaccination and medical approaches has become an alternative to preventing COVID-19 transmission, this is not a guarantee for the stability of the Indonesian people, particularly among religious groups that tend to oppose government and state policies for theological reasons. The fight against the coronavirus outbreak involves not only the worlds of security and intelligence, but also religious groups, which are expected to become the pillar in the protection of their people. In the history of the world civilization, science has been the main adversary of religion, resulting in endless conflicts between the two. Religion provides relief in the midst of fears about the collapse of the economy as a result of the COVID-19 pandemic. Religious approches are still required by groups vulnerable to the COVID-19 virus. However, some groups have exploited the Covid-19 issue as a global religious and geopolitical issue, and they frequently create propaganda news by suing for "conspiracy." It must be acknowledged that groups like this will always exist and grow throughout the history of the world's "depression" caused by COVID-19. This paper attempts to analyze how the Indonesian people are reacting to the COVID-19 disaster through the lens of religion, raising both advantages and disadvantages. Several cases in the field indicate that some people who use religious political reasons, because they do not believe in COVID-19, tend to disregard health protocols, putting them in groups that are vulnerable to being exposed to COVID-19.

Keywords: Pandemic, COVID-19, religion, Indonesia, community

Exploring Counsellors' Experiences on Infant and Young Child Feeding (IYCF) Telecounselling: A Phenomenology Study

Fajar Tri Waluyanti[1], Yeni Rustina[2], Hadiyati Fudla[3], MIlawati[4]

[1,2]Pediatric Nursing Department, Faculty of Nursing, Universitas Indonesia, Indonesia
[3,4]Indonesian Breastfeeding Center, Indonesia
Corresponding author's email address: fajar_tri@ui.ac.id

Abstract

The global pandemic has influenced the stunting reduction program in Indonesia, which drives researchers and stakeholders to prepare some innovations to be adapted to the health interventions appropriate for this situation. One of such models is the e-counselling approach. This method is expected to be able to maintain support to mothers in taking care their child, especially in the first 1000 days of life. This study aims to explore counsellors' experiences when conducting Infant and Young Child Feeding (IYCF) telecounselling. The phenomenology qualitative approach was used to attain information on telecounselling experience from the perspective of the counsellors. Data collected were then anlyzed using the thematic analysis. Participants involved in this study were counsellors who had participated on breastfeeding and IYCF counselling training, had gotten the refreshment module, and had participated in counselling service activities. A total of six counsellors were included in a one-on-one in-depth interview until data saturation was reached. Four themes were identified: excited first experience, telecounselling challenges, significant counselling skills, telecounselling as an alternative to health services. This implied that this service should be recommended as an alternative service.

Keywords: Counsellor, IYFC, telecounselling, phenomenology

Queing Theory for Vaccination Site Assessment in the Philippines: A Case Study

Eula Mae Q. Berroya, Stephanie J. Besana, Cyrille Earl A. Helis, Angela Joyce C. Martin, Engr. Ma. Teodora E. Gutierrez, Engr. Arriane A. Palisoc

Department of Industrial Engineering, Technological Institute of the Philippines Quezon City, Cubao, Quezon City, the Philippines
Corresponding author's email address: qemqberroya@tip.edu.ph

Abstract

The global transmission of coronavirus (COVID-19) is accelerating and mass vaccination is widely regarded as the most effective way to terminate the pandemic while alleviating social restraints and restoring economic activities without harming healthcare services. The local government of Marikina City needs to fully vaccinate at least 290,000 residents to acquire herd immunity. On average, the sports complex can administer 1,000 to 1,500 vaccines per day, depending on the available supply of COVID-19 vaccines. Based on the observations of the researchers, there are four personnel that can accommodate the scheduled residents to receive their vaccine shot. In many countries, dedicated vaccination centers are an important part of that endeavor and optimization of immunization sites is a vital component of that effort. However, there is no information to guide the administration of these sites as there is no directly comparable past experience. In addressing this gap in knowledge, the objective of this study is to demonstrate the value of queuing theory. The queuing theory is applied to identify the service time and arrival time within the eight hour period of the vaccination program. The idea is to figure out how many servers are needed, how long it takes to get a vaccination shot, and how long it takes to wait. Along with the findings of this study, the government will be able to better plan and operate COVID-19 vaccination centers that are efficient and cost effective.

Keywords: COVID-19, queueing theory, mass vaccination, immunization sites, optimization

Measurement of Socio-Epidemiological Vulnerability to COVID-19 Pandemic in Indonesia: A Factor Analysis Approach

Laila Azzamah Ibda Nafisa[1a], Tiodora Hadumaon Siagian[1b]

[1a,1b]Statistics Polytechnic STIS, Indonesia
Corresponding author's email address: [1a]211709780@stis.ac.id, [1b]theo@stis.ac.id

Abstract
COVID-19 pandemic has hit almost all districts/cities in Indonesia. Pandemics are non-natural disasters and have a greater impact on the most vulnerable groups. The impact of the pandemic is quite large in various fields, such as weakening national economic growth, increasing the percentage of the poor, and increasing unemployment. In addition, the increasing prevalence of non-communicable diseases in Indonesia also increases vulnerability to pandemics. The key to effective risk reduction in disasters is the measurement of community's vulnerability. To determine the community's vulnerability against pandemics, a composite measure is needed that can describe the community's vulnerability to the pandemics. Therefore, this study aims to calculate the Socio-Epidemiological Vulnerability Index (SEVI) of the COVID-19 pandemic using the Exploratory Factor Analysis (EFA) and to examine the uncertainty of the SEVI. SEVI was formed based on a framework with 4 dimensions and 28 indicators. From the 28 indicators, 21 indicators were found to meet the assumptions and formed 6 factors, namely Socio-Economic, Transmission of Distribution and Population Mobility, Health Infrastructure, Malnutrition, Comorbidities, and Demographics. Socio-Economic factors are the factors that most forming the SEVI scores during the COVID-19 pandemic in Indonesia. The results showed that in general, districts/cities in Indonesia had a SEVI score in the medium category. Most of the areas with very high SEVI scores only spread in eastern Indonesia (Nusa Tenggara Timur and Papua). In order to reduce the morbidity and mortality due to the COVID-19 pandemic, the government needs to prioritize various efforts and programs for handling the COVID-19 pandemic in areas with very high and high SEVI scores. The SEVI scores from this study can be used to support the mitigation, response, and recovery program to reduce COVID-19 pandemic risk in Indonesia.

Keywords: Social-epidemiological vulnerability, COVID-19, EFA, SEVI

Accessibility Mapping of Community Health Clinics Facilities During the COVID-19 Pandemic in Rural Sukabumi Regency

Tommy Yulianto Putra[1], Dewi Susiloningtyas[1], Masita Dwi Mandini Manessa[1,*]

[1]Geography Departement, Faculty of Mathematic and Earth Science, Universitas Indonesia, Indonesia
* Corresponding author's email address: manessa@ui.ac.id

Abstract

Indonesia has made efforts to provide health services for all people in Indonesia through efforts such as the construction of health service facilities, such as the community health centers (Puskesmas). In Indonesia, health problems are still a problematic, especially in rural areas. There are still disparities in health facility availbility among areas. During the COVID-19 pandemic, the government used community health centers as one of the focal points for COVID-19 control. One of the areas in Indonesia that is dominated by rural areas is Sukabumi District that covers very diverse physical conditions. Factors causing disparity in health facility availability include large population, which makes it difficult for some people to get health services, reach of community health clinics services, and accessibility. In this study, we explored the service capacity of each community health clinics in each sub-district in Sukabumi District to understnd the reach of community health clinics services, as well as the community accessibility in Sukabumi District to get health services. To determine the service capacity, a comparison ratio between the community health clinics and the population was used. The results showed that only 10 sub-districts had adequate capacities. Meanwhile, to determine the reach of community health clinics services, a classification was made by considering distance of more than > 5 km as outside the ideal range. This was followed with a Network Analysis using the service area tool. It was discovered that there were still many settlements that were outside the ideal range. For assessing the accessibility of settlements, the enhanced two-step floating catchment area method was applied were an accessibility index was calculated, resulting in very diverse accessibility and recognition that the distribution of accessibility values in each region is heavily influenced by factors such as the availability of road networks, physical conditions of the area, and ratio of workers health.

Keywords: Accessibility mapping, community health facility, COVID-19 pandemic

Reliability of Alternative Water Sources in Tanzania Rural Water Supply Systems

Lukuba N. Sweya (PhD)[*1,2], Rubhera RAM Mato (PhD)[3]

*[*1]Lecturer, Department of Environmental Science and Management, Ardhi University, Tanzania*
[2] https://orcid.org/0000-0002-1799-9549
[3]Professor, Department of Environmental Science and Management, Ardhi University, Tanzania
Corresponding author's email address: lukuba.sweya@aru.ac.tz

Abstract

This study evaluates the reliability of alternative rural water sources during emergencies through water quality assessment. Concentration of iron as a natural contaminant were assessed in 49 water points whereas a questionnaire was administered to 196 respondents to assess the socio-economic implications of contaminants in water. The concentrations were measured in-situ using a portable pocket calorimeter II using a calorimeter method and a standard descriptive analysis was applied for the questionnaires. Most alternative water sources had an Iron level that brought significant socio-economic impacts on the communities. It was indicated by 99.5% of all respondents that the water turbidity, colour, and taste had led to frequent washing and buying school uniforms and affected the life of utensils and metallic water storage facilities. A more systematic domestic water treatment approach is proposed to enhance rural alternative water source quality and reliability.

Keywords: Reliability, Alternative water sources, socioeconomic, rural water supply, iron

Optimization of Medical Supplies Distribution Based on Fairness and Timeliness in Major Public Health Emergencies

Zheng Fanfan[1], Du Lijing[2], Li Xiaohuan[2], Zhang Jianna[3], Tian Bingwei[1,3]

[1]Institute for Disaster Management and Reconstruction,
Sichuan University, Chengdu 610207, China;
[2]School of Safety Science and Emergency Management,
Wuhan University of Technology, Wuhan 430070, China;
[3]West China Hospital /West China Hospital of Medicine,
Sichuan University, Chengdu 610041, China
Corresponding author's email address: dulijing@whut.edu.cn

Abstract

Medical supplies are needed to guarantee smooth epidemic prevention and control measures in major public health emergencies. Fair and efficient distribution of medical supplies plays an core role in medical supply provision. Aiming at the optimization problem of medical supplies distribution under COVID-19 based on the urgency of demand and by considering the distribution fairness and delivery timeliness, an optimization model of open vehicle routing problem for medical supplies distribution is established in this paper. In order to solve the model, a differential evolutionary algorithm based on fast noninferior solution sorting was adopted and an approximate Pareto optimal solution set was obtained. Finally, the availability of the proposed model was verified by the case of medical supplies distribution in Hubei province and Wuhan city under COVID-19 pandemic in 2020. Compared with the constraint algorithm, the analysis results also show that differential evolutionary algorithm is more superior. The research results could provide theoretical suggestions and practical references for the decision making of emergency supply distribution.

Keywords: COVID-19, urgency of demand, medical supplies distribution, multi-objective evolution algorithm

Importance of Maintaining Body Immunity During COVID-19 Pandemic

Muhammad Dheif Athoillah[1], Firda Alfianti[2], Fatma Lestari[1,3],

Debby Paramitasari[3], Abdul Kadir[1], Duta Liana[4]

[1]Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia,
[2]Environmental Health Department, Faculty of Public Health, Universitas Indonesia, Indonesia,
[3]Disaster Risk Reduction Center Universitas Indonesia (DRRC UI), Indonesia
[4]Pertamina Bina Medika, Indonesia Healthcare Corporation, Indonesia,
* Corresponding author's email address: fatma@ui.ac.id

Abstract

The current state of the COVID-19 pandemic still requires people to carry out all activities at home in order to reduce the spread of the SARS-CoV-2 virus through droplets. Immunity is the body's ability to fight viruses or bacteria; thus, maintaining or increasing body immunity is very important during the COVID-19 pandemic. However, in Indonesia, public understanding regarding the importance of body immunity is still very lacking. This study aims to determine the importance of body immunity and increase knowledge about the importance of maintaining body immunity during the COVID-19 pandemic. This study used a literature study method with journals obtained from Google Scholar and PubMed, as well as additional resources from books and latest news about COVID-19. The WHO continues to review evidence of an antibody response to SARS-CoV-2 infection. The results show that the role of cellular immunity is very important for healing. Studies show that most people who recovered from SARS-Cov-2 infection have antibodies. Some of them have only very small amounts of neutralizing antibodies in the blood. Currently, various countries are conducting SARS-CoV-2 antibody tests on general population or specific groups such as health workers, close contacts of known cases, or household members. The WHO supports these studies because of the importance of understanding the extent of infection and associated risk factors. In increasing the body's immunity, various things can be done, including regular exercise, consuming immune-boosting food, avoiding dehydration and stress, washing hands with soap, getting adequate exposure to the sun, and getting enough rest.

Keywords: COVID-19, immunity, pandemic.

Efficacy of Remdesivir in Reducing SARS-COV-2 Viral Load and Its Safety for COVID-19 Patients : A Systematic Review

Afifah Fauziyyah, Ratika Rahmasari, Rani Sauriasari*

Faculty of Pharmacy, Universitas Indonesia, Indonesia.
*Corresponding author's email address: rani@farmasi.ui.ac.id

Abstract

This study aims to examine the effectiveness of Remdesivir in reducing SARS- CoV-2 viral load and its safety for antiviral therapy in the COVID-19 treatment. A systematic review using data sources of Pubmed, ProQuest, SpringerLink, and ClinicalTrial.gov databases were performed by including all relevant observational and interventional studies valuating Remdesivir in adults hospitalized for COVID-19 from August 2020 to August 2021. The method and reporting of this systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guidelines. A total of 765 patients were studied in 7 relevant studies. Two studies demonstrated a clinical effect of Remdesivir in reducing SARS-CoV-2 viral load in upper respiratory system specimens. Six studies have proven that Remdesivir is safe to use due to no significant hepatotoxicity, does not increase the risk of acute kidney injury, and does not increase the eGFR or systemic symptoms in patients taking Remdesivir. It is concluded that Remdesivir has been proven to reduce the SARS-CoV-2 viral load and is safe to be used as antiviral therapy in the COVID-19 treatment. However, randomized controlled trials of the effect of Remdesivir on viral load reduction have not been available yet.

Keywords: COVID-19, efficacy, Redemsivir, safety, viral load

Unanticipated Vulnerabilities from COVID-19 Lockdowns in Hawaii: An Analysis of Handi-Van ADA Paratransit Users and Barriers to Dialysis Services

Lisa Webster, Micah Fisher, Genesis Leong, Eric Yamashita,
Jiwnath Ghimire, Karl Kim

University of Hawai'i at Mānoa, USA
Corresponding author's email address: lisaweb@hawaii.edu

Abstract

While most research on COVID-19 focuses on direct impacts of the pandemic, policies to stem disease transmission through lockdowns have resulted in new forms of vulnerability. In Hawaii, Handi-Van, which is a 10-passenger van, is provided as a transportation mean for seniors and persons with disability. Thus, Handi-Van users represent the most vulnerable populations as this mode of transport oftentimes is the only form of paratransit transportation available to them to access essential services during the pandemic. With the lockdown, Handi-Van usage dropped significantly for all commuting services. However, the usage for Handi-Van to dialysis service decreased less than other forms of use, accounted for a greater share of trips, and rebounded to higher levels post-lockdown, suggesting the critical nature of this service. In this study, we examine how the lockdown in Hawaii negatively affected the health of dialysis patients using Handi-Van services on Oahu. Using a mixed methods approach, we examined quantitative dynamics of service access from January 1 to June 30, 2020, analyzing over 280,000 trips. We also examined spatial elements of ridership and service centers grounded in a social vulnerability index by identifying the location of both pick up and drop off for each dialysis patient, looking for correlations between census block group social vulnerability and trip frequency. We will corroborate this data through targeted interviews at dialysis service centers and among Handi-Van users to highlight the critical lifeline considerations that emerged during lockdown. This research finds that dialysis accounted for more than half of all Handi-Van non-home visits and has been an overlooked dimension of lockdown policies and social vulnerability. It is suggested that more targeted essential services for populations using paratransit during disasters that employ lockdowns should be made available since the findings highlight that people in need of lifesaving services have coped and suffered during this lockdown. Thus, social vulnerability during disasters should be incorporated into the mitigation measures in situations that employ lockdown.

Keywords: COVID-19, dialysis, lockdown, paratransit, vulnerability

Optimizing the Role of Teachers in Providing Psychological First Aid (PFA) and Health Education in Islamic Boarding School During COVID-19 Pandemic

Dini Rahma Bintari[1], Anna Rozaliyani[2], Herni Susanti[3], Dini Hanifa[4]

[1,4]Faculty of Psychology, Universitas Indonesia, Indonesia
[2]Faculty of Medicine, Universitas Muhammadiyah Jakarta, Indonesia
[3]Faculty of Nursing Science, Universitas Indonesia, Indonesia
Corresponding author's email address: dini.rahma@ui.ac.id

Abstract

Pesantren is an islamic traditional education institution in which students live together in dormitories. Students and teachers at Pesantren live in an educational complex where interactions occur 24 hours a day. Although there has been no transmission of COVID, nor has there been any reported psychological problems, but physical vulnerability due to the dormitory situation, and possible psychological problems in changing situations due to previous psychological problems, are very likely to occur. The researcher conducted health and psychology interventions through zoom media. The program that was implemented in August 2020 had provided health education and Psychological First Aid (PFA) training for teachers to prepare for pandemics in two Islamic boarding schools, Nurul Fikri and Darul Falah, with 82 participants. The steps of the program were health education and PFA workshops for teachers through 4 sessions of online training for each Pesantren with pretest and posttest. The result showed differences in scores between the pretest and posttest related to the online training. The program provided strengthens Nurul Fikri's policy of continuing to extend distance learning which is currently under consideration. At the Darul Falah, the students attend the Pesantren with strict COVID-19 protocol and working together with the government's local health provider to maintain the health of teachers and students. Throughout the year, in both pesantrens there were some teachers and students who were infected by Coronavirus. However with the careful protocol for isolation they learned from the program, all were able to recover and no COVID-19 related mortalities are seen until August 2021.

Keywords: Pandemic COVID-19, pesantren, psychological first aid, online training, teacher

Application of Clustering Ensemble for Grouping Districts/Cities According to Non-Communicable Diseases Susceptibility Level in East Java

'Aisyah Baratut Taqiyyah, Tiodora Hadumaon Siagian

Statistics Polytechnic STIS, Indonesia
Corresponding author's email address: 211709514@stis.ac.id

Abstract

Non-communicable diseases (NCDs) are the main causes of death in both globally and in Indonesia. Despite these conditions, Indonesia's policy has not focused on NCDs. Information to describe the condition of Indonesia's NCDs as a whole is very limited. East Java has the highest number of deaths caused by NCDs in 2019 based on visualization data from the Institute for Health Metrics and Evaluation or IHME (2020) and has the largest contributor to the elderly population in Indonesia. In this study an attempt was made to describe the level of susceptibility of NCDs in East Java. The data used in this study are several risk factors for NCDs originating from Riskesdas data for East Java in 2018. The method used in this study is clustering ensemble based on k-means. After going through the validity test with the Davies-Bouldin Index, Calinski-Harabasz Index, and Silhouttee Index, it was found that clustering ensemble with k=3 is the best solution. Based on these results, the NCDs susceptibility level is categorized into three groups of low, medium, and high. Areas with high NCDs susceptibility levels are areas with the characteristics of higher diabetes mellitus, central obesity, hypertension, consumption of sweet foods, and lack of physical activity levels compared to other groups of susceptibility levels. These areas are areas with high urbanization, inclusing Surabaya City, Madiun City, Mojokerto City, Pasuruan City, Probolinggo City, Malang City, Blitar City, Gresik, and Sidoarjo. The results of this study are expected to be used to support mitigation, response, and recovery plans to reduce NCD prevalence.

Keywords: Clustering ensemble, non-communicable diseases, k-means

Understanding and Improving Health System Resilient in Facing Disease Outbreaks: A Narrative Literature Review

Lichita Indra

Public Health Science Department, Faculty of Public Health, Universitas Indonesia, Indonesia
Corresponding author's email address : lichita.indra@ui.ac.id

Abstract

Disease outbreaks are not new and have gone hand in hand with the development of human civilization. Over the time, incidence of disease outbreaks in the form of epidemics and pandemics is becoming more and more common. In this era of globalization, human connection is getting closer, facilitating the spread of diseases. The ongoing COVID-19 pandemic demonstrates how easily a pandemic can occur and how poorly prepared the health system is in dealing with disease outbreaks. This paper is written to further describe the potential for disease outbreaks in the future as well as countries' preparedness to deal with disease outbreaks. This paper is a narrative literature study conducted by reviewing studies, policy summaries, and other literature. The results obtained are that the state's preparedness to face the outbreak can be established and enhanced by implementing the concept of "resilience" in the health sector. It aims to build a health system that is strong and resilient to face extreme disturbances such disease outbreaks in the future.

Keywords: COVID-19, health system, pandemics, plague, preparedness

Psychological Impacts of COVID-19 Pandemic on Healthcare Workers in South-East Asia (ASEAN) : A Systematic Review

Dyah Ayu Pradnyaparamitha, Adikara Pagan Pratama, Atika

Department of Public Health and Preventive Medicine, Faculty of Medicine, Universitas Airlangga, Indonesia
Corresponding author's email address: mithaayu39@gmail.com

Abstract

COVID-19 pandemic has caused enormous psychologically hazardous impacts to healthcare workers (HCWs) in South-East Asia (ASEAN). This systematic review aims to elaborte on psychological impacts of COVID-19 and its associated risk factors as described in various literature on ASEAN countries published during the pandemic. Literature search was conducted on PubMed and Google scholar from July to August 2021 by following the PRISMA guideline. Ten studies from Phillipines, Vietnam, Malaysia, Indonesia, and Singapore are included in this review. Anxiety, burnout, depression, fear, insomnia, Post Traumatic Syndrome Disorder (PTSD), and stress were the psychological impacts assessed in reviewed studies. Of 5,072 healthcare workers participating in the ten studies, anxiety (11.1% to 49.6%) was identified in Indonesia, Malaysia, Phillipines, Singapore, and Vietnam and a relatively high level of burnout identified in Indonesia (42.4 %) and Singapore (43.5%). In addition, HCWs in Malaysia also experienced personal- (53.8%), work-(39.1%), and patient-related (17.4%) burnouts. Depression was observed in (9.9% to 36.2%) in Indonesia, Malaysia and Vietnam, while moderate to high fear of COVID-19 was seen in the Phillipines. In Vietnam, 20.2% of HCWs experienced insomnia and low to high levels of PTSD (12.1% to 34.3%) were also recognized in 3 Vietnam studies. Stress was identified among HCWs in Malaysia (23.5%) and Vietnam (12.7%) with high mean scores of work related distress was also observed in the Phillipines. Marital status and workplace status were the associated risk factors found in Indonesia, Malaysia, and Vietnam. In conclusion, various psychological impacts were experienced by healthcare workers in ASEAN countries during COVID-19 pandemic with anxiety and burnout as the impacts with the highest prevalence, which are associated with marital and workplace status.

Keywords: Psychological impact, mental health, COVID-19 pandemic, South-East Asia, healthcare worker

COVID-19 Health Protocol implementation in Indonesian Workplace and Industries: Building partnership through a Multisectoral approach

Fatma Lestari[1,2,*], Riskiyana[3]

[1] Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
[3] Directorate of Occupational Health and Sports, Ministry of Health, Republic of Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

COVID-19 pandemic has a significant impact on public health, finance, workplace, and industries. The tremendous impact of COVID-19 pandemic has to be controlled effectively using a multisectoral approach. This study explores the implementation of health protocols for COVID-19 with multisectoral approach across Indonesian industries. The methods used in this study are policy review, interview, and focus group discussion. Data collected were analyzed using thematic and content analysis. Results suggested that several challenges, gaps, and recommendations have been identified in implementing health protocols in Indonesian workplaces and industries. Challenges include the requirements to implement COVID-19 pandemic control and public health measures while maintaining business continuity; increasing workers' participation especially in small medium enterprises; and the objectives for flattening the curve. Building partnership through a strong multisectoral approach combined with implementing workplace and industries health protocols; implementing public health measures; enhancing workplace health and safety management implementation; improving workers' participation and involvement; making workers as agent of change; developing business continuity plans; and enhancing the health protocols implementation in small medium enterprises is necessary. In conclusion, current lessons learned and approach can be used for future recommendations, not only for pandemic control but also for an effective public health disaster management and disaster risk reduction.

Keywords: Pandemic COVID-19, health protocols in workplace, health protocols in industries, public health disaster management.

Combination of Local Wisdom, Forest Products, and Society Participation in COVID-19 Control in East Kalimantan, Indonesia

Dicky Pelupessy[1], Devie Fitri Octaviani[2,4], Fatma Lestari[3,4]

[1]Faculty of Psychology, Universitas Indonesia, Indonesia
[2]Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[4]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

East Kalimantan has a local wisdom known for repelling disasters. This local wisdom is periodically presents in a repelling ceremony that includes elements of social and physical restrictions, which is considered effective in preventing the spread of COVID-19. The objectives of this study is to explore the local wisdom in East Kalimantan, along with forest products use and society participation in COVID-19 control. The methods used in this study are document review, interview, and focus group discussion. Data were analyzed using thematic and content analysis. Results suggested that several local wisdoms including repelling ceremony in Dayak Indigenous People, such as ceremonies of *beliatn bawo, beliatn sentiyu, beliatn Kenyong, beliatn luangan, beliatn bejamu, nuak, bekelew*, and *nalitn taut* were performed in the area. East Kalimantan also has a variety of forest products which a long been known to increase immunity, such as betel leaf, lemongrass, ginger, turmeric, aromatic ginger, Javanese ginger, roots, bajakah stems, and dayak onions. There is also a local wisdom for jamu production containing chamber bitter, king of bitters, moringa leaves, ginger, and kelulut honey that are supplied from three villages in East Kutai, ie. *Saka, Sempayau,* and *Batu Lepoq*. A strong society participation in East Kalimantan was also observed in COVID-19 pandemic control including the use of local traditional masks and disinfectant production from betel and lime leafs from forests in East Kalimantan. In conclusion, a combined strategies between public health measures, local wisdom, use of local resources such as forest products, and society participation can be an effective measures for future pandemic control.

Keywords: Pandemic COVID-19, local wisdom, forest products, society participation.

Disaster Preparedness Influence on Nursing Model of Primary Health Center in Facing Natural Disasters During COVID-19 Pandemic in Malang City, Indonesia

M Fathoni[1], A Yusuf[2], and C Sumartono[3], Prasetya Jati A, Dewi ES

[1] Department of Nursing, Faculty of Medicine, Universitas Brawijaya, Malang and
PhD in Nursing student, Faculty of Nursing, Universitas Airlangga, Indonesia
[2] Faculty of Nursing, Universitas Airlangga, Indonesia
[3] Faculty of Medicine, Head of School Disaster, Universitas Airlangga, Indonesia
[4] Department of Nursing, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia
Corresponding author's email address: mfathony@ub.ac.id

Abstract

Two safe houses are provided by Malang City Government for the purpose of self-quarantine for 120 COVID-19 patients, one is located in the East Java Provincial Government's Education and Training Building on Jalan Kawi with a capacity of 72 beds and the other is located in Malang City Hospital with a capacity of 48 beds. The objective of this study was to identify the benefits of safe houses using self-control in implementing health protocol to provide new insights related to controlling the spread of COVID-19 in Malang, Indonesia. This was a cross-sectional quantitative study using the correlative analytic observational design on 120 respondents. Data were collected using an online questionnaire. Analysis of the data was performed using bivariate analysis through gamma correltion test. Results showed that knowledge factors (p = 0.005; r = 0.37) attitude (p = 0.000; r = 0.48), means of infrastructure (p = 0.000; r = 0.56), and self control (p = 0.000; r = 0.58) influence the self-control of COVID-19 patietns who were self-isolted in the safe houses. Safe house enables patients to gain more knowledge as well as empowering the patient self-control for complying to the health protocols to prevent the spread of the Coronavirus Disease (COVID-19). Thus, strengthening commitment to assertive behavior through self-control is needed so that the community becomes aware of the importance of complying to the health protocols for the common good. This can be done in the safe houses as they have proved to influence COVID-19 control and prevention by improving self-control. Mental health nursing interventions are also needed to provide psychosocial therapy among patients and community at large.

Keywords: Disaster, preparedness, covid-19, primary health center

Meta-ID: 778

Unified Arrangement Between Public Health Mitigation, Local Knowledge, and Community Empowerment in South Kalimantan for COVID-19 Risk Control

Dicky Pelupessy[1], Devie Fitri Octaviani[2,4], Fatma Lestari[3,4]

[1]Faculty of Psychology, Universitas Indonesia, Indonesia
[2]Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[4]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

South Kalimantan has a well-known local knowledge including "*Haram Manyarah Waja Sampai Kaputing*", which means "Stay Enthusiastic and Strong Like Steel from Beginning to End". The integration of local knowledge into a unified arrangement of public health mitigation and community empowerment has been effectively implemented for COVID-19 pandemic control. The objectives of this study is to investigate the local knowledge in South Kalimantan and how it is integrated into the public health mitigation and community empowerment in COVID-19 control. The methods used in this study were document review, interview .and focus group discussion. Data were analyzed using thematic and content analysis. Results suggested that a unified arrangement between local knowledge "*Haram Manyarah Waja Sampai Kaputing*", public health mitigation, community empowerment, including food security program called SERASI (Save Swumps makes Farmers Welfare) were implemented in South Kalimantan. Furthermore, community empowerment was extended to the small medium enterprises empowerment that were involved in producing local traditional masks called "*Sasirangan*", disinfectant production, haz-mat suit, and herbal drinks. In conclusion, a unified arrangement between public health mitigation, local knowledge, use of local resources, and community empowerment can be adopted for future pandemic control.

Keywords: Pandemic COVID-19, local knowledge, community empowerment.

Influence of Intrapersonal Constraints towards Travel Intention of People at Higher Risk for COVID-19 during the New Normal

Dyah Widiyastuti[1*], Ikasari Kusuma Wardhani[2]

[1,2]Tourism Graduate Studies, Gadjah Mada University, Yogyakarta, Indonesia
Corresponding author: dwidiyastuti@gmail.com

Abstract

This study examined the travel intentions of people facing less opportunities for tourism due to COVID-19 pandemic, which could result in the disruption of the fulfilment of their needs to achieve well-being. Tourism constraints due to the COVID-19 pandemic have created a challenge for inclusive tourism, especially for older people and people with comorbidities, where the later comes as a relatively new form of vulnerability in tourism caused by the pandemic. Research on the travel intentions of people at high-risk for COVID-19 during the New Normal is necessary because: (1) in the recovery of the tourism sector, studies on shifts in consumer behavior, in this case the intention to travel, are needed so that the industry can develop destinations according to the changes while keep aiming at inclusive tourism and (2) there is a lack of literature focusing on individuals who are physically susceptible to COVID-19 as a group that experiences barriers to participate in tourism activities. Data were collected through an online survey from June to mid-August 2021 to Jakarta citizens aged 46 years old and above. This study applied descriptive quantitative approach using SmartPLS SEM to test the moderating effect of intrapersonal constraints towards the Theory of Planned Behavior constructs. The SPSS software was also used to identify respondents' profile. The study revealed that travel intention of people at high-risk for COVID-19 was significantly influenced by subjective norms, perceived behavioral control, and intrapersonal constraints. However, the intrapersonal constrain itself did not have any moderating effects towards attitude, subjective norms, and perceived behavioral control. The study is expected to provide some input in the development of inclusive tourism for tourism destinations, en route sustainable tourism.

Keywords: tourism, intention, COVID-19, constraint, TPB.

Meta-ID: 794

A Fusion of Public Health Disaster Mitigation, Local Knowledge *"Jago Jarak"*, and Science Innovation for COVID-19 Control in South Sumatera, Indonesia

Agustino Zulys[1,2], Adonis Muzanni[3], Fira Azzahra[4], Fatma Lestari [2,5,*]

[1]Faculty of Mathematics and Natural Sciences, Universitas Indonesia,
Kampus UI Depok 16424, West Java, Indonesia
[2]Disaster Risk Reduction Center, Universitas Indonesia, ILRC Building 2nd floor,
Kampus UI Depok 16424, West Java, Indonesia
[3]School of Environmental Sciences, Universitas Indonesia, Kampus UI Salemba, Jakarta, Indonesia
[4]Faculty of Medicine, Universitas Indonesia, Kampus UI Salemba, Jakarta, Indonesia
[5]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia,
Kampus UI Depok 16424, West Java, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

South Sumatera has a local knowledge or jargon during the pandemic COVID-19 known as *Jago Jarak* (keep the distance) and *Di rumah bae* (stay at home). This local wisdom is applied to all areas in South Sumatera to stop the COVID-19 transmission. The objectives of this study is to explore the local knowledge in South Sumatera, public health risk mitigation, along with science innovation with local resources in South Sumatera for COVID-19 control. The methodology used in this study is document review, interview and focus group discussion. Data was then analysed using thematic and content analysis. Results suggested that several local knowledge including local jargons for risk communication, science innovation for COVID-19 drugs treatment (*chloroquine*) derived from *jambe* tree, and public health risk mitigation. South Sumatera has implementing a systematic risk communication related to COVID-19 including adoption of local jargons to deliver a message for COVID-19 prevention. South Sumatera has a rich local resources of jambe tree which has known contain of quinine as a precursor of chloroquine. Research and development in South Sumatera also investigates a complementary and alternative medicine (CAM) with local and traditional resources. In conclusion, a fusion strategies between public health measures, local knowledge, scientific innovation with the use of local resources can be an effective measures for future pandemic control.

Keywords: Pandemic COVID-19, local knowledge, traditional COVID-19 drugs development.

Papua Fights Against COVID-19:
"Sa Jaga Ko..Ko Jaga Sa..Kitong Semua Selamat"

Sabarinah[1], Dion Zein Nuridzin[2], Fatma Lestari[3,4,*]

[1]Biostatistics Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Papua has a local knowledge or jargon during the pandemic COVID-19 known as *Sa Jaga Ko.. Ko Jaga Sa..Kitong semua selamat* or "I guard you..you guard me..we are all safe". This local knowledge is applied in Papua for fighting against COVID-19 transmission. The objectives of this study is to explore the local knowledge in Papua in combination to public health risk mitigation and local government policy for COVID-19 control. The methods used in the study were policy review, in depth interview, and focus group discussion. Data were analyzed using thematic and content analysis. Results suggested that several local knowledge including local jargons for public health risk communication and mitigation were used to support the COVID-19 control efforts, including the adoption of local jargons to deliver a key message for COVID-19 prevention as a part of the systematic risk communication. In addition, several local government policies were also implemented in combination of public health risk mitigation such as strengthening the health system, mitigating the social and economic impacts, and maintaining the social safety net. In conclusion, a risk communication strategy that includes the adoption of local knowledge combined with public health measures and government policies seems to be an effective measure for pandemic control.

Keywords: Pandemic COVID-19, local knowledge, public health risk mitigation.

Central Java Combination Strategies Against COVID-19:
"*Jogo Tonggo*" and "*Jateng Gayeng*"

Bagus Aryo[1], Abdul Kadir[2], Fatma Lestari[2,3,*]

[1]Biostatistics Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Central Java has been known to have a culture that is includes local knowledge and jargons. Among the local knowledge or jargons used by the people in Central Java, the *Jogo Tonggo* or looking after one's neighbors is adopted during COVID-19 pandemic. This local knowledge is applied in Central Java as a strategy for pandemic COVID-19 transmission control. The objectives of this study is to explore the local knowledge in Central Java in combination with the existing community movement, public health risk mitigation, and local government policies for COVID-19 prevention and control. The methods to collect data in this study were policy review, in depth interview, and focus group discussion. Data were analyzed using thematic and content analysis. Results suggested that Central Java has implemented a systematic risk communication related to COVID-19 including by adopting local jargons to deliver a key message for COVID-19 prevention. In addition, before the pandemic COVID-19 cases occurs in Central Java, the local government has adopted *Jateng Gayeng* or building positive image and spirits in the region. Several initiatives to adopts local knowledge and approach have been implemented for public health risk mitigations including the use of 5Ng (*Jateng Gayeng Nginceng Wong Meteng*), which is used to promote a systematic and integrated activities to reduce maternal mortality (MMR) and infant mortality rates (IMR). Community empowerment during COVID-19 pandemic was also encouraged, such as by involving garment factories to produce masks. A combined strategy in Central Java during COVID-19 pandemic can be adopted for better risk communication and community empowerment.

Keywords: Pandemic COVID-19, local knowledge, risk communication and community empowerment.

Meta-ID: 803

Factors Associated With Minimum Dietary Diversity of Children Aged 24-59 Months in Karangmulyan Village, Banten, Indonesia

Nabilah Alifia Firdauzy[1], Ratu Ayu Dewi Sartika[1], Endang Laksminingsih Achadi[1], Agus Triwinarto[2], Nisa Nurul Faizah[3]

[1]Department of Public Health Nutrition, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Center for Research and Development of Public Health Efforts, Ministry of Health Indonesia
[3]Study Program of Public Health Science, Graduate School, Universitas Muhammadiyah Prof. Dr. HAMKA, Indonesia
Corresponding author's email address: nalifirdauzy@gmail.com

Abstract

Low dietary diversity is associated with anemia, stunting, and underweight. Previous studies have shown that children and family characteristics are associated with the minimum dietary diversity of children aged 24-59 months. This study aimed to investigate the association between children and family characteristics with minimum dietary diversity of children aged 24-59 months in Karangkamulyan Village, Cihara District, Lebak Regency, Banten Province, in 2020. This cross-sectional study used secondary data. The sample of this study comprised of 210 children aged 24-59 months living in Karangkamulyan Village. Univariate and bivariate data analyses were conducted by using SPSS software. Most children aged 24-59 months in Karangkamulyan Village had a low minimum dietary diversity (78.6%). The age of children was significantly associated (p-value <0.10) with minimum dietary diversity. Family size (OR = 2.732, 95%CI: 1.012-7.377) and parity of the mother (OR = 2.589, 95%CI: 1.028–6.520) were also associated (p-value <0.05) with minimum dietary diversity. The findings of this study suggest the need to promote the Family Planning program implementation.

Keywords: Minimum dietary diversity, children, Indonesia

Disaster Mitigation: Policies, Practices, and Alternatives

Disaster Preparedness Analysis of Health Care Facilities in North Sumatera Indonesia

**Herlina J. EL- Matury[a], Fatma Lestari[b,c], Debby Paramitasari[c], Abdul Kadir[b],
Nobella Arifannisa Firdausi[b], Fatmah[d], Achir Yani[e], Suparni Kusnadi[f], Oktomi Wijaya[g]**

[a]Faculty of Public Health, Institut Kesehatan Deli Husada Deli Tua, Indonesia
[b]Department of Occupational Safety and Health, Faculty of Public Health, Universitas Indonesia, Indonesia
[c]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
[d]School of Environmental Science, Universitas Indonesia, Indonesia
[e]Faculty of Nursing, Universitas Indonesia, Indonesia
[f]STIKes Dharma Husada Bandung, West Java, Indonesia
[g]Universitas Achmad Dahlan, Yogyakarta, Indonesia

Abstract

North Sumatra is an area with various disaster threats such as floods, earthquakes, tsunamis, residential fires, drought, extreme weather, landslides, volcanoes, abrasion, land and forest fires, technology failure, epidemics and disease outbreaks. Safe hospital is a health facility where health services can still be accessed and functioned before, during, and immediately after a disaster. This study aims to assess the disaster preparedness level and readiness of hospitals dan *Puskesmas* (Public Health Centers/PHCs) in North Sumatera Province, Indonesia. This study used a mixed method approach. Data were collected through interviews, observations, and document reviews by referring to the guideline in the WHO/PAHO: Evaluation of small & medium-sized health facilities series 4 and Hospital Safety Index 2015. Variables studied were disaster potentials, structural safety, non-structural safety, and functional aspects that were then synthesized to determine the disaster preparedness level of the hospitals and the public health centers in Indonesian. The average level of Safety Index for 2 hospitals was B, indicating that their ability to function during and after emergencies and disasters are potentially at risk thus intervention measures were needed in the short term. The average level of Safety Index for the PHCs under assessment was A, demonstrating that they will still function in emergencies and disasters. It is recommended to continue measures to improve emergency and disaster management capacity and to carry out measures in the medium and long-term to improve the safety level in case of emergencies and disasters.

Keywords: Disaster preparedness, hospital safety index; North Sumatera, public health center

Spatial Pattern of Earthquake Prone Areas in Bantul District, Indonesia

Susiloningtyas, D[1], Della Ayu Lestari[2], Hengki Tasman[3], Tuty Handayani[1], Annacletus Ari Dartoyo[4]

[1] Geography Department, Faculty of Mathemathics and Natural Science, Universitas Indonesia, Indonesia
[2]Marine Information System, Universitas Pendidikan Indonesia, Indonesia
[3]Mathemathics Department, Faculty of Mathematics and Natural Science, Universitas Indonesia, Indonesia
[4]Geospatial Information Agency, Indonesia
Corresponding author's email address : dewi.susiloningtyas@sci.ui.ac.id

Abstract

Bantul District is located around the subduction zone between the Indo-Australian Plates and also has an Opak Fault which passes through the area, making it an earthquake-prone region. Earthquake is an unpredictable disaster and it is important to implement mitigation measures by studying the history of earthquake occurrence in an area. The purpose of this study was to analyze the average and maximum values of Peak Ground Acceleration (PGA) in Bantul District using the records of earthquakes from 1900 to 2017. This involved the application of Gutenberg - Richter method with the Richter formula, combined with the intensity attenuation formula of Subardjo-Prih Harjadi which is a function of magnitude, epicenter distance, and earthquake intensity [5] [10]. The PGA was later analyzed using the overlapping method on the built-up area and the lowest average value was found to be 33.81 gals while the highest was 36.23 gals. The highest maximum PGA distribution was observed in the northwest and southeast region of Bantul District at the lowest value of 223.58 gals and the highest of 248.42 gals. However, the PGA value showing the potentially enormous risk of damage is on the VII MMI Scale. It is identified that Pajangan, Bambanglipuro, and Pundong Subdistricts is the areas with high average and maximum PGA , meaning that they have a potential higher risk compared to other sub-districts.

Keywords: Earthquake, magnitude, Peak Ground Acceleration (PGA), vulnerability

Good Nursing Practices for Managing Disaster Casualties: Lessons Learned from Indonesia

Achir Yani S. Hamid[1*]; Yudi Ariesta Chandra[1]; Herni Susanti[1]; Sigit Mulyono[1]; Kumboyono Kumboyono[2]

[1] Faculty of Nursing, Universitas Indonesia, Depok, Indonesia
[2] School of Nursing, Faculty of Medicine, Brawijaya University, Malang, Indonesia
*Corresponding author's email address:

Abstract

Disasters can cause widespread destructions, including the destruction of health care infrastructures, which calls for a reduction of the impacts of disasters through fast disaster casualties management. Nurses play an important role which involves understanding how they can respond both during and after a disaster. This is a preliminary study of the development of good nursing practice for managing casualties of disasters from the nurse perspective. This study used the descriptive qualitative survey as the method for collecting data through the use of a semi-structured in-depth interview guide as the instrument. The participants were 36 nurses from the national disaster nursing societies in Indonesia. The data collected were analyzed by using the thematic method. We identified 4 themes comprising 14 subthemes as the indicators of good nursing practices for managing disaster casualties. They are (1) rapid assessment of the client systems; 2) performance of leadership; (3) communication skills; and (4) technical skills. **In conclusion, this** research findings could be used as a reference for evidence-based nursing practice to develop standard competencies on disaster management. The results only reflect nurses' point of view. Therefore, we recommend that further research exploring the perspectives of survivors, community leaders, and other stakeholders on their expectations of health care throughout the disaster cycle should be done. Identified good nursing practices from multiple perspectives will be useful for the development of holistic nursing to manage disaster casualties.

Keywords: Disasters, disaster management, nursing practice, prehospital nursing, competency

A Blended Local Cultural Approach and Public Health Measures in Shaping COVID-19 Curves in North Sumatera

Fatmah[1], Fatma Lestari[2,3], Herlina[4]

[1]Disaster Management Study Program at School of Environmental Studies, Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center Universitas Indonesia, Indonesia
[4]Faculty of Public Health, Institut Kesehatan Deli Husada Deli Tua
Corresponding author's email address: ffatmah@yahoo.com

Abstract
COVID-19 pandemic has opened our eyes that new perspectives need to be implemented in pandemic control. A blend between public health measures and cultural dimension approach needs to be applied as a new public health disaster risk reduction. North Sumatera has been known to have a rich cultural and local wisdom in their society. This paper explores a blended approach between public health measures and local culture and wisdom in flattening the COVID-19 curve in North Sumatera. Data were collected through documents review, in-depth interviews, and Focus Group Discussions (FGD) and were analyzed using the thematic and content analysis. Results suggested that public health measures are best implemented in a blended approach with cultural and local wisdoms best practices to shape and flatten the curve of COVID-19.

Keywords: COVID-19, public health measure, cultural, local wisdom

Local Wisdom Enriching Complementary Feeding Practices During Disaster Situations in Indonesia

Astuti Astuti, Happy Hayati, Dessie Wanda*

*Corresponding author's email address: dessie@ui.ac.id

Abstract

Indonesia experiences natural disasters more frequently than some other countries. As one of the vulnerable groups, young children face challenges in disaster situations related to fulfilling their feeding needs. This study aimed to analyze the practice of complementary foods fulfillment during disaster situations in Indonesia. This research was a case study qualitative research. Data were collected using observation, FGDs, and in-depth interviews. This study involved 17 participants, including humanitarian activists, health care workers, and residents involved in making complementary foods and the primary caregivers of children aged 6-24 months. The background of the disaster is Merapi eruption in 2021 and umedang landslide in 2021. Data were then analyzed using the thematic analysis approach. Five themes were generated from data analysis: 1) Home-based complementary foods based on local wisdom; 2) Inadequate complementary feeding; 3) Limited resources for complementary foods management; 4) Clean versus dirty conditions; and 5) A glimpse of hope in complementary feeding practices. **It is concluded that** several programs provide home-based complementary foods based on local wisdom, even though the food provided is not fully adequate to meet children's nutrition aged 6-24 months. The NGOs provide massive manufactured food and beverages. Nevertheless, the practice of responsive feeding and breastfeeding continue.

Keywords: Complementary Feeding, disaster, local wisdom

Learning from El Niño 2019 Climate Disaster and 1 Year Burnt Area Patterns to Mitigate Urban Fire Risk in Koja Sub District, Jakarta, Indonesia

Fatma Lestari[1,2], Devie F. Octaviani[2], Andrio Adiwibowo[2]

[1]Occupational Health and Safety Department, Faculty of Public Health Universitas Indonesia, Indonesia
[2]Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding Author: Fatma Lestari, Occupational Health and Safety Department Faculty of Public Health Universitas Indonesia, Indonesia,
Corresponding author's email address: fatma@ui.ac.id

Abstract

The best strategy to mitigate disasters in the forms of fire incidents in urban settings is through learning the fire driving forces. One of driving forces causing fire is the climate factors. There are climate anomalies that can lead to the disasters including the El Niño and La Nina. El Niño is a climate anomaly that frequently happens in Indonesia and can lead to dry condition and drought disasters followed by fire incidents. In 2019, Indonesia experienced El Niño which triggered climate-related fire incidents. This research aims to assess how the El Niño can affect fire risk and burnt area in Jakarta, Indonesia. The selected study area is Koja, a populated sub district in North Jakarta District that has dense settlements and prone to the fire risk. In this study, fire risk is measured using the Burnt Area Index (BAI) based on satellite imagery with near infra red and red spectrums. The assessment was conducted for 1 year period to obtain comprehensive dynamic and patterns of urban fire risk. The BAI shows the fire risks in Koja were dynamic and varied during 1 year period. The fire risk increases towards mid year and reaching the peak in May and July 2019 as many spots with high BAI were observed within these months. The BAI decreases in the periods of August to November. The fluctuations in BAI numbers in Koja follow climate trends with mid year has the lowest rainfall and high temperature resulted from El Niño. To conclude, learning about El Niño with its climate attribute can prepare fire management for better fire incident mitigation, especially in urban settings.

Keywords: BAI, El Niño, fire, mitigation, urban

Role of Occupational Medicine Physician in Acute and Sub-acute Phase Disaster Management of Palu-Donggala Disaster, Indonesia

Nuri Purwito Adi[1,2], Dewi S. Soemarko[2,3], Dewi Yunia Fitriani[1,2], Palupi Agustina Djayadi[1], Vicky Amalia Susanto[1]

[1] Occupational Medicine Specialist Program, Department of Community Medicine, Faculty of Medicine, Universitas Indonesia, Indonesia
[2] Occupational & Environmental Health Research Cluster (OEHRC), Indonesia Medical Education & Research Institute, Faculty of Medicine, Universitas Indonesia, Indonesia
[3] Occupational Medicine Master Program, Department of Community Medicine, Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address : Dewi Yunia Fitriani : dewi.yunia01@ui.ac.id

Abstract

Disaster respond activities in acute and sub-acute phase involve many stakeholders. The team consists of rescuers, logisticians, security/army officers, and health care volunteers. Occupational medicine (OM) is a branch of clinical medicine actively working in the field of preventive medicine and management of illnesses, injuries, and disabilities. Even though during disaster rescue and treatment are highly prioritized, prevention of impacts of disaster is also important. The role of an occupational medicine physician has not been practically identified during disaster respond activities in Indonesia. This was a descriptive observational design using a case study as a trigger in the setting of Palu-Donggala earthquake disaster during the acute and sub-acute phases of disaster response. **Results showed that** many volunteers of acute and sub-acute phases of disaster response were engaged in high-risk tasks and exposed to many health hazards. The Occupational medicine physicians team conducted hazard assessment, performed counseling about procedure of evacuation, increased alertness of dehydration and heat stress symptoms, and implemented disease transmission prevention measures. The fulfillment of nutrition and the arrangement of work schedules of volunteers were important issues to prevent work fatigue. The team also did fit to work assessment and emotional mental disorders screening for medical personnel of volunteers who were going to be assigned for duty. In conclusion, the contribution of occupational medicine physicians and implementation of some preventive measures including protection for volunteers are needed during the acute and sub-acute phases of disaster.

Keywords: Disaster management, Indonesia, occupational medicine physician, occupational medicine, preventive measures, fit to work assessment

Meta-ID: 534

Weather Engineering or Mitigation of Drought Disaster in Indonesia: A Case Study on Application of Weather Modification Technology (WMT) in Citarum Watershed on March 12 to April 21, 2021

F. Heru Widodo[1], Tukiyat[2], Andi E Sakya[3], Satyo Nuryanto[4]

[1,2,3,4]Engineers at the Center for Weather Modification Technology, Agency for the Assessment and Application of Technology, PUSPIPTEK Serpong Area, South Tangerang, Indonesia

Abstract

Indonesia often experiences natural disasters. The Indonesian National Disaster Management Agency (BNPB) noted that there are a number of natural disasters that occur in Indonesia including earthquakes and tsunamis, volcanoes, cyclones, droughts, forest fires, floods, and landslides. Throughout 2020, there are 2,952 disasters recorded and, until the end of February 2021, there have been 644 disasters, 99% of which are hydrometeorological disasters, including drought.

Drought often afflicts the availability of reservoir water in Indonesia. To mitigate the impact of this drought, weather engineering can be used to optimize atmospheric resources for filling water in reservoirs, so that reservoir functions become optimal in providing water resources.

This study reports on the effectiveness of WMT to overcome drought potential impacts by increasing the reservoir water capacity. The analysis on WMT activities were performed in the Citarum watershed of West Java during the period of March 12 to April 21, 2021. The rain augmentation was successfully added up to 529.5 million m3 of water into the watershed flow which was equivalent to 307,096.753 kWh of electrical energy. This WMT can thus be seen as part of the endeavor to support the achievement of the Sustainable Development Goals (SDGs), among others, in the field of renewable energy, availability sustainable water, food, and poverty alleviation.

Keywords: Hydrometeorology, drought, weather modification technology, reservoir

Contribution of Weather Modification Technology for Forest and Peatland Fire Mitigation in Riau Province

Tukiyat[1*], Andi Eka Sakya[2], F. Heru Widodo[3] dan Chandra Fadhillah[4]

[1,2,3,4]Engineers at the Center for Weather Modification Technology, Agency for the Assessment and Application of Technology, PUSPIPTEK Serpong Area, South Tangerang, Indonesia

Corresponding author's email address: tukiyat@bppt.go.id

Abstract

Peat forest and land fires has become a main focus of the government given the impact of smoke and carbon emissions resulting in rising air temperatures and global warming. Forest fire is an annual disaster triggered by, among others, low rainfall that requires mitigation measures and control efforts before it happens. Parameters for forest and land fire mitigation are monitored using peatland Groundwater Level (GWL) measuring instruments. The indicators that peatlands are flammable include a water level lower than 40 cm below the surface of peatland. The highest potential for forest and peatland fires occurs in the dry season where rainfall is very low and the intensity of the sun is high.

Weather Modification Technology (WMT) is one of technological solutions to control forest fires by increasing rainfall in potentially affected locations. This study aims to examine the performance of WMT to mitigate forest fires and to carry out wetting on peatlands. The parameters used in this study include rainfall, surface peat water level, and hotspots. This study was conducted in Riau Province on July 24 – October 31, 2020.

The results showed that the operation of WMT could increase rainfall by 19.4% as compared to the historical average in the same period. Rainfall triggered by WMT has a useful contribution to maintain zero hotspots with a confidence level of > 80% and maintain the Groundwater Level (GWL) of peatlands in Riau Province. the WMT contribution to GWL can be modeled $Y = -0.66 + 0.001CH$. The correlation coefficient of rainfall and GWL relationship is 0.567. Positive correlation value means that if the rainfall increases, the GWL will also increase.

Keywords: Peatland, fire, weather modification, groundwater level

Flare-based Weather Modification Technology
for Disaster Mitigation in Indonesia

Samsul Bahri*, F. Heru Widodo **

*,** Principal Engineers at Agency for the Assessment and Application of Technology, Indonesian National Research and Innovation Agency, Indonesia

Abstract
Flare-based weather modification technology is an advanced and latest technique in cloud seeding where the release of chemical particles into the cloud is carried out by means of flares. The modified and certified Piper Cheyenne II aircraft is used as a platform for the delivery of hygroscopic seeding materials into convective cells either to stimulate cloud growth to become rain or disrupt cloud growth so that it does not rain. Flare-based weather modification technology has been applied in several parts of Indonesia in order to mitigate hydro-meteorological disasters by, among others providing water for various reservoirs to be used for agricultural purposes and hydroelectric power plants to overcome forest and land fires, as well as to decrease the rainfall intensity to reduce the impact of flooding and to reduce rain in mining working areas. Flare-based weather modification technology is very practical, fast, and easy to operate compared to other conventional non-flare techniques so that cloud seeding activities can be carried out more effectively and efficiently.

Keywords: Disaster mitigation, weather modification technology, flare-based, convective cells, seeding material, hygroscopic, cloud growth.

Lightning Induced Disaster Early Warning System for Oil Drilling Leakage Recovery Over North Java Sea of Indonesia

H.A. Belgaman, S. Al Ayubi, Purwadi, A.E. Sakya, F. Renggono

Agency for the Assessment and Application of Technology, Indonesia
Corresponding author's email address: purwadi5178@bppt.go.id

Abstract

Activities located at offshore are very vulnerable to ocean disasters. Offshore oil drilling is no exception as oil leaks may occur, requiring recovery process. One of causes of oil leakage is lightning strike. Lightning as a phenomenon of electric charge jumps in the cloud becomes one of the latent enemies to those whose activities taking place at offshore. Cloud to Ground (CG) lightning is one of the most dangerous types of lightning for human life either at ground level or in the offshore area. This study reports on an assessment of the establishment of an offshore lightning early warning system. This system is developed utilizing an X-band weather radar, satellite image, and numerical weather methods. Its main purpose is to disseminate early alert information on the potential of thunderstorm clouds which frequently grow during the seasonal transition period, especially from the dry to the rainy season. Initial trial on lightning mapping in the area of Java Sea is discussed. The use of weather modification technology as a potential lightning mitigation system will be explored more broadly.

Keywords: Disaster mitigation, thunderstorm cloud, lightning, CG lightning

Local Wisdom from East Nusa Tenggara Provinces: Experience in Controlling COVID-19

Rachmadhi Purwana[1], Fatma Lestari[2,3,*], Miranda Surya Wardhany[3]

[1]School of Environmental Science, Universitas Indonesia, Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email: fatma@ui.ac.id

Abstract

Just like other provinces in Indonesia, the province of East Nusa Tenggara is also struggling to deal with the COVID-19 pandemic that is attacking countries in the world. As one of the many provinces in Indonesia, East Nusa Tenggara shows a combination of approaches including local wisdom, religion community, community-based empowerment, public health measures, and disaster management. The present paper describes East Nusa Tenggara Province's experience in COVID-19 prevention and control during 2020-2021. Methods used in this research include document and relevant literature review from East Nusa Tenggara province's formal websites on COVID-19, National COVID-19 Task Force, in-depth interviews, and focus group discussions. To ensure the validity and accuracy of the data, several reliable informants were selected. A transcriber was also involved to obtain qualitative data. All data were then analyzed by means of content analysis. A number of regional specialties appear in the efforts of stakeholders of East Nusa Tenggara in their struggle to flatten the curve of COVID-19 cases. Some of the important lessons learned from this research including religious approach, traditional approach, local wisdom, community engagement, communication model in crisis conditions guided by community participation, and the importance of strong crisis leadership to control COVID-19

Keywords: flattening COVID-19 curve, religious approach in disaster risk, communication model in crisis.

Post-typhoon Disaster Waste Management Capacity Development: Experience of Lautoka, Fiji and Makati, and the Philippines

Noralene Uy[1], Glenn Fernandez[2]*, Misuzu Asari[3], Sainimere Veitata[3], Mahmood Fayazi[4]

[1]Department of Sociology and Anthropology, Ateneo de Manila University, Philippines
[2]Institute for Disaster Management and Reconstruction, Sichuan University, China
[3]Graduate School of Global Environmental Studies, Kyoto University, Japan
[4]Research Center of Innovation on Public Safety in Quebec, Canada
* Corresponding author's email address: glenn@scu.edu.cn

Abstract

In recent years there have been several strong typhoons that have caused heavy destructions in Asia Pacific region, such as Typhoon Haiyan in 2013, which affected the Philippines, and Cyclone Winston in 2016, which affected Fiji. In these disasters, the amount of waste generated overwhelmed local handling capacity and affected other tasks such as rescue operations and delivery of humanitarian aid. It took weeks to treat and dispose of the disaster waste, which posed a serious threat to human health and safety. It is therefore necessary for coastal cities frequently affected by typhoons to have adequate capacity for disaster waste management (DWM). Starting from October 2019, researchers from five universities, with support from the Asia Pacific Network for Global Change Research, provided Lautoka City in Fiji and Makati City in the Philippines with technical assistance on DWM utilizing a blended learning approach which combines online distance education; face-to-face and virtual training; and hands-on participatory preparation of a DWM contingency plan. Training modules include forecasting the types and amount of disaster waste; identifying temporary storage sites; and exploring waste recycling, reuse, and disposal options. The project also has a research component which investigates the DWM training needs of the pilot cities and analyzed the gaps in existing DWM-related policies including the deficiencies in the existing financial, technical, and institutional capacities. At the end of the project, project outputs will include at least 100 individuals trained in DWM; two typhoon-specific DWM contingency plans; and scientific publications. Knowledge products generated by the project are shared through webinars, conference presentations, reports, policy briefs, and a dedicated website in order to benefit more cities. This paper documents the project activities, results, and lessons learned and offers a few policy recommendations on how cities can be supported in preparing for post-typhoon disaster waste management.

Keywords: Capacity building, resource recovery, transdisciplinary research

Effectiveness of Weather Modification Technology in Indonesia in 2019

Andi Eka Sakya*, Budi Harsoyo, M Djazim Syaifullah and Jon Arifian

National Center for Weather Modification Technology, Agency for the Assessment and Application of Technology (BPPT), Indonesia
*Corresponding author's email address: andi.eka@bppt.go.id

Abstract

Weather Modification Technology (WMT) or cloud seeding is an application of technological interference into the weather to accelerate cloud ripening into rain by spreading hygroscopic materials onto a collection of clouds. In the case of mitigating forest and land fire disasters, WMT was first implemented in 1997. Currently, WMT routinely puts on mission almost every year in areas prone to forest and land fires.

This report presents the result of the evaluation of the effectiveness of WMT mission in 2019 used to mitigate the land and forest fires in Riau, South Sumatera, West Kalimantan, and Middle of Kalimantan Provinces, respectively, in the duration from the end of February till mid November in 2019.

The effectiveness of WMT was evaluated by applying the Target Only Method (TOM). Further assessment on the level impact of the augmented rainfall to the number of hotspots at district level represents negative correlations. However, care should be taken by considering the local seasonal cycle. This reemphasizes the need for careful decision making on the proper duration of WMT at each prone area, in particular on the basis of the local seasonal pattern.

Keywords: Weather Modification Technology, evaluation, mitigation, disaster

Key Challenges in Disseminating Tsunami Early Warning to Local Level

Nuwan Dias[1], Richard Haigh[1], Dilnthi Amaratunga[1], Harkunti Rahayu[2]

[1]Global Disaster Resilience Centre, University of Huddersfield, Huddersfield, United Kingdom
[2]Institute of Technology Bandung, Bandung, Indonesia
Corresponding author's email address: n.dias@hud.ac.uk

Abstract

The process of disseminating tsunami warning information is complex as it involves a wide array of jurisdictional agencies and response partners, including national contact points, specialist agencies, and sub-national emergency operations centres and related actors. Limitations in preparedness and early warning have been exposed by the recent tsunami events in Indonesia, highlighting the need to build the local capacity to address a tsunami and other coastal hazards. The Central Sulawesi Tsunami (September 2018) and Western Java and Southern Sumatra Tsunami (December 2018) both caused widespread damage and loss of life. Experience from these has highlighted several specific challenges at the local level that need addressing to improve the Tsunami Early Warning Mechanism. Accordingly, this study identifies challenges in early warning dissemination at the local level based on a systematic and narrative literature review. For the systematic review, a review protocol was developed. Thirty-six articles were reviewed in detail for the systematic review. A narrative review was conducted for online databases and reports. Accordingly, 15 resources were thoroughly reviewed for the narrative study. The NVIVO20 was used for the thematic analysis for data extraction. The findings of the study indicate several challenges for local early warning dissemination. Actionable information is not provided to the communities. People need actionable information on what to do, not just awareness of the existence of a threat. Unavailability of 24/7 local control rooms in some countries (unable to further disseminate warnings during nights and weekends) is also a key challenge. Lack of standard operating procedures (SOPs) for community-level dissemination and evacuation or outdated SOPs at the local level also stands as a critical challenge. Lack of credibility and trust about the source of warning, mainly due to false sirens, lack of trust in local police, are also challenges. Duplication of responsibilities, non-functioning siren towers, unclear local decision-making authority also stands as crucial challenges. Unclear warning messages and the inability to identify the meaning of different warning sounds of towers are also vital challenges in disseminating waring at the local level.

Keywords: Early Warning, Local dissemination, Challenges

Sector Collaboration in Flood Disaster Management and Land Soil Disasaters in Jompo River Flow Area, Jember District, Indonesia

Joko Mulyono, Lukman Wijaya B., Elly Suhartini, and Jati Arifiyanti

Abstract

The fact that the frequency and intensity of disaster events are getting higher day by day brings a more severe impact on the community while the government as the party responsible for disaster management is unable to unilaterally manage the disaster. The philosophy of disaster management is symbolized by the "blue triangle", which means that disaster management is carried out through collaborations between the government, business community, and local community. One thing that is commonly discussed was that each sector or actor has different characteristics, main tasks, and functions. The challenge is how to establish the process of cooperation between sectors and deciding on the nature of cooperation and the level of depth of cooperation between sectors. This study aims to describe the process of cooperation, formulate the nature of the cooperation, and measure the quality of cooperation among the sectors involved. The reference theory used is Thomson & Perry (2006). A qualitative approach was applied and data were collected using the observation techniques, questionnaires, and Focus Group Discussions (FGD). Data were then analyzed using the qualitative descriptive analysis test on collaborations between the government, private sectors, community groups, and the media. This study demonstrated that cooperation between sectors is formed through stages, attendance (participation), discussion (democracy), decisions, and program implementation. Significant levels of cooperation between sectors are communication, commitment, social capital, trust, participation and role sharing. Cooperation between sectors in flood and landslide disaster management in the Jompo watershed is "semi-formal".

Keywords: disaster, collaboration, communication, commitment, semi-formal, sector.

Financing Anticipatory Humanitarian Action in The Philippines: Issues, Challenges, and Prospects

Kristof er B. Berse[1,2], Arnulfo M. Cabarles[1], Dennis G. dela Torre[1], Kirsten Lianne Mae C. Dedase[1], Lianne Angelico C. Depante[1,3], Elton Pierre R. Evidente[1], Sidney Jam L. Sibug[1], and Ralaine M. Tamayo[1]

[1]University of the Philippines Resilience Institute, Philippines
[2]University of the Philippines National College of Public Administration and Governance, Philippines
[3]Corresponding author's email address: lcdepante@up.edu.ph

Abstract

Although there has been increasing recognition of anticipatory humanitarian action (AHA) as a critical component of disaster risk management (DRM), there is a paucity of research conducted on its financial aspect, especially in the context of the developing world. In an attempt to fill this lacuna, this study explores the issues, challenges, and prospects of funding AHA in the Philippines, a country that is considered highly vulnerable to multiple, compounding hazards. Using data from interviews of key informants from the government and civil society and an online survey with 55 respondents from the civil society and private sector, the findings of this work indicate that, on the civil society organizations (CSOs) and businesses' side, the foremost factor affecting the implementation of AHA is the availability of a standby fund, followed by the adequacy of funds to meet needs, the timing of the release, and predictability of triggering mechanisms. On the other hand, constraints for the government include the lack of trigger mechanism guidelines to release appropriated funds, varying operative frameworks, a shortfall in lead time before the onset of disasters, and differences in prioritization of local government units (LGUs), resulting in insufficiency of funds to meet needs arising from unforeseen massive damage and losses of disasters. All things considered, there appears to be more flexibility in undertaking AHA among local CSOs and private businesses in the Philippines relative to government institutions. In light of these findings, the paper concludes with a discussion of policy recommendations and future research directions to help further our understanding and practice of ex-ante disaster risk financing in the country.

Keywords: anticipatory humanitarian action, disaster risk financing, disaster risk management, Philippines

Rethinking The Role of Local Governance in Building Resilience to Disasters and Climate Risks: Reflections From India

Ranjini Mukherjee[1], Anurima Mukherjee Basu[2]

[1] United Nations Resident Coordinator's Office, India
[2] Independent Researcher, Ahmedabad,, India
Corresponding author's email address: - mukherjeeranjini@gmail.com

Abstract

The major disaster events in the past and the recent pandemic that the country is still grappling with have clearly shown that the local actors and the local governance play a critical role in risk management. The Disaster Management Act of India and the Sendai Framework for DRR have identified the importance of local governments in ensuring prevention, better responses, and longer-term resilient recovery from various shocks and stresses including extreme weather events, and health emergencies. However, in practice there are concerns about overlapping jurisdictions with other agencies, capacity issues, and autonomy to take decisions.

This paper discusses the role of local governments in India in disaster and climate risk management .The research engages in a review of the local governance structure amd the legal systems as prevalent in India, as well as juxtaposes with the practical problems on the ground while implementation.

The paper will review the role played by the local governments in managing few notable disasters, including COVID-19, in specific geographies and analyze the existing gaps and challenges. The study will conclude by drawing lessons for rethinking the role of local governments in disaster risk management and building resilience.

Keywords: disaster, risk management, local government, India, resilience

Risk Prevention Model: Towards Risk Management in Coastal Cities

Dr. Jorge Lopez Ortiz

Universidad Nacional Autónoma de México, Mexico
Corresponding author's email address: jorge_lebeau@hotmail.com

Abstract

The damage that hydrometeorological phenomena have done to Mexican territory and, in particular, on Veracruz City, is part of a global trend and the damage increases over the territory and its way to inhabiting it. Hurricanes affect urban life of the coastal city's population and its infrastructure and the risk management programs cannot handle the effects of this phenomenon and its relationship with urban territory. Risk management, from prevention's point of view, requires integral strategies, and its main objective is to include the natural environment's complexity and its capacity to reduce the impact that hydrometeorological phenomena provoke over urban communities. The concept of prevention inside urban management policies is not consolidated, the difference between prevention management from the disaster and the emergency management is numb. Because of this, disaster relief investments focus in resolving the emergency and the recovery, but the investments in prevention are limited. The capacity of preparedness and response to address this problem, requires social inclusion and to identify vulnerable groups to establish prevention differentiated strategies in the territory. This will improve decision making in the different stages of a disaster, more prevention strategies, but less investment to face the emergency. With a decision model, the risk could be managed with prevention strategies, understanding the state of the art, land characterization and the behavior of hurricanes and flooding in the city, identification of vulnerable communities, and development of differential strategies to the actors involved. To Veracruz City, the design of an integrated prevention risk model to confront the impacts of flooding due to hurricanes will generate mitigation strategies to develop an urban environment with habitability and provide decision-making tools to vulnerable communities.

Keywords: Design management, hurricane floods, risk management, governance

COVID-19 in the Workplace in Indonesia

Fatma Lestari[1,3]*, Margaret Cook[2], Kelly Johnstone[2], Miranda Surya Wardhany[3], Robiana Modjo[1], Baiduri Widanarko[1]

[1]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Science Program, School of Earth and Environmental Sciences, Australia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Coronavirus Disease 2019 (COVID-19) is a noticeably contagious viral respiration disorder that has been declared as a pandemic because of its worldwide spread throughout most countries. The COVID-19 pandemic not only impacts the public health but also the operations of the businesses and worker safety in the workplace. The objective of this paper is to provide in-depth reporting regarding the role of the Ministry of Manpower in maintaining worker safety in business continuity plans, prevention of COVID-19 in the workplace, strategies for facing COVID-19, and their roles for terminated employment workers. this study also aims to provide a broad perspective of the implementation of COVID-19 prevention and control in workplaces. This study is conducted through online interviews with the key employees from Ministry of Manpower and selected organizations in various industries including agriculture and animal husbandry, construction, manufacturing as well as logistic and goods transportation. The findings of the study highlights a broad perspective of the implementation of the health protocols, its drivers, barriers, and challenges that are common across the organizations and its sectors. It also provides recommendations to the policy makers to ensure the effectiveness of the implementation of the Health Protocols in the workplace.

Keywords: COVID-19 prevention & control, implementation of health protocols, business continuity during pandemic

Landslide Preparedness of Families in Lanslide-Prone Area Purworejo

Suci Ika Dewi¹, Prima Agustia Nova²

¹Student in Faculty of Nursing, Universitas Indonesia, Indonesia
²Lecturer in Medical Surgical Nursing Department, Faculty of Nursing Universitas Indonesia, Indonesia
Corresponding author's email address: no_vha_fikui@yahoo.com

Abstract

Landslide preparedness is an important action to minimize the impact of disasters. Purworejo is one of the cities in Indonesia which is vulnerable to landslide disasters. This study aimed to identify family preparedness for landslides in the landslide-prone area of Purworejo. A descriptive survey design with a simple random sampling technique was used in this research. This study involved 424 respondents who lived in 5 landslide-prone sub-districts of Purworejo. Results showed that a majority of the respondents were 50-59 years old and had lived in Purworejo for more than ten years. The family living in landslide-prone areas had a high landslide preparedness (50.7%) while 46.5% of respondents in this study experienced the landslide through their relatives or close friends. Three main causes of landslides based on family's perception are heavy rains (28.1%), tree removal (17.7%), and moderate rains for several days (17.5%). This study recommends that the landslides preparedness in the family need to be increased in order to have a better understanding of the risk of a landslide disaster.

Keywords: Family, landslide, preparedness

Role of POLRI's Bhabinkamtibmas in Enforcing the Prohibition of Micro Activities in Villages Using a Software-Based Action Research Approach

Andreas Ricky Trianto, Rachma Fitriati

Police Inspectore, Air Police Directorate, Indonesia National Police (INP)
92110887@polri.go.id, andreas.ricky@alumni.ui.ac.id.
Faculty of Administrative Science, Universitas Indonesia, Indonesia
rachma.fitriati@ui.ac.id

Abstract

The Indonesian National Police (INP) as a State instrument that plays the role of maintaining security and order. Law No. 2 of 2002 stated that the INP is responsible for seeking, preventing, and eliminating any symptoms that may disrupt security and order in society. For this, collaboration between the Police and the community is important. Hence, the INP has formed a unit referred to as *Bhayangkara Pembina Kamtibmas* (Bhabinkamtibmas). Bhabinkamtibmas specific duties and authorities are elaborated in the Regulation of Indonesian National Police Number 3 of 2015 on Community Policing. These include the role of a facilitator for the operation of Community Policing anda liaison between the Police and the local community under the responsibility of the Community Unit of the Precinct. This program is one of the effective ways to build cooperation with the community by creating an atmosphere of security and public order that is safe and conducive. The authority of Bhabinkamtibmas is very broad and comprises of coaching, partnership, and solving problems with the community, both for minor crimes and social problems. Bhabinkamtibmas acts as a mediator and facilitator in every problem in the area of responsibility. This study aims to look at the role of Bhabinkamtibmas in breaking the chain of the spread of the COVID-19 virus during the Implementation of Micro-Community Activity Restrictions (PPKM). This study uses a soft systems thinking-based action research approach. Results show that efforts to prevent and break the chain of the spread of COVID-19 in Indonesia require discipline in many aspects, especially the social life of the community. In a pandemic situation, very strict discipline is needed in people's social life in the form of physical distancing as the most effective effort to prevent and reduce the spread of this virus. The success of this Micro PPKM indeed depends on the awareness and discipline of the community. Here, the role of Bhabinkamtibmas is needed as one of the frontlines in enforcing the restriction. However, this crucial and significant role of Bhabinkamtibmas to prevent the spread of COVID-19 is challenging as it adds to the routine tasks as law enforcement officers and guards of public order. The challenge for all Bhabinkamtibmas personnel in the field is to raise awareness to prevent COVID-19 transmission, both for the community and for the personnel.

Keywords: Micro-community activity restrictions, community policing, COVID-19, community empowerment, Soft Systems Methodology-based Action Research

Application of Health Protocols in Public Transportation during the COVID-19 Pandemic: A Study on Mass Rapid Transit in Indonesia

Rachma Fitriati, Kusnar Budi, Afif Muhammad Ramadhan Sudharamin[1], Ahmad Razzaq Fadillah Nasution[2] and Irham Hasbi Ghaniy

Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

The phenomenon of the COVID-19 virus pandemic, which is currently destroying the world, has forced governments in various countries to take public policies to control the spread of the COVID-19 virus while maintaining the stability of their countries. In dealing with this pandemic, the Government of Indonesia has formulated various public policies such as implementing Large-Scale Social Restrictions, mass vaccines, and, the most recent, the Enforcement of Restrictions on Community Activities. This policy obliged the community to reduce their activities outside the home and exercise physical restrictions when in public places. This requires public transportation such as the MRT to be able to enforce health protocols in order to be able to meet public policies formulated by the government. This study is qualitative case study to explore the implementation of health protocols in mass rapid transit. Results show that the mass rapid transit or MRT operates with various rigorous health protocols to break the COVID-19 transmission chain. The MRT provides features and facilities to help implement health protocol policies. All officers and passengers are required to wear masks from the station entrance. Additional measures also include checking the body temperature of passengers when entering the station, in which if the body temperature exceeds 37.3, entry is prohibited. Passengers are also required to stand at the marked place while queuing, use hand sanitizer, and practice social distancing. The MRT management also issued rules for transactions without direct contact through the use of the MRT-J Apps and Ticket Vending Machines. They also add facilities for maximizing air circulation in the MRT with force cooling and ventilation, as well as various socialization and educational materials on how to protect from the spread of the COVID-19 virus by increasing the number of officers, deliver periodical verbal announcements at stations, and place information screens in stations and MRT areas.

Keywords: Health policy, transportation policy, mass rapid transit, COVID-19

Disaster Management in France : A Long Tradition in Perpetual Improvement

Jean Marc Pujo¹, Hatem Kallel²

¹Emergency Department, Centre hospitalier de Cayenne, France
²Intensive care unit, Centre hospitalier de Cayenne, France Corresponding author's email address: jean.pujo@ch-cayenne.fr

Abstract

In France, disaster medicine is the heir to a long experience in war medicine, the concept of which was invented during the Napoleonic era. The teaching of disaster medicine emerged in the 1980s. It is based on the experience of resuscitators and surgeons who have participated in managing tragic civil or military events. It differentiates between major and unpredictable disasters in which pre-trained teams are sent on-scene with means, from disasters with limited effects whose management is predefined in plans (MERP) constituting the backbone of the relief organization. Disaster medicine deals with all the aspects inherent in managing a large-scale event, both organizationally and in specific medical procedures. Each disaster is characterized by the type of patient and the particular means to manage them. The main concerns are to limit the medical consequences by ensuring early and simple treatment for as many victims as possible before evacuation and to use the available resources efficiently. It requires medical choices that are different than our usual practices and refers to the concept of triage. It is also about not moving the disaster to health facilities. There is, therefore, an entire organizational structure aimed at cushioning the impact for optimal care in the care services. Disaster medicine has grown considerably to become a fully-fledged university-taught practice. It deals with national logistics organizations, specific intervention plans for major risks, the organization of the emergency chain outside the hospital but also inside establishments, the equipment available at the regional level or even triage or management techniques. To conclude, this paper provides description on how french organizations manage these moments of crisis, whether on the national territory or in aid to foreign countries.

Keywords: Disaster manangement, disaster medicine, france

Jakarta Smart City Collaboration with Sekolah.mu for Digital Learning in the COVID-19 Pandemic in Indonesia

Effy Zalfiana Rusfian, Rachma Fitriati, Muazila Norisnita, Ifta Almazah Suhaya, Cesaria Drazaty Nufutomo

Faculty of Administration, Universitas Indonesia, Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

The COVID-19 Pandemic has made the field of business and public services experience limitations that impact the education sector. To deal with the pandemic, the government has issued several regulations regarding COVID-19 handling, inlcuidng the Circular Letter Number 2 of 2020 on the prevention and handling of COVID-19 within the Ministry of Education and Culture and Circular Letter Number 3 of 2020 on prevention of COVID-19 in Education Units. In addition, a Ministry of Education regulation, Circular Number 36962/MPK.A/HK/2020, is also issued to require the adopsion of learning from home to prevent the spread of COVID-19 is stated in. Thus, teaching and learning activities are transferred to the Learning From Home (LFH) method using digital-based electronic media, which requires the ability to read, write, and communicate using digital tools and resources to identify, access, manage and evaluate learning outcomes. This qualitative study aims to explore the implementation of digital learning in DKI Jakarta, Indonesia. The results of the study show that digital learning is one of the renewals of teaching and learning. The collaboration between the DKI Jakarta government and Sekolah.mu is one of the successful corporate citizenship programs. The success of a program is supported by the ability or skills in the field of technology. A collaborative relationship is successful when all parties can face the limitations and shortcomings so that they can take preventive actions. Successful collaboration can also occur if all parties can identify needs that can influence the institutional policies and practices. The collaboration will not work well if it does not build relationships and understand the reciprocity of the learning and teaching experience and the absence of a relationship of mutual respect and collaborative spirit between partners. The collaboration will take place if both parties benefit from the collaboration program. The factors that determine digital learning success are access to technology, teachers as providers of materials, organizations (government) as providers of facilities, and students' ability to use the facilities and receive learning materials.

Keywords: Corporate citizenship, digital learning, COVID-19

Cursed by Monsoon: Flooding and Landslide Challenges in Nepal

Jiwnath Ghimire, PhD*
Assistant Specialist, Department of Urban and regional Planning
University of Hawaii at Manoa, Hawaii, USA
jiwnath@hawaii.edu
* Corresponding author's email address: nepalratnamani@gmail.com

Abstract

All disasters are local, but victims cannot control the sources. The pre-existing socio-economic fabrics and environment settings determine the impacts. Disaster resilience depends on mitigation policies, institutional setups, and risk management practices at government, community, and individual levels. With a case study of flood and landslide mitigation in Nepal, this research explores how the existing policies, institutional setups, response practices, and risk perceptions influence disaster management in a highly disaster-prone developing country.

With extreme rainfall events during the monsoon season (June to August), Nepal experiences reoccurring floods and landslides that cause extensive damage in hill and plain regions of the country. Slope variation, unstable geology, deforestation, uncontrolled land-use changes, and climate variabilities exacerbate these events. The 2021 monsoon season started in the second week of June and is expected to continue until September. During the first two months of the monsoon (June and July), 107 individual lost their lives, and 81 were injured in flash floods and landslides. More than 670 residential houses were destroyed, and numerous roads, bridges, and drinking water projects were affected. These destructions repeat every year in the same geographic regions. Using key informant interviews and data from the government agencies (Ministry of Home Affairs, National Planning Commission, and Central Bureau of Statistics), NGOs, and international relief organizations, this study identifies the gaps between the policies and response practices of floods and landslides in Nepal. The major contribution of this paper is policy recommendations to inform the disaster mitigation and response practices in the country where financial, technological, and human resources are limited for disaster management.

Keywords: Disaster response, flooding, landslide, monsoon, Nepal

Disaster Management Education and Training in Indonesia: A Need Assessment of Demand and Supply Systems

Micah Fisher[1], Karl Kim[1], Pahrian Siregar, Berton Panjaitan[2]

[1]Urban and Regional Planning, University of Hawaii, USA
[2]Education and Training Center, Indonesia Disaster Management Authority, Indonesia
Corresponding author's email address: micahrf@hawaii.edu

Abstract

The Emergency Management/Disaster Risk Management (DRM) discipline is one of the fastest growing fields in higher education. Both the increase in disasters and the associated costs have fueled the demand for new theories and methods for the training and education of DRM professionals across the public, private, and non-profit sectors. There is increased need for guidance, standards, certification, and evaluation of curriculum, learning objectives, and educational effectiveness to ensure high quality education and training of DRM professionals. The research is part of multi-year engagement funded by the USAID at the University of Hawaii. It examines the case of Indonesia, in which the Disaster Management Training Center at the National Disaster Management Agency (BNPB) conducted a study to better understand its role and develop a strategic plan for more effectively targeting and delivering training. The methods include collaborative review of policies and earlier assessments of training needs, followed by an online survey of DM professionals and educators at the national and subnational level. It involved formulation of an action research agenda that translated findings into proposed policy changes and institutional development. Findings highlight the need to bridge technical capacity of DM in Indonesia and expand modalities for training delivery. Online delivery emerged as an important modality because of the COVID-19 pandemic and the challenges of delivering content in a large nation comprised of island communities. The needs analysis provides a stark reminder about the large gaps between mandates, resources, and strategies for successful implementation. The findings provide a roadmap for improvements in training and education for further analysis and deliberation.

Keywords: Disaster management education and training, supply and demand system, need assessment, Indonesia

Capital – Based Assessment of Resiliency to Extreme Hydrometeorological Events in Selected Rice Farming Communities in Butuan City, Agusan Del Norte, Philippines

Evaristo Niño T. Cando III

School of Environmental Science and Management, University of the Philippines Los Baños, Philippines
etcando@up.edu.ph

Abstract

Rice-farming is a major contributor to the Philippine economy. The increasing frequency of extreme hydrometeorological events has hampered rice productivity and damaged critical infrastructures in the community level. In this study, the resilience of the six rice-producing barangays in Butuan City was assessed based on five capital assets. Hypothesized resiliency indicators were formulated and captured through a survey covering randomly selected households (n=300). FGDs and KIIs were also conducted to identify adaptation strategies implemented by the community. The data were standardized using Shapiro-Wilk Test, Pearson's Correlation and Pearson's Chi-Square at 0.05 level of significance. Results revealed that the quality of life and rice production potential of the community were affected by extreme typhoon, drought, and flooding events. Adaptation strategies implemented were livelihood diversification, soil and water conservation, capacity-building and early warning systems. Results showed high access to the physical (0.794), financial (0.780), natural (0.637) and human capitals (0.631) and moderate access for the social capital (0.561).The calculated overall resilience index (ORI) of the rice-farming communities in Butuan City was classified as relatively high (0.681).

Keywords: Community resilience, rice productivity, hydrometeorological, Butuan City

Spatial Accestibility and Resource Access Toward Disaster Resilience: A Case of Victory Island, Guiuan, Eastern Samar, Philippines

Noba F. Hilvano

Eastern Samar State University-Salcedo Campus, Philippines, Philippines
* Corresponding author's email address: nobney@gmail.com

Abstract

Spatial accessibility is critical in sustaining small island communities' existence and survival. Yet, only a few studies focus on small island's spatial accessibility and resource access. About 98 households were surveyed to determine their access to resources and the spatial accessibility (availability of transport, mode of transport used, frequency of travel, cost, purpose, and travel convenience) of Victory Island, Guiuan, Eastern Samar. Victory Island is a very small and low-lying island barangay and was one of the severely affected islands by Typhoon Yolanda in 2013. The results showed that the households in Victory Island were dependent on the mainland to obtain goods and services due to limited resources. However, their resource access is challenged, for the island's spatial accessibility is restricted by bad weather, big waves, and the absence of public transport. As a result, the islanders use their private vehicles to go to the other islands or mainland, wherein some of their relatives, neighbors, or fellow islanders could ride for free. Policymakers can use this study's results in their transport planning and conduct feasibility studies to enable the economical transport of islanders, goods, and services necessary for small islands' survival and disaster resilience.

Keywords: Small island, spatial accessibility, resilience, resource access

Lesson Learned From Decadal (2003-2020) Bedono Village Awareness and Mangrove Reforestation Progress in Mitigating Sea Level Rise Flood Disasters in Demak Coast

Andrio Adiwibowo[1], Fatma Lestari[1,2], Devie F. Octaviani[2]

[1]Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[2]Occupational Health and Safety Department, Faculty of Public Health Universitas Indonesia, Indonesia
* Corresponding author's email address: AAWHealth@outlook.com

Abstract

Sea level rise and flood is a significant disaster experienced by many coastal villages caused by natural and anthropogenic factors including mangrove deforestation and land conversions from intact mangrove to fish ponds. In Java Island, Indonesia, some villages have been reported sinking. Demak, a district in Java Island, has coastal area threatened by severe coastal floods that drowns some villages. Alternative to mitigate the village from sinking due to sea level rise is by increasing village resident awareness that leads to mangrove reforestation practices. Then this paper aims to assess the Bedono Village awareness through mangrove reforestation in Demak in mitigating sea level rise flood hazards from 2003 to 2020. In this study, the mangrove reforestation practice was assessed using remote sensing analysis consisting of Bedono Village land covers from 2003, 2012, to 2020. The land cover was analyzed to assess the differences and change of land covers according time. The results show the coastal mangroves in Bedono have been converted to fish ponds since 1985 and the size of mangrove remnant is only 8 Ha. The size of mangrove is keep declining with the size of mangrove forest was only 0.7 Ha in 2003. Since 2001, Bedono Village has experienced frequent coastal floods. To anticipate and adapt to this conditions, Bedono Village residents have started the mangrove reforestation. As a result, mangrove covers were increasing from 1 Ha in 2010 to 9.5 Ha in 2012. Recently in 2020, mangrove covers have increased 2 folds to 21.4 Ha. The growth of mangrove covers is estimated to be 1.56 Ha per year. To conclude, in the midst of sinking village phenomena in Java Island, Bedono Village has shown its awareness that in progress has safeguarded the village from sinking.

Keywords: Bedono, coastal, land covers, sinking, reforestation

Identification of Districts with High Potential to Participate in the Natural Disaster Insurance Program in Indonesia

Siskarossa Ika Oktora*[1], Ika Yuni Wulansari[1], Tiodora Hadumaon Siagian[1], Bagaskoro Cahyo Laksono[1], Ni Nyoman Ria Sugiandewi[1], Nabila Anindita[1]

[1]Statistics Polytechnic STIS, Indonesia
Corresponding author's email address: siskarossa@stis.ac.id

Abstract

Indonesia is prone to various natural disasters such as volcanic eruptions, earthquakes, floods, tsunamis, and landslides due to its geographical, geological, and demographic condition. Consequently, the Indonesian government and people must be vigilant in anticipating various risks and negative impacts that may arise from natural disasters. Insurance has an important role in building financial resilience to disasters. Insurance can also help in managing and mitigating different risks that may emerge from disastrous events. To date, Indonesia does not have a financial mitigation program because almost all disaster resolutions use emergency funds from the state budget (APBN). In fact, it is important to use insurance schemes in all stages of disaster management. Therefore this study has two objectives i) to identify districts with high potency to participate in the natural disaster insurance program in Indonesia and ii) to estimate the percentage of households that have the potential to join the natural disaster insurance program in each district. This study uses the 2019 National Socio Economic Survey (SUSENAS) data from BPS and IRBI (disaster risk index) scores from BNPB. The results show that some districts in Aceh Province (Simeulue, Pidie Jaya, Pidie, Sabang City, Lhokseumawe City, Langsa City, Banda Aceh City, Gayo Lues, Southwest Aceh, and West Aceh) are districts with high potency to participate in the disaster insurance program. In contrast, some districts in Central Java province, though categorized as high-risk of disaster-prone areas but have a fairly low level of insurance participation. Moreover, based on quadrant analysis, it is found that 43 districts with high IRBI scores but with low insurance participation rates and they mostly found in West Java and South Sumatera provinces.

Keywords: Natural disasters, High potency, District, Insurance program

Policy Brief: Risk Injury and Hazard Prevention For Nursing Safety

Sri Yulia[1], Achir Yani S. Hamid[2], Hanny Handiyani[3], Ede Surya Darmawan[4]

[1,2,3,4] University of Indonesia
Corresponding author's email address: sriyulia0310@gmail.com

Abstract

Robust efforts to prevent the risks of injury and hazards from happening is important to avoid impacts on the quality of services provided by nurses. The challenges related to nurses' workload have a significant impact on the health and nursing safety and provide a comprehensive basis for recognizing the risk of injury and sources of risk injury experienced by nurses. Longer shifts, tiredness, discomfort and helplessness, insomnia, risk of contracting blood-borne pathogenic agents, mobility and physical burden in managing patients, nurses' moral condition, job satisfaction, organization commitment, and desire to quit are among real situations that are associated with various risks of injury and sources of hazards as a cause. The policies that have not been optimum and the implementation of policies related to the risk of injury and hazard prevention for nursing safety are the basis for analysis and recommendations regarding the fulfillment of nursing safety in Indonesia. The risk of injury and accidents experienced by nurses in carrying out their work comes from various causes. The Ministry of Labor, Nursing Organizations, Ministry of Health, Local Government, and Hospitals as the main stakeholders of policies regarding nursing safety and they need to pay attention to and follow up on various recommendations regarding optimizing the work environment and hospital management to realize nursing safety. Weaknesses in policies need to be corrected in order to create policies that are able to protect nursing staff and optimization of the work environment and hospital management needs to be done by synergizing all policies so that they can lead and support nursing safety.

Keywords: Risk injury, hazards prevention, nursing safety

Learning From East Sumba Cyclone Seroja:
What Went Wrong and How We Can Reduce The Disaster Risks

Charles M. Ham

Department of Urban and Regional Planning, University of Hawaii at Manoa, USA

Abstract

East Sumba District in Indonesia inherits thousand years of history and culture. It is located along the ring of fire with rolling hills, dry climate, slow economic development, and pockets of communities which have survived various disasters over the millenniums. Recent Cyclone Seroja in April 2021 brought a sudden catastrophe of heavy wind, excess rain, landslides, and flooding. This paper describes the recent situation of East Sumba and how people turn their disaster vulnerability into disaster resilience and their needs for sustainable hazard mitigation as they are rebuilding five months after the disaster.

Emergency and Crisis Management

Fire Risk Mapping in Jakarta

Fatma Lestari[1,2]*

[1] Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Jakarta is the Capital City in Indonesia with more than 10 million population. Dense population in Jakarta increases the fire risks. The objective of this study is to conduct Fire Risk mapping in Jakarta. This was a cross-sectional study with a non-probabilistic sampling approach/stratified sampling. Data were collected using the Fire Risk assessment Checklist, selected Document review, Focus group discussions, and questionnaires. Instruments were developed using a disaster Fire Risk approach including Fire Hazards, Vulnerability and Fire Protection/Fire Management.The iInstruments consist of 2 different types: 1) Fire Risk Assessment Checklist for Local Government Fire Department which contains 22 questions and 2) Questionnaire for Head of Neighborhood (*Ketua RW*), contains 22 questions. Data were then analyzed using univariate analysis, bar chart and Spider web, which were contemplated on Jakarta's map. Results suggested that the highest Fire Risks are identified in some areas, making them a high risk areas for fires. There are several recommendations suggested to increase community-based fire protection and empowerment, including provision of fire hydrants in some area with lack of or poor Water Supply and structured and implementation of a Massive Open Online Systematic Fire education and promotion to increase community awareness on Fire safety.

Keywords: Fire risk mapping, fire risk assessment, area fire risks

Maximum Entropy Based Urban Fire Risk Distribution Modeling Under Climate Influences in Northern, Western, and Southern Areas of Jakarta City, Indonesia

Isradi Zainal[1,2], Fatma Lestari[2,3*], Satriadi Gunawan[4], Andrio Adiwibowo[2]

[1] University of Balikpapan, Indonesia
[2] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[4] Jakarta Provincial Fire and Rescue Agency, Indonesia
* Corresponding author's email address: :fatma@ui.ac.id

Abstract

Fire incidents in urban setting are influenced by many factors ranging from population to building density and climatic variables. Currently, fire incident can be estimated using various variables and modeling methods including using the maximum entropy approach. The aim of this study is to model the potential spatial distribution of areas in Jakarta City mainly in Northern, Western, and Southern areas that are prone to the fire risks. The model was developed using the maximum entropy approach using climatic variables obtained from WordClim database as predictors. The model was then validated using area under the curve (AUC) values. The climatic models show that the Northern and Western parts of Jakarta receive lower rainfall compared to the Southern part. Based on the modeled probability distributions of fire risks, the Northern and Western parts have the highest probability distributions of fire risks with a value of 50%. The AUC validates the probability distributions of fire risks model with an AUC value of 0.64 ± 0.07. The results obtained from this study can be used for planning fire prevention.

Keywords: AUC, fire, maximum entropy, urban, WorldClim.

Fire vehicle Route, Response Time, and Service Coverage Optimizations in Pekojan urban village, Tambora Subdistrict Fire Hotspot, Indonesia

Isradi Zainal[1,2], Fatma Lestari[2,3*], Jarot Semedi[4], Nurul Rahatiningtyas[4],
Satriadi Gunawan[5], Andrio Adiwibowo[2]

[1] University of Balikpapan, Indonesia
[2] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[4] Geography Department, Faculty of Mathematic and Natural Science, Universitas Indonesia, Indonesia
[5] Jakarta PRovincial Fire and Rescue Agency, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Several challenges are faced in managing fire hazards in urban setting, including the availability of fire service, response time, and service coverage optimization. One of urban fire hotspots in populated Jakarta City is Pekojan urban village, Tambora subdistrict. This subdistrict is served by the Angke fire station located in the South West part of Pekojan. This study aims to evaluate and compare the optimized routes for Angke fire stations to serve 12 neighborhood units (*Rukun Warga,* RW) in Pekojan. The route optimization was made using the network analysis in Geographic Information System (GIS). Based on the results and with the assumption of a fire truck speed of 40 km/h, the average optimized route distances to travel from fire station to RWs is 1.092 km (95%CI: 0.888-1.3 km) with the average response time of 1.638 minutes (95%CI: 0.869-2.41 min.). According to the GIS model, the response time of 1 minute only covers 22.77% of Pekojan areas while increasing response time to 2 minutes, the fire truck can cover 98.9% of Pekojan area (AIC= 0.06).

Keywords: GIS, fire vehicle, network analysis, optimization, route.

Validating the 6 Year (2016-2021) Anthropogenic Induced Small Island Wildfire Hazards in Pulau Seribu Archipelago, Indonesia

Fatma Lestari[1,2] *, Devie Fitri Octaviani[2], Andrio Wibowo[2], Satriadi Gunawan[3]

[1] Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract
One of the challenges of living in small islands is the threat of wildfires. Fires in this situation is usually caused by the presences of volatile shrubs and anthropogenic influences. This study aims to validate the impacts of the anthropogenic influence for the period of 2016 to 2021 in the form of settlements on wildfire risks in several occupied small islands in Pulau Seribu archipelago. One unoccupied island was used as control. Chi square and Receiver Operating Characteristic (ROC) were used in the analysis. Results showed that human occupancy has significantly contributed to the wildfire frequency and burnt areas (x^2 = 48432.5, p = 0.01). The occupied islands had the highest wildfire frequencies of 0.7 cases per year and the highest burnt area averages was 3450 m^2 per year. The unoccupied island only experienced 0.2 wildfires per year. In the validation using the ROC, with an area under ROC curve value (AUC) of 0.671 (95%CI: 0.301-1), the accuracy of the anthropogenic factors as the proxy of wildfire hazards in Tidung Island was slightly higher than the Pari Island with the AUC of 0.633 (95%CI: 0.321-0.946). This result confirms the potential of anthropogenic influence as a proxy of wildfire especially in Tidung Island.

Keywords: anthropogenic, AUC, ROC, shrub, wildfire

Synergy of Local Wisdom in Government's Efforts to Overcome COVID-19 Pandemic in Yogyakarta, Indonesia

Suyud Warno Utomo[1,3], Fatma Lestari[2,4,*], Adonis Muzanni[3,4]

[1] Department of Environmental Health, Faculty of Public Health, Indonesia
[2] Department of Occupational Health and Safety, Faculty of Public Health, Universitas Indonesia, Indonesia
[3] School of Environmental Science, Universitas Indonesia, Indonesia
[4] Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

The COVID-19 disease is originated from the city of Wuhan in China. This disease was first identified in December 2019 and has spread to all countries in the world. One of the areas affected by the coronavirus in Indonesia is the Special Region of Yogyakarta. Yogyakarta has dealt with various disasters in the past and, as a cultural province, has succeeded in overcoming the disasters by incorporating the local wisdom. Disaster management based on local wisdom is carried out at the emergency response, rehabilitation and reconstruction, and reconciliation stagez. This research aims to conduct further studies on the integration of local wisdom in Yogyakarta in dealing with the COVID-19 virus outbreak. This study used primary data and secondary data. Primary data were obtained directly through field observations during a period of approximately 5 months and In-depth interviews with officials responsible for COVID-19 management in Yogyakarta, academics, heads of village, and local leaders. The secondary data used were data on COVID-19 cases in Indonesia, especially in Yogyakarta. Data collected were then be analyzed descriptively to describe the management of COVID-19 in the Yogyakarta. The spread of the Coronavirus Disease or COVID-19 has caused many changes in various aspects in Indonesia, including in the DIY Province. Local wisdom incorporated in COVID-19 pandemic control includes various aspects such as leadership, mutual cooperation, social and culture, *Jogo Tonggo*, self-quarantine, angkringan, Disaster Response Village, wash hands, community assistance, use of marketplaces, use of technology, involvement of pentahelix, collaboration with Micro, small, medium, enterprises (MSME), and collaboration with technology companies.

Keywords: COVID-19, Local wisdom, socioculture aspects, pentahelix

Early Childhood Education Center Fire Risk Model in Pekojan Urban Village, Tambora Subdistrict Fire Hotspot, Indonesia

Fatma Lestari[1,2], Devie Fitri Octaviani[2], Andrio Adiwibowo[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

School is one of the structural objects in urban settings that vulnerable to fire incidents. This study evaluates the fire risks of three Early childhood education centers (ECE) located in Pekojan, one of the urban villages in Jakarta City with a high fire risk. The assessment was based on GIS and network analysis and Ordination and Multi-Dimensional Scaling (OMDS) to determine fire vulnerability scores. The attributes used to measure the vulnerability scores were distance to access a fire station, health facilities, main road, and distance between building of the three observed EEC (a, b, c). Based on the analysis, for the EEC-fire station shortest access distance, the order was EEC c (1.16 km) > EEC b (0.768 km) > EEC a (0.54 km). Whereas for EEC-health facility routes, the order was EEC a (1.09 km) > EEC b (0.869 km) > EEC c (0.26 km). The order of the distance between the EEC and the main road from the longest to the shortest was EEC a (5.63 m) >EEC b (4.17 m) > EEC c (1.35 m). As a result, the vulnerability score was in the following orders of EEC a > b >c. This indicates that EEC a is more vulnerable to fire risks in comparison to other EECs.

Keywords: Childhood, EEC, fire, GIS, OMDS, vulnerability

Cluster Recognition of 2016-2021 Urban Fires and its Implication on Fire Management and Poverty in West Jakarta District

Fatma Lestari[1,2], Devie F. Oktaviani[2], Andrio Adiwibowo[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding author's email: fatma@ui.ac.id

Abstract

Urban fire is one of the challenges faced in fire management in urban setting. A novel method is then required to identify urban fire clusters. One of the robust methods to identify and determine an incident cluster is using the GIS spatiotemporal clustering. In this study, urban fires were studied based on the fire incidents registered for 6 year period of 2016-2021 in 8 sub districts of West Jakarta City, Indonesia. The dataset consists of the numbers of available fire stations and numbers of people with poverty to put the study in the urban fire management and poverty context. For 6 year, it seems that fire incidents has shifted Eastward. Clustering results revealed that there were 2 clusters according to fire incident levels. The first cluster was identified in the Eastern parts of district with areas encompassing 5 sub districts with high number of fire incidents. The second cluster with the least fire incidents consisted of three sub districts in the Western parts. The first cluster has raised a concern regarding on the fire management in West Jakarta District. Those areas under first cluster are overlapped with the sub districts that has limited number of fire station and have a high number of people living in poverty. The second cluster is in better situation since it is supported by more fire stations.

Keywords: Cluster, fire, GIS, Jakarta, poverty

Emergency Response and Management of Disasters and Mass Casualty Events

Aryono Djuned Pusponegoro

Abstract

Ambulans Gawat Darurat 118 foundation, which is an emergency ambulance foundation established by the Indonesian Association of Surgeons (or known as IKABI), has been involved in a large number of disasters with mass victim response. From this experience, it is apparent that it is impossible to have the ability to handle disasters with mass casualty if the capability for managing daily emergencies is still not good. The reality shows that the current capacity for managing daily emergencies is still inadequate. In order to provide good responses for such events, there are several conditions that have to be met. First, the principle of bringing victims to the hospitals with appropriate ability to provide care and treatment for the victims instead of bringing the victims to the nearest hospital. This condition has actually been accommodated in the tagline of the foundation: "The Right Patient, To the Right Hospital, By the Right Ambulance at the Right Time". The second condition is surgery is only "Damage Control Surgery" without "Definitive Surgery". The third condition is that triage and need assessment should be done locally and not from the national level in order to provide appropriate response. The fourth involves the use of Uttstein template that requires recognition of the threats/hazards and their relevant management efforts, or known as Disaster Risk Reduction. Planning is also a crucial part of the response, which highlights the fifth conditions for providing appropriate response, which is the requirement of each City, District, and Province to have a Single Disaster Plan for multi-hazards that are drilled and practiced. This will lead to the sixth condition, which is the requirements for sending the right team, at the right time, with the right knowledge, the right skills, and the right logistics to an event. In a Disaster/Mass Casualty events, another condition that must be met is ensuring that the displaced people or refugees can live a healthy life in refugee camps, without exception. This condition underlines the needs for inclusive response that consider special needs of vulnerable groups such as pregnant women, women in delivery, newborns, toddlers, elderly people, people with comorbidity such as stroke, cardiovascular diseases, kidney diseases, and mental disorders, and persons with physical disability. The seventh condition is that each hospital must have a disaster plan, including the surge capacity to accommodate disaster and mass casualty situation because during a disaster or mass casualty event, a YO-YO (You are on Your Own) situation may occur during the first 24-48 hours. It is inadvisable that treatment is only given after external help arrive as it will be too late. In conclusion, to be able to provide an accurate and appropriate response, local capacities must be built in every province of Indonesia. This is important as facilities, infrastructures and human resources are still fragmented, not well organized, and not well-trained yet. Thus, it is recommended to implement a Safe Community approach by making sure that appropriate resources, skills, knowledge, coordination, and single disaster plan are in place for a good emergency response during disasters or mass casualty events.

Keywords: Disaster, mass casualty event, emergency response

Disaster Management in France :
A long Tradition in Perpetual Improvement

Jean Marc Pujo

Emergency Department, Cayenne General Hospital, Cayenne, French Guiana, South America

Abstract

In France, disaster medicine is the heir to a long experience in war medicine, the concept of which was invented during the Napoleonic era. The teaching of disaster medicine emerged in the 1980s. It is based on the experience of resuscitators and surgeons who have participated in managing tragic civil or military events. It differentiates between major and unpredictable disasters, in which pre-trained teams are sent on-scene with means, from disasters with limited effects whose management is predefined in plans (MERP) constituting the backbone of the relief organization. Disaster medicine deals with all aspects inherent in managing a large-scale event, both organizationally and in specific medical practices such as triage, crush syndrome management, necrotomy, medico-psychological support, mass decontamination, and others. Each disaster is characterized by the types of patient and the specific means to be implemented to manage them. Disaster medicine has grown considerably to become a fully-fledged university-taught practice. It deals with national logistics organizations, specific intervention plans, organization of the emergency chain outside the hospital but also inside establishments, and equipment available at the regional level or even triage or management techniques. The objective of this paper is to describe the French organization to manage these moments of crisis, whether on the national territory or in aid to foreign countries.

Keywords: Disaster medicine, France, organization

Fire Risk Analysis and Mapping in Kepulauan Seribu, North Jakarta, Indonesia

Siti Widya Nazhrah[1], Fatma Lestari[1,2,*], Devie Fitri Octaviani[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Kepulauan Seribu is an inseparable part of DKI Jakarta Province. Kepulauan Seribu has more than 110 islands but only eleven are inhabited islands. This archipelago has its own challenges to achieve an acceptable fire response time. The objective of this study is to measure the fire risk in Kepulauan Seribu, North Jakarta. This study is a cross-sectional study using a questionnaire and focus group discussions (FGDs) with the stratified sampling approach. The instrument used for the FGD with the Jakarta Provincial Fire Service consists of three parts: hazard, vulnerability, and risk management or fire protection and consits of twenty-two questions on a scale of one to five. The questionnaire on community leaders comprises of customized questions on a scale of one to three. The results of both instruments were analyzed using the univariate analysis and overlaid with the map of Kepulauan Seribu. The results from the areas consisting of six urban villages and twenty four community units showed that the locations with the highest risk of fire are located in the Kelapa Island Urban Village, while the other five urban villages have a moderate risk. The most influential aspect of the high fire risk level in Kepulauan Seribu is the dimensions of risk management and fire protection. The lack of infrastructures and firefighting equipments are the two important factors in the area with a high risk for fire. The condition of the islands provides a significant difference in the source of the danger to fire, one of which is autoignition. It is recommended that efforts to increase the awareness and active roles of the community in fire control and prevention should be done with community's involvement in managing training and socialization. It is also suggested that infrastructures that support fire prevention and control, transportation and fire stations should be provided.

Keywords: fire risk, hazard, vulnerability, protection

Analysis of Fire Risk Assessment in South Jakarta, Indonesia

Qanita Fauzia[1], Fatma Lestari[1,2,*], Devi Partina Wardani[3]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[3] Occupational Safety, Health and Environmental Unit (OSHE), Universitas Indonesia, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Jakarta is the capital city of Indonesia with more than 10 million population, making it one of the densest province in Indonesia. DKI Jakarta Province is divided into five city areas, on of which is the South Jakarta. South Jakarta has an area of 141,17 km^2 with more than three million population. The scope for this study focused on two sub-districts in South Jakarta, which are Pasar Minggu and Jagakarsa. The objective of this study was to provide fire risk situation in two sub-districts of South Jakarta. The study used descriptive method with non-probabilistic sampling. The data was collected by conducting Focus Group Discussion (FGD), questionnaires, and documents review related to this issue. FGDs and questionnaires were performed to Local Government Fire Brigade and community leaders were given the fire risk assessment checklist. The checklist instrument was developed by utilizing a disaster fire risk approach including fire hazard, vulnerability, and fire protection with twenty-two questions. The data was then analyzed by using univariate analysis, bar and spider chart. The results showed that there were three wards with high-risk classification, whereas the rest of the area was classified as medium risk. There were several suggestions contributed such as providing fire hydrants for the area which had got limited access to water supply, raising public awareness for the community to increase participation on fire risk management, refining observations on the management of the road near residential areas especially for illegal parking lots and portal barriers which might block fire trucks to reach the fire location, and empowering the local communities to be more responsive on fire.

Keywords: fire risk assessment, fire hazard, fire protection, South Jakarta, urban area

Exploring Nurse's Perception on Workload at Isolation Ward Coronavirus Disease (COVID-19): A Qualitative Study

Tuti Afriani[1], Rr. Tutik Sri Hariyati[2], Krisna Yetti[2], Besral[3]

[1] Doctoral student at Faculty of Nursing, Universitas Indonesia, Indonesia
[2] Faculty of Nursing, Universitas Indonesia, Indonesia
[3] Faculty of public Health Science, Universitas Indonesia

Abstract

Nurses are at the frontline of providing care to patients with COVID-19 and have the greatest potential to be affected by the COVID-19 pandemic. The high number of patients affected by COVID-19 leads to an increasing burden on nurses in caring for patients which will have an impact on patient safety. There are many other factors that cause the workload of nurses to increase. The purpose of this study was to explore the workload of nurses, including the perceptions and influencing factors. This was a qualitative study with conventional analysis on nine nurses selective purposively from a population of nurses taking care of COVID-19 patients in a hospital in Jakarta, Indonesia. Data were collected through online semi structured interviews with the subjects and analysis was performed using the Constant Comparison Analysis approach from Glasser and Strauss. This study resulted in 8 categories and 4 main themes including division of work, factors affecting the workload, impact of workload, and expectations of nurses caring for COVID-19 patients. Our Finding suggests that leaders and managers need to make policies that are fair to nurses so that they do not burden nurses with non-nursing care duties and provide sufficient training for new nurses who will be assigned to the COVID-19 isolation ward.

Keywords: COVID-19, nurses, qualitative study, workload

Ebola Virus Disease Management during the West Africa Outbreak:
A Successful Early Self-Quarantine Experience in the Industrial Sector

Jean Marc Pujo[1], Pr Hatem Kallel[2]

[1] Head of the Emergency Department, Cayenne Hospital, French Guiana, South America
[2] Head of the Intensice Care Unit, Cayenne Hospital, French Guiana, South America
Corresponding author's email address:
Jean.pujo@ch-cayenne.fr or tamac1966@gmail.com

Abstract

The Ebola virus disease (EVD) outbreak in West Africa, which started in December 2013, was an unprecedented and unexpected event in terms of the geographical extension and numbers of infected people. The Guinean government who initially managed the emergency response did not have the means to fight against an outbreak of this magnitude. Support from the international community came late and insufficient. Rio Tinto company, which is an Anglo-Australian multinational mining group and member of the national committee to fight against EVD, disagreed with governmental decisions and decided to adopt their own strategy aiming to protect employees and their neighborhood living, for the main part, at the heart of the epidemic zone.

The Rio Tinto board meeting used a Total Quality Management model with Deming managerial approach, which is a PDCA model (Plan-Do-Check-Act) to establish a solid action plan for EVD prevention and sites control based on five pillars: Organization of a reliable information network, design of a long-term communication policy by seeking the involvement of community leaders, weekly education program for employees and relationships, setting up of company's security policy based on quarantine measures and work sites entrance control, implementation in work camps of suspected cases management zone. This approach resulted in only three employees have been medevac to an EVD center of treatment during the epidemic. Laboratory analysis returned negative in all of these cases. TNo case of EVD reported in the close family circle of employees or in neighboring. Among contractors employed as caregivers, three confirmed cases of EVD were reported. The epidemiological investigation highlighted inappropriate out-of-work behaviors. In conclusion, Rio Tinto has taken an active part in the struggle by building its sanitary response while supporting the actions implemented at the national level. Lessons learned from this strategy can inform future large-scale health event response when facing high magnitude outbreaks.

Keywords : Ebola outbreak, coping strategy, industrial experience

Fire Hazard, Vulnerability, and Fire Protection Assessment in North Jakarta, Indonesia

Alfiansah Rahadian[1], Fatma Lestari[1,2]*, Debby Paramitasari[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Jakarta as the capital city of Indonesia is not only experiencing rapid progress in the industrial and economic developments, but also facing problems in the field of population and housing. Dense population and housing in Jakarta increase the risks for fire. The objective of this study is to conduct Fire Risk Assessment in North Jakarta, Indonesia. This is a cross-sectional study a non-probabilistic sampling approach (stratified sampling). Data were collected using Fire Risk Assessment checklists, focus group discussions, and questionnaires. Instruments were developed using a disaster Fire Risk approach including Fire Hazards, Vulnerability and Fire Protection or Fire Management, and consist of a Fire Risk Assessment Checklist for Local Government Fire Department and a Questionnaire for Heads of Neighborhood. Data were then analyzed using univariate analysis, bar chart, and spider web and were contemplated on the North Jakarta's map. Results showed that there were 18 areas of six sectors that were categorized at medium to high risk level. Several recommendations are given to improve urban fire management, including providing fire hydrants in some areas with inadequate water supply, fire safety education and promotion to increase community awareness, arrangement of electrical cable installation, and community fire drill integrated with Fire Fighting Department should be performed.

Keywords: North Jakarta, fire hazard, vulnerability, fire protection

Bureaucracy for Emergencies:
The Imperatives for Public Sector Continuity Planning

Prof. Ebinezer R. Florano, PhD

University of the Philippines, National College of Public Administration and Governance, Philippines

Abstract

This paper presents both theoretical and empirical discourses on the responsiveness of the bureaucratic norms of the government response systems during disaster or crisis situations. It argues that to become responsive, bureaucracies, the delivery-service instrument of Public Administration, must innovate to be able to restore normalcy immediately. The challenge becomes complicated, however, when the government itself becomes a victim, i.e., the officials and employees are either injured, dead or went missing, building and offices are destroyed, communication lines are cut off, data and records are lost, etc. The paper summarizes existing knowledge based on current literature on the challenges and problems of the "Age of the New Normal" pose to Public Administration and how the latter respond to them. Second, it discusses how the main properties of bureaucracy serve either as facilitating or hindering factors during disaster/crisis situations. Empirical pieces of evidence are provided from the responses of the Philippine government to recent disasters/crises. Third, the paper explains how public service continuity planning enables the bureaucracy to provide continuous service in the aftermath of disasters. Empirical experiences of a frontline government agency are narrated to show how this mechanism works - before, during, and after a disaster.

Keywords: Public sector continuity planning, crisis management

Urban Fire Vulnerability: Risk Analysis and Mapping in East Jakarta, Indonesia

Ridha Amini[1], Fatma Lestari[1*], Fajar Nugraha[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract
Fires can occur in small and large cities and have the potential to spread quickly to buildings in close proximity. Density of buildings, building quality, fire propagation, and population density are factors that increase the risk of fire vulnerability in an area. Fires can cause damage to homes, school infrastructures, vehicles, and commercial buildings. Fire risk analysis is needed to reduce the severity and damages caused by fires, as well as to prevent serious risks posed by fires in urban areas. The objective of this study is to analyze the risk of fire vulnerability and map the risk of fire in East Jakarta, Indonesia. This study is a cross-sectional study using a risk mapping questionnaire. Subjects for the study were sampled using the stratified sample method from a population of neigborhood residents in the study area. A focus group discussion was also performed with representatives from related sectors. The parameters used to determine the level of urban fire vulnerability are population density, building density, building quality and level of slums, frequency of fire occurrences, area and losses, fire propagation and building qualit,y and obstacles faced by the fire station. Data collection was carried out in 10 sub-districts and 65 urban villages. The result shows that the vulnerability aspect that most influences the risk of fire in East Jakarta is population density with an average score of 4.3%, while the aspect that affects the lowest is the frequency of fire occurrences with an average score of 1.2%. Based on the results of this study, there are several aspects that need to be improved as a risk mitigation strategy for urban fires in East Jakarta, including the aspects of population density and building density.

Keywords: Urban fire, vulnerability, fire risk analysis, fire mapping.

Monitoring Land Cover Changes in A Multi-Hazard Area Before and After the 1991 Mt. Pinatubo Eruption: Case of Burgos, Botolan, and Zambales in the Philippines

Ma. Charisma T. Malenab[1,3]*, Ivan Marc H. Escamos[2], Rico C. Ancog[1], Josefina T. Dizon[4], Merlyne P. Paunlagui[5] and Maria Victoria O. Espaldon[1]

[1] School of Environmental Science and Management, University of the Philippines Los Baños, Philippines
[2] Institute of Computer Science, College of Arts and Sciences, University of the Philippines Los Baños, Philippines
[3] Department of Social Development Services, College of Human Ecology, University of the Philippines Los Baños, Philippines
[4] Institute for Governance and Rural Development, College of Public Affairs and Development, University of the Philippines Los Baños, Philippines
[5] Center for Strategic Planning and Policy Studies, College of Public Affairs and Development, University of the Philippines Los BañosPhilippines
Corresponding author's email address: *mtmalenab@up.edu.ph

Abstract

In June 1991, after hundred of years of dormancy, a series of Mount Pinatubo eruption changes the landscape of at least three provinces in Central Luzon, Philippines. This study aimed to monitor the land cover changes in the Barangay of Burgos, Botolan, Zambales, one of the upland areas that was and will be severely damaged with Mt. Pinatubo eruption. Four satellite images, dating 1990, 1992, 2002 and 2018 were utilized as main data for land cover classification using supervised classification method. Preliminary results show that the dominant land cover class is grassland while the remaining land cover consists of water, forest, bare soil and lahar. Also, this upland area is still inhabited by a small farming community in the western foot slope, and they are living in proximity to the lahar flow. Further analysis will be conducted to explain the preliminary finding of an increase in forest area from 1990 to 2018 in this upland area and the decreasing hectares of lahars. Results of the analysis are important to characterize the ecological component of this upland area. This will be significant to the local government and the local communities as inputs in the preparation and planning of localized potential emergency scenarios and emergency management strategies, respectively, of communities who are living daily in the presence of these geological hazards.

Keywords: Disaster risk reduction, remote sensing, volcano
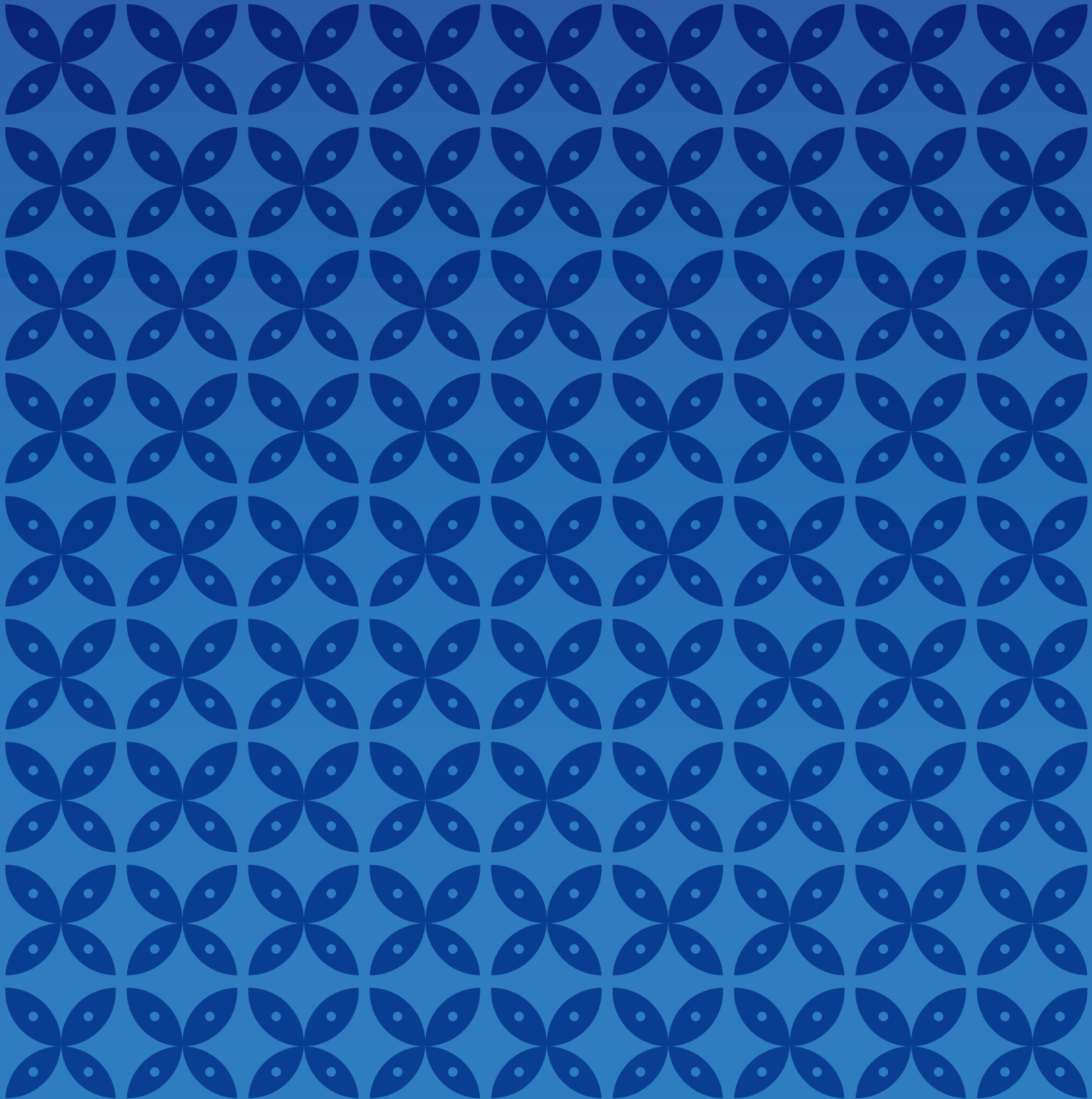
Business Continuity Management and Disaster Insurance

An Implementation of Business Continuity Plan for the Post-Disaster Economic Recovery: A Study Case from Gowa District, South Sulawesi, Indonesia

Muhammad Agung Ady Mangilep[1], Adi Maulana[2], Rifai[3], Yolak Dalimunthe[3], Amril Hans[4], Makbul[3], Makmur[5], Andi Muhammad Azhar Aljurida[6]

[1] Department of Economics, Universitas Hasanuddin, Makassar, Indonesia
[2] Center for Disaster Study, Universitas Hasanuddin, Makassar, Indonesia
[3] Indonesian National Disaster Management Authority, Jakarta, Indonesia
[4] Department of Public Administration Studies, Universitas Hasanuddin, Makassar, Indonesia
[5] CV. Kajuara Jaya, Gowa, Indonesia
[6] Department of Public Administration Studies, Universitas Indonesia Timur, Makassar, Indonesia
Corresponding author's email address: agungam@fe.unhas.ac.id

Abstract

One of the crucial points in the disaster mitigation program is the recovery program which is needed to restore the standard of living and the economy of survivors. Business continuity plan provides a foundation for an economic recovery strategy. Our paper aims to find out the best strategy for the economic recovery based on a business continuity plan made for survived farming groups in Gowa District, South Sulawesi, Indonesia. This research analysis the scale of flood impact on a business activity, risk assessment, risk management, risk monitoring and testing. Both primary and secondary data are used in this research in which the primary one is obtained by a survey, and by a library research for the secondary one. This research found that there are internal and external economic recovery strategies. The internal reinforcement can be implemented by empowering self-healing and self-mitigation responses, improving cultivation methods, improving management skills, entrepreneurship spirit, and marketing skills. The external reinforcement can be implemented by providing coaching, funding, stimulant aid programs, early-warning system and tools, supporting regulation, wider networks, institutional support and oversight, and insurances.

Keywords: Business continuity plan, disaster area, economic recovery strategy

Mobile Banking Service Utilization Model for Business Continuity Management in Commercial Banking: A Disaster Risk Resiliency Approach

Alexander V. Gutierrez, Rolando L. Palad, Trisha Franchesca Destura, Chris Ann Guiraldo, Mary Denlyn Dela Soledad, Maurice Bryan Amparo, Ellie Betanghol, Kemvirlie Vallejos

Our Lady of Fatima University, Philippines
avgutierrez@fatima.edu.ph

Abstract

The development of mobile services have enable a number of service innovations in the banking industry. The use of mobile banking is steadily increasing worldwide as it offers both flexibility and convenience specifically for bank consumers. Mobile banking services have become the touchpoint of choice for millions of banking customers to manage their finances. With expectations rising, digital banking teams know they need to continuously iterate their mobile apps to ensure that they build their mobile banking experiences around customer needs. This study aims to understand the extent of use of mobile banking in relation to business continuity management by assessing factors that would help develop a business continuity model for banks in response to disaster. Three major variables were used in the study: engagement of people, increase awareness, and technology. A binary logistics analysis was used to predict the use of mobile banking services for business continuity management. Based on the results of the analysis, an optimum level of these three variables (i.e. level of engagement of people, increase awareness and technology) are provided to improve the use of mobile banking services as a tool for risk resiliency for banks.

Keywords: Mobile banking, business continuity management, commercial banking, disaster risk resiliency

Role of Public, Private Sector, and Corporate Citizenship of State-Owned Banks in Digitalization Amidst COVID–19 Pandemic

Effy Zalfiana Rusfian, Rachma Fitriati, Feriska Ajeng Anantri, Mega Riani

Faculty of Administrative Science, Universitas Indonesia, Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

This study aims to analyze the role of the public, private, and state-owned enterprises related to digitization during the Covid-19 pandemic, which is predicted to create many UMi (Ultra Micro) units in Indonesia. During this COVID-19 pandemic, the public and private sectors participated in monitoring the ongoing developments, especially in all aspects of the economy. Economic sustainability is currently one of the components that must always be the primary concern. Among government institutions that play a very important role is the state-owned banks that have to play a collaborative role with the government to improve the economic growth by optimizing sustainable performance to optimize the ecosystem potential of the ultra micro-segment. The UMi microeconomic ecosystem program is a program established by the government to provide access for MSME actors to obtain ultra-micro financing assisted by a formal company, in this case a state-owned bank, in order to establish a social safety net for business actors so that they are not entangled with informal online savings and loan services. Results show that the government and state-owned banks are also supported by the digitalization of technology in developing this collaborative programs. The tangible manifestation include the use of Brispot smartphone application which digitizes the micro-level businesses. This application includes an e-form for the credit service process. The state-owned banks operate this UMI services as a part of their corporate citizenship obligations to open access for MSME business actors, especially for the entrepreneurs who have not yet obtained access to formal financing in remote parts of Indonesia. Findings demonstrate that a collaboration between banks and the Ministry of Finance using a digital platform has enable MSME empowerment by increasing financial inclusion of these enterprises. It is recommended that this effort should be expanded to upgrade ultra-micro businesses into a higher level businesses.

Keywords: Public and private sectore, state-own bank, corporate citizenship, COVID-19

Profitability and Corporate Citizenship Governance: Perspective of Shared-Value of SOEs in Efforts to Accelerate COVID-19 Pandemic Control Efforts

Effy Zalfiana Rusfian, Rachma Fitriati, Dicky Irchamsyah , Affan Gaffar, Yudi Handika

Faculty of Administrative Science, Universitas Indonesia, Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

State-Owned Enterprises sustainably increase profitability by focusing on the business mindset perspective in line with their revenue projections which increasingly reflects a strategic bargaining point. However, this perspective creates some contradictions in the business management of State-Owned Enterprises. The practice of managing State-Owned Enterprises cannot be separated from the fundamental nature of the presence of the entity itself, which is to be an "agent of development" for national development. However, in practice, the work of the State-Owned Enterprises sometimes clashes with conflicts of interest with the issue of business continuity. On the one hand, State-Owned Enterprises as one of the important sectors of state revenue, must prioritize profitability aspects; however, they also have to maintain their role as the agents of development. This qualitative study aims to elaborate the dual role of the SOEs in Indonesia. The results show that the concept of shared value in the context of State-Owned Enterprises is a form of collaboration in a broader view in the perspective of business sustainability and the essential aspect of the contribution of State-Owned Enterprises in the community. State-Owned Enterprises have "embedded values" in their business as "agents of development" that has to be adhered to. The fundamental aspects in the management framework of the shared value concept also represent the conceptual view of the definition of corporate citizenship. However, the implementation of shared values is packaged in a more specific point of views following the business characteristics of each State-Owned Enterprise entity. The recommendation from this study is that the perspective of the purpose of the establishment of a State-Owned Enterprise needs to be established. In-depth review of the demands and protections of State-Owned Enterprises as the fundamental essence of business entities aimed at advancing the live of Indonesian people is also needed.

Keywords: Profitability, state-owned enterprises, corporate citizenship, shared value

Corporate Citizenship and Corporate Social Responsibility of E-commerce Companies During COVID-19 Pandemic in Indonesia

Effy Zalfiana Rusfian, Rachma Fitriati, Kiu Wakimura, Putri Chairina, Sri Wahyuni

Faculty of Administrative Science, Universitas Indonesia, Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

The COVID-19 crisis that hit Indonesia has created challenges in various aspects of life such as in health, economic, and cultural aspects. Various groups in society, including business owners, communities, and employees, feel the impact of the pandemic. Many businesses fail to survive. On the other hand, the e-commerce business is experiencing growth and consistently perform social actions through CSR activities. Amidst the COVID-19 pandemic, e-commerce in Indonesia shows increased contributions to its stakeholders which comprise of their employees, customers, and the community at large. This study shows a great sense of empathy from e-commerce in easing the difficulties faced by their stakeholders. CSR activities implemented by e-commerce at this critical time show the company's commitment to social responsibility as well as improving the company's image. This qualitative study explore the CSR activities performed by the e-commerce in Indonesia during the pandemic. Of the 51 CSR activities carried out by e-commerce, 37% of them were performed in collaboration with other companies or organizations. The collaboration resulted in a greater reach of recipients and benefits. Resource use becomes more efficient with collaboration. carrying out CSR activities is more efficient with cooperation. Donation programs carried out on e-commerce platforms can reach more donors, showing the maximization of technological capabilities for good deeds. Ease of access and use, the availability of various payment alternatives, and the ability to combine donation activities with customer shopping activities are some of the advantages of e-commerce fundraising programs. With restrictions on people's movement and implementation health protocols, digital transformation of businesses becomes very important. E-commerce business models and strategies are among the existing solutions during pandemic for the survival of traditional businesses. During this pandemic, e-commerce helps people to be still able to fulfill their daily needs from home.

Keywords: Corporate citizenship, stakeholder theory, e-commerce, COVID-19

Development of Smart City 4.0 in Facing COVID-19 Pandemic: An Integrated Framework

Rachma Fitriati[1], Bella Nafissa Bagjana[1], Badria Agustina Putri[2], Mohammad Hasan Albar[3], Shafira Maulidya[1]

[1]Faculty of Administrative Sciences, University of Indonesia
[2]Faculty of Social and Political Sciences, University of Indonesia
[3]Faculty of Computer Science, University of Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

COVID-19 Pandemic has triggerred the DKI Jakarta Provincial Government to strengthen further collaboration with the first Artificial Intelligence startup in Indonesia, the Nodeflux. This collaboration results in various programs, such as the Jakarta Tax Initiative, Vehicle Number Monitoring, Street Vendor Supervision, and COVID-19 Solutions. In line with the smart city concept, Nodeflux offers solutions to create visibility, effectiveness, and efficiency across various functions in public services. This article aims to analyze the collaborations and partnerships between the five pentahelix actors to drive the knowledge economy and pursue innovation and entrepreneurship. This study is a descriptive qualitative study with a narrative review approach using CmapTools 6.04. The results of the study show that there are five components in smart city 4.0: (1) objectives, (2) indicators, (3) strategies, (4) collaborating parties, and (5) results. For this reason, the DKI Jakarta Government should make a road map to ensure the suitability of the plan with the expected general description of the city of Jakarta and determine the right technology to be applied in the future to support the creation of a smart city. Artificial intelligence startups can collaborate on research and development with academics to be more focused and sustainable, in order to meet the needs of the DKI Jakarta Province. It takes involvement and cooperation between all pentahelix stakeholders to contribute to the active implementation of Jakarta Smart City 4.0.

Keywords: Jakarta Smart City 4.0, artificial intelligence, pentahelix, narrative review, COVID-19

Effect of Remote Work on Job Satisfaction with Mediation Variables of Perceived Autonomy and Work-Family Conflict: A Study of Employees of Survey Service SOE Head Office

Fuadi Aiman, Rachma Fitriati, Rudiyanto, Fajar Nugraha

Abstract

This study aims to analyze the relationship between remote work and the level of job satisfaction in the workplace. This study uses a quantitative research method with a digital questionnaire instrument (Google Form) that is distributed to all employees at the head office of a Survey State-Owned Enterprise (SOE). The sampling was performed using the purposive sampling approach on a population of employees of the studied SOE who were working from home. The quantitative data collected were then analyzed descriptively and a simple linear analysis was performed using the SPSS software. The results of this study indicate that remote work has a negative relationship with job satisfaction. Perceived Autonomy does not mediate the relationship between remote work and job satisfaction and work-family conflict, respectively. The recommendation from this research is that the company can hold dissemination or webinars regarding the use of tools or software for working from home (WFH) and make Technical Guideline for WFH. In addition, to maximize the implementation of WFH, companies can integrate the company's reporting system with KPI , as well as integrating correspondence activities and disposition of assignments among divisions in an integrated system. Companies are also expected always to supervise the process remote work or WFH implementation so that the employee's performance can be maintained by utilizing information technology. It is also recommended that after the Covid-19 pandemic force majeure situation is over, companies are advised not to continue WFH and to shift back to working at the office.

Keywords: Remote work, job satisfaction, perceived autonomy, work-family conflict

Social Science Perspective in Disaster

"History in the Making: Public History and Digital Memories During COVID-19"

Kresno Brahmantyo

Center of Society and Cultural Studies, Faculty of Cultural Science, Universitas Indonesia, Indonesia
Corresponding author's email address: kresno.brahmantyo@yahoo.com

Abstract

During the global pandemic, people have to react and adapt to upheavals in their everyday lives and in the way they relate to family, friends and co-workers. This paper elaborates the initiative of the International Federation for Public History in initiating the global campaign program "History in the Making. Public History and Digital Memories During Covid-19" to capture and preserve personal stories worldwide. History is not just a record of long time ago; history is being made every day. This initiative started with a collaboration with "Made By Us" – a group that brings history to younger generations in innovative and meaningful way – and development of an interactive map to establish projects that collect, archive, and document our lives and stories during the ongoing Covid-19 Pandemic. This active gathering materials that document the coronavirus pandemic aims to make sure the future generations understand the full impact of this crisis by collecting photographs and videos of panic buying lines, empty streets and businesses, and how community comes ogether to get through this crisis. We are in the midst of a unique historical event which is very similar to the situation of the 1918 Influenza Pandemic one hundred years ago. In the future, scholars will look back on this time to learn about individuals' and societies' responses to a worldwide pandemic.

Currently, there are almost 500 projects globally that elaborate local, national, and global stories through archives, virtual exhibits, and oral and digital history. The project initially would like to propose the map as a corpus of projects to be analyzed. This paper will analyzed the projects from several countries in Europe, America, Africa, Asia, and Australia. It is part of recording historical events for the future generations as well as part of social awareness of Disaster Risk Reduction in the future.

Keywords: History in the making, public history, digital history, Covid-19

Social Consolidation Strategies between Indonesian Government and *Sunda Wiwitan* Community in Facing Pandemic

Ihsan Kamaludin, Shifa Nisrina Sujana

Centre for Religion and Cross-Cultural Studies, Gadjah Mada University, Indonesia
Ihsankamal95@mail.ugm.ac.id

Abstract

Indigenous peoples often experience various difficulties in their social life due to social stigma and government regulations that do not fulfill their rights as fellow Indonesians. This makes indigenous peoples less able to develop, so that consolidation between religious communities tends to be stagnant. This research focuses on the consolidation efforts carried out by indigenous groups and the majority community as well as the role of the government in developing this consolidation. The qualitative-descriptive method with interview and observation techniques was chosen by the author as an effort to extract information related to social consolidation between the *Sunda Wiwitan* indigenous people and other communities. This research shows that after the existence of the Constitutional Court Ruling regarding the existence of indigenous peoples in Indonesia which is recognized by the state, the *Sunda Wiwitan* indigenous people in Garut District have entered a new, more democratic life with various consolidative activities. This paper describes various social activities carried out by indigenous peoples and Muslim groups in the context of preserving local culture as well as building constructive relationships between religious groups. Local governments also have a big role in the consolidation process by providing facilities for dialogue to develop potential between religious groups.

Keywords: Dialogue between religions, consolidation of indigenous people, *Sunda Wiwitan*.

Sociological study of the socio-economic impact of flood control development projects on the community: From the Benthara River South Bank Development Project in Sri Lanka

Pavithra K. K. H.[1] and Jayasekara C. G[2]

[1] Postgraduate Student, Department of Sociology, University of Colombo, Sri Lanka
[2] Postgraduate Student, Department of Economics, University of Colombo, Sri Lanka
Corresponding author's email address:hirupavi123@gmail.com

Abstract

Sri Lanka ranks high among the vulnerable countries for climate change in South Asia. Adverse climatic conditions have been rampant in the coastal, riverine, mountainous, and arid regions of the country for the past few decades, causing severe disruptions to the livelihoods and a huge loss to the country's economy every year. It is visible that in responding to disaster situations in Sri Lanka, temporary solutions such as evacuation of communities from hazardous areas and non-cultivation in high risk areas are being practiced, instead of resorting to physical tactics. So, in a disastrous-catastrophic context, it is important to understand that it is imperative to shift from these unsustainable temporary solutions towards a sustainable security process. Apart from the drought affecting a massive area in Sri Lanka, the second largest impact comes from flood situation. It has been established that floods have a huge impact on the lives of the people in the area and on the livelihoods based on agriculture. Against this backdrop, the Benthara South Bank Development Project was launched in 2005 to address this problem in this area and has been implemented under the Ministry of Irrigation and Water Resources and Disaster Management with financial investment by the Government of Sri Lanka focusing on the Western Province. The purpose of this project was to conduct a sociological analysis of the impact on the lives of the people in the area through the flood control measures taken through the Benthara River South Bank Development Project. Implemented as an exploratory research, this research was conducted using mixed research methods, both qualitative and quantitative data types. The 777A Iththepana West Grama Niladhari Division, was selected as the research area and Also, the 777A Iththepana Western Farmers 'Organization, which can be identified as the most active contributor to the project, was selected as a sample as it is active in this Grama Niladhari Division. Non random targeted sampling method in sampling; That is, out of the 63 member families of the farmers' organization, 30 families were selected using the objective sample. This was identified as a project that is being implemented using multiple knowledge and strategies to control the flood crisis, which has been exacerbated by man, through physical and environmental measures.

Keywords: Climate change, development project, sustainable security process, socio-economic impact

Socio-Cultural Aspects of Disaster Vulnerability and Adaptation: Experiences of Sri Lankan Urban Women

Dinushika M. Yapa Abeywardhana

Department of Sociology, University of Peradeniya, Sri Lanka
Corresponding author's email address: dinuyapa93@gmail.com

Abstract

Sri Lanka is a developing country that has been exposed to many multi-dimensional disaster events within the last few decades. Flooding disaster is one of the crucial events in this country. Victims and the vulnerable communities are higher in the Sri Lankan urban sector due to the lower disaster preparedness and generalization of the disaster that they are experiencing yearly. Even though pre-disaster management and disaster context management is very crucial for sustainable disaster management, developing countries like Sri Lanka have been focusing on post-disaster management for ages. In this context, the present study was conducted with the objective of 'to identify the role of women in post-disaster management in terms of understanding the importance of their contribution to overcome severe impacts of the disaster'. The study field was a division of Colombo, Sri Lanka and the study sample consisted of 25 respondents who were selected through the purposive sampling method. The sampling selection purpose was to identify female activists who were engaged in post-disaster-related activities. Sri Lankan culture was influenced by Victorian ideologies on women and most of the literature on women in disaster context defines women as a vulnerable group that should be cared for by either another powerful group or men. These traditional definitions are questionable due to the prominent roles played by Sri Lankan women in the post-disaster context. Women's special capacity in adapting to situation, High resilience and ability to manage situations lead them to fulfil a greater role in the disaster context. The cultural role of women can be effectively used in providing psychosocial support in a post-disaster context. However, the above mentioned specific capacity of women has not been included in the traditional definitions of women, so far. Therefore, it is needed to include and identify these capacities in terms of empowering women and being free from prejudices over women.

Keywords: Climate Change, environment, gender, resilience, womenempowerment.

Implementation of Community-Based Psychosocial Support in Palu, Sigi, and Donggala, Central Sulawesi Province, Indonesia

Rizkia Nurinayanti, Aqil W. Arief

Abstract

Indonesia is one of the countries that have high disaster vulnerability. This is because Indonesia is situated between 3 earth plates and on the ring of fire area. The impact of Indonesia's geographical position makes Indonesia very prone to earthquakes, tsunamis, and volcanic eruptions. In 2018, many disaster occured in Indonesia. One of the biggest was the earthquake, tsunami, and liquefaction in Palu, Sigi, and Donggala regions of Central Sulawesi Province. On September 28, 2018, an earthquake with a magnitude of 7.4 and depth of 10 km in the Palu Koro plate shook the land of the regions, claiming lives of 1,948 people with 835 people were missing. The material loss is estimated at 10 trillion rupiah. Apart from the physical and material losses, disaster also brings a negative impact in the form of psychological disorders among survivors. Traumatic events during disaster, loss of families, loss of property, loss of work, and future misfortunes, can trigger various psychological effects. Based on the Sphere Document entitled "Minimum Standard in Humanitarian Response" (2018), one of the strategic steps to be help the affected community to recover from psychological impacts of a disaster is by involving local communities in various psychosocial support activities. This study elaborates the implementation of community involvement in providing psychosocial support in Palu City, Sigi District, and Donggala District, Central Sulawesi Province, Indonesia.

Keywords: Earthquake, tsunami, disaster, Central Sulawesi, psychosocial support, community

Social Vulnerability of Bantul District, Indonesia

Dewi Susiloningtyas[1], Hengki Tasman[2], Tuty Handayani[1], Della Ayu Lestari[3]

[1] Geography Department, Faculty of Mathemathics and Natural Science,
Universitas Indonesia, Indonesia
[2] Mathematics Department, Faculty of Mathemathics and Natural Science,
Universitas Indonesia, Indonesia
[3] Marine Information System, Universitas Pendidikan Indonesia, Indonesia
Corresponding author's email address: dewi.susiloningtyas@sci.ui.ac.id

Abstract

Bantul District has various potential disaster threats in it experienced 13 types of events with earthquakes and landslides have a high frequency and caused a lot of losses in 2016. Various efforts were made to reduce the impact that occurs if a disaster strikes Bantul District. One of the efforts include the identification of the vulnerability in the territory. The social condition of the community also influences the level of vulnerability to the threat of danger so that the vulnerability in this study was assessed by considering the social aspects of the community in Bantul District based on the aspects of exposure, sensitivity, and adaptive capacity against the proportion of informal sector workers, the proportion of vulnerable age population, the proportion of non-permanent housing, the proportion of prosperous households, the proportion of the population graduating from high school and above, and the number of aspects of social capital. The predominant level of vulnerability is the low, which is identified in 14 subdistricts or 82.35%. Meanwhile, medium vulnerability and high vulnerability are identified in 2 subdistricts (11.76%) and 1 subdistrict (5.88%, Dlingo Subdistrict), respectively.

Keywords: Vulnerability, social indicators, exposure, sensitivity, adaptive capacity

Political Ecology of Vulnerability: Looking into the Narratives of Fisherfolks in Dagupan City, Philippines

Fatima Gay J. Molina

Philippine Red Cross, Philippines
Corresponding author's email address: fjmolina@up.edu.ph

Abstract

Through the lens of political ecology, the paper frames vulnerability based on the intensification of bangus (*Chanos chanos*) aquaculture in Dagupan City, Philippines. Dagupan is one of the main producers of bangus throughout the country and among the secondary cities perennially affected by inundation. Based on my fieldwork in select villages (barangays) from 2013 to 2018, bangus aquaculture has intensified in the fishponds of the city. Through ethnographic fieldwork, bangus farmers' narratives were gathered through structured and semi- structured key informant interviews, collection of life stories, systematic observation, focus group discussions, photography and audio- visual recording, photo elicitation of published life stages of bangus and consolidation of secondary data from books, journal articles, news articles and online references. Legal documents were also utilized such as national laws on fisheries, disaster risk reduction and management (DRRM) and climate change adaptation; city ordinances; city comprehensive land use plan; and DRRM council manual. The main finding of this research is that human- bangus relationship is embedded in socioeconomic life (on the production and marketing of bangus for human sustenance, food security and income) and in the riparian- marshland and estuarine ecological rhythms, including delap. By looking at the relationship of these species, intensification of bangus aquaculture makes the people of Dagupan more vulnerable to ecological hazards in marshlands and river systems and flood incidence. The social organisation governing the process of aquaculture also appears to be a feudal and exploitative setup at the level of human relations and the human-environment dynamics.

Keywords: Aquaculture, bangus, **dagupan**, flooding, vulnerability

Being More Religious is the Only Option: Suffering and Recovery After Tsunami in Palu City, Central Sulawesi, Indonesia

Amanah Nurish

Strategic and Global Studies, University of Indonesia
Email: amanah11@ui.ac.id

Abstract

Natural disasters cause not just physical changes in geography, but also changes in the social, cultural, religious, economic, and political systems of the people who live in the areas. Discussion about disaster in maritime communitiesis inextricably linked to religious debates and individual psychological past experiences when disaster hit. People who are victims of natural disasters typically have distinct perspectives of the significance of nature and belief systems, which can influence community behavior after they faced disaster. Religion, on the other hand, will be linked to behaviorism, as stated by Skinner in 1994. Vulnerable areas of disaster, from an anthropological standpoint, shape the nature of a religious group, resulting the emergence of structure on a belief system. When people are psychologically experiencing a "safety threat," religion and belief systems are good places to draw on (Dicenso, 1999). According to this viewpoint, religious fanaticism thrives and develops in disaster areas because psychologically individuals see "threats" and feel trapped (Woodruff, 2013), giving religion a negotiating position. The tsunami of 2018 in Palu severely altered the lives of the local community. Palu is the capital city of Central Sulawesi, which has a mainly Muslim population with numerous ethnicities. This research paper aims to investigate deeper into the religious, social, and cultural changes that occurred in the local community of Palu after tsunami and liquefaction earthquakes in 2018. This research paper employs an anthropological method, with religious coping theory as the analytical tool. One of the indicators in the field discovered that after the tsunami, people in Palu city became more religious as coping mechanism of resilience.

Keywrods: Tsunami, religious coping, disaster, tsunami, Palu.

Mud Volcano in Sidoarjo, East Java, Indonesia: Religious Ethics and Critics to Anthropocentrism

Amanah Nurish

University of Indonesia, Indonesia
Email: amanah11@ui.ac.id

Abstract

The hot mud disaster in Sidoarjo, East Java, which occurred sixteen years ago, continues to cause social, economic, and political concerns. The narrative of the lives of the victims who have lost their homes and land will be the focus of this article. These victims are the victims of the hot mudflow disaster caused by PT Lapindo Brantas' drilling, which forced tens of thousands of people to flee. Despite the findings of various critical investigations on the disaster, many victims still face uncertain land compensation from PT. Lapindo Brantas. The purpose of this study is to look at how the hot mudflow disaster in Sidoarjo, East Java, Indonesia, has affected social and cultural life after sixteen years. The hot mudflow disaster is still being debated as a natural disaster or a disaster induced by developmentalism schemes. The hot mudflow disaster triggered by PT. Lapindo's activities in Sidoarjo is a calamity that requires anthropocentrism analysis. Thus, the purpose of this article is to discuss how developmentalism affects nature and the environment which, in turns, affects human life's long-term viability. Modernism and developmentalism's ambitions to meet excessive human demands have left severe ethical issues, particularly in terms of their influence on nature and the environment. Val Plumwood, who in turn criticized deep ecology as androcentric, shows that anthropocentric criticism is central to environmental ethics; "human-centeredness must be challenged in the politics of any serious ecological movement, whether this is done explicitly or not". Anthropocentrism leads to ecological denial and blindness; it "tends through incorporation to represent the Other of nature entirely in terms of human needs" and "encourages a massive denial of dependency" and a sense of "hyperseparation" (Moore, 2017).

Keywords: Disaster, hot mud, lapindo, anthropocentrism, religious ethics.

"Impacts of Chernobyl Nuclear Disaster for the French Society: A Lesson for Indonesia"

Annisa Florencia Irena, Djoko Marihandono

French Studies, Faculty of Humanities, Universitas Indonesia
E-mail: annisaflorencia318@gmail.com,
djoko_marihandono@yahoo.com

Abstract

This article examines the long-term impact of the Chernobyl nuclear disaster in Ukraine in 1986 which affected the lives of the French people. The purpose of this study to provide lessons for the Indonesian government who plans to build a nuclear power plant in Indonesia. The impact of the Chernobyl nuclear reactor explosion drove the French government to plan Energy Transitions to replace the use of nuclear power as the main electrical energy to sustain the country's industry. The use of nuclear energy as a substitute for electrical energy derived from oil in the country began when all Western European countries experienced an oil embargo from Arab countries in 1974. The Chernobyl nuclear explosion in Ukraine affected the lives of French people who were 2,714.90 km from the center of the explosion. As a result of this incident, French society experienced a long-term harms, not only to the health of the French public, but also to the cultivation of fruit and vegetables contaminated with nuclear radiation, lasted several years, thus raising awareness among the French public about the impact of the nuclear explosion. There has been a sharp debate in the community and even became a political commodity during the presidential election campaign in that country. To understand the policies then applied, this study used the historical method using the deconstruction method of Jacques Derrida to explain the impact of public pressure on the French government to reduce the use of electrical energy from nuclear and replace it with renewable energy from wind power *(energie eolienne)*, tidal energy *(energie marée)* and solar energy *(energie solaire)*.

Keywords: Chernobyl, renewable energy, reduction of nuclear utilization, plant contamination, public health.

Learning from the Local Wisdom of the Java Community in Handling the Spanish Flu 1919: Lesson Learned in Overcoming the Covid-19 Outbreak in Indonesia

Djoko Marihandono

Email: djoko_marihandono@yahoo.com

Abstract

This article aims to explain the importance of local wisdom in handling the outbreak of Covid-19 in Indonesia. Based on the colonial history, outbreaks of infectious diseases often occurred in Indonesia (then referred to as the Dutch East Indies),very often. Starting from the era of British control over the island of Java in 1811-1816, Lieutenant Governor General Raffles had formed a health team to overcome the breakouts that hit the military group. This action was then followed by the next governor-general. Considering that it was very expensive to bring doctors from Europe, the colonial government attempted to establish a Javanese medical school that prepared the indigenous residents to become vaccine doctors. They were educated to inject vaccines for cholera, dysentery, smallpox, and other communicable diseases. When the school building was to be moved from the Military Hospital in Weltevreden to Salemba, the Dutch East Indies colony was hit by an influenza pandemic known as the Spanish Flu in 1919. The efforts made by the Dutch government were not followed by the indigenous population, because many of them did not understand the pandemic. In fact, the Dutch government issued two regulations to give sanctions to anyone who ignored the rules. However, there were still many local residents who ignore the rules, because they did not understand what really happened. Therefore, a comprehensive understanding of what happened at that time is required. By using existing tools, the colonial government used a method by utilizing local wisdom that existed in the community, especially in Java. The Dutch government realized a government circular, written in Javanese script, using the Javanese language, by taking the setting of shadow puppets (*wayang kulit*) in the part of *goro-goro*, would be an effective mean to disseminate information. The principle figures are well known by the Javanese people, namely the Clowns *(Punakawan)*, such as Semar, Gareng, Petruk, and Bagong. This paper elaborates the Javanese local wisdom using historical research methods. While the analysis is carried out using the semiotic theory of Charles Sanders Peirce. This condition can be taken into consideration for the Indonesian government, especially in learning in dealing with the Covid-19 pandemic, which currently encounters many denials, including public distrust of the existence of Covid-19, refusal to be vaccinated, and an attitude of refusing the government's invitation to maintain health protocols. The conclusion of this paper is that the rejection by the community is not caused by government policies, but because the public does not know what Covid-19 is, due to the lack of government socialization.

Keywords: Spanish influenza, local wisdom, lack of government socialization, two government regulations.

Recovery Process of A Farming Community in Zambales, Philippines after the 1991 Mt. Pinatubo Eruption

Mabel G. Vallena[1]*, Ma. Charisma T. Malenab[1,3], Cheamson Garret Boongaling[2], Hildie Maria E. Nacorda[1], Maria Victoria O. Espaldon[1]

[1] School of Environmental Science and Management, University of the Philippines Los Baños, Philippines
[2] Department of Community and Environmental Resource Planning, College of Human Ecology, University of the Philippines Los Baños, Philippines
[3] Department of Social Development Services, College of Human Ecology, University of the Philippines Los Baños, Philippines
*Corresponding author's email address: mgvallena@up.edu.ph

Abstract

The Mt. Pinatubo eruption in 1991 has devastated and displaced numerous farming communities in foot slopes off three provinces in Central Luzon, the Philippines. This study examined the processes that a small farming community in the western foot slope off Barangay Burgos, Botolan, Zambales has taken to recover from the disaster, through the lens of the Community Capitals Framework (CCF), i.e., human, natural, social, political, financial, built, and cultural capitals. Results showed that central to the community's recovery effort was their human capital, who had retained farming knowledge and skills as well as exhibited ingenuity and resourcefulness, which altogether enabled them to adapt to a disaster-altered environment through the years. In addition, the community maintained close ties with the Municipal Agriculture Office (MAO) of Botolan, which provided them training opportunities on skills enhancement as well as linkages with the local and national government, hence, enhanced their human and political capitals, respectively. The community practices a diversified farming system, deemed to ensure the sustainability of their natural capital (albeit disaster-altered) and financial capital. Policies formulated by the national government largely influenced the recovery of their built capital. The cultural capital of the community, based on shared knowledge and practices in farming, maintains their deep connection to the land they continue to cultivate to this day. These indicators suggest that despite being devastated and displaced, the community in Barangay Burgos has pursued recovery from the 1991 disaster and continuously adapted to an altered landscape. This study was conducted at a community level, it is recommended to conduct further studies at the household level to better understand the process of recovery.

Keywords: Community Capitals Framework (CCF), recovery from disaster, 1991 Mt. Pinatubo eruption, Zambales

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Family Resilience:
Strengthening Nurses' Readiness and Willingness in Responding to Disasters

Amelia Kimin[1], Elly Nurachmah[2], Fatma Lestari[3], Dewi Gayatri[4]

[1] Doktoral program Faculty of Nursing, Universitas Indonesia, Indonesia
[2] Medical Surgical Department faculty of Nursing, Universitas Indonesia, Indonesia
[3] Faculty of Public Health, Universitas Indonesia, Indonesia
[4] Department of Basic Science Faculty of Nursing, Universitas Indonesia, Indonesia

Abstract

Previous studies have highlighted individual factors affecting nurses' readiness in responding to disasters, including nurse's knowledge, skill, and psychological state. However, a study exploring the external factors is still limited. The current paper aimed to report a part of findings on nurse's ability, readiness, and willingness to response to disasters by focusing on family resilience. Semi-structured interviews were carried out with 9 nurses who had the experience of responding to disasters. Data were then analyzed using the Colaizzi's approach for thematic analysis. There are three sub-themes emerged from the analysis: a) family safety, b) family permission, and c) family self-rescue. These three sub-themes formed the family resilience theme, which reflects how family can strongly affect nurses' readiness and willingness in responding to disasters. To conclude, family resilience is one of the important factors for nurses to be able to respond to disasters appropriately. This should be included as one of the aspects in future emergency disaster nurse preparation programs.

Keywords: Family resilience, disaster response, nurses, readiness, willingness

Newly Farmer-based Adaptation Measures toward Negative Impacts of Climate Change

Agie Wandala Putra[1,*] and Andi Eka Sakya[2]

[1] Agency for Meteorlogy Climatology and Geophysics (BMKG), Indonesia
[2] National Center for Weather Modification Technology, Agency for the Assessment and Application of Technology (BPPT), Indonesia
*Correspondence: agie.wandala@bmkg.go.id

Abstract

Perceptions of climate change, especially at the farmer level, are very important in determining best adaptation measures. In this study, the results of a survey conducted in locations potentially affected by climate change are presented. It was revealed from the analysis that there were 4 structural factors triggerring the increasing level of anxiety among the farmers along with the increasing impact of climate change: cognitive-emotional impairment, functional disorders, behavioral engagement, and emerging experience as unique factors. The determination of the research location was based on a study on decades of observational data the projection that indicatest the impacts of climate change are more intense than other locations. Mitigation of the cognitive-emotional impairment as a form of anxiety on climate change at the farmer level through the behavioral active involvement during farming period is proposed as a new approach to adaptation measures. The results obtained can be used as a reference in defining a more improved and updated farmer-based climate change adaptation program.

Keywords: Climate change, mitigation, prespective, adaptation

Climate Change Vulnerability Assessment
in Indonesia using Fuzzy C-Means

Fandi Muhammad Syahputra, Dwi Ari Suryawan S, Tiodora Hadumaon Siagian, Megananda Ghowo Rizky

Statistics Polytechnic, STIS, Indonesia
Corresponding author's email address: 211709644@stis.ac.id

Abstract

Indonesia is ranked 12th out of 35 countries that face a high risk of deaths due to various climate-change related natural disasters such as floods, landslides, and droughts). Indonesia also ranks 97th out of 181 countries in terms of climate change vulnerability. In our study, climate change vulnerability is defined as the degree to which a system is vulnerable or unable to cope with the impacts of climate change. The aims of this study are to classify provinces in Indonesia based on climate change vulnerability and to identify the distribution and description of climate change vulnerability. This study used secondary data from several government agencies. The analytical method used was the Fuzzy C-Means and the Kruskall-Wallis test, with the selection of the number of clusters and the degree using the Silhouette Index and Xie Beni Index. The results showed that 10 provinces are classified as cluster with high climate change vulnerability level, which is dominated by economic variables; 11 provinces are classified as cluster with moderate climate change vulnerability level that is dominated by the age and sex composition of the population; and 13 provinces are classified as cluster with low climate change vulnerability level that dominated by migration variables.

Keywords: Climate change vulnerability, cluster analysis, Fuzzy C-Means, Kruskal-Wallis.

Post-COVID-19 Business Ethics:
Identification of Alternative Ethical Guidelines in Times of Crisis

Satya Anggara[1], Herdito Sandi Pratama[2]

[1] Stratejik: Philosophy and Strategic Issues
satyaangga0102@gmail.com
[2] Department of Philosophy, Faculty of Humanities, Universitas Indonesia, Indonesia
Stratejik: Philosophy and Strategic Issues
Corresponding author's email address: herditosandi@gmail.com

Abstract

COVID-19 pandemic has disrupted the global economy and business. This disruption has caused many companies to go bankrupt and triggered a series of layoffs among the working class. Milton Friedman once stated that companies have a social responsibility to maximize the utilization of resources for long-term profits. Meanwhile, Peter French also stated that a company could be equated as a moral agency. These two views show the importance of ethical and business performance evaluation of companies to review the significance of their existence in society. This paper aims to identify an alternative set of business ethics that can be developed during the COVID-19 pandemic through literature review and critical analysis about business ethics. This tool is intended as a normative tool that regulates how companies relate to society and as another way for companies to survive in the business world during and after the pandemic. This paper is also supported by several findings regarding companies that have implemented this kind of ethical approach through various activities such as Corporate Social Responsibility (CSR). The main theoretical framework used is the Stakeholder Theory which identifies and examines the parties affected by the company's business activities and the moral rights and obligations attached to each of these parties. The authors argue that in the future, the key to a company's survival depends on how relevant the company is in the eyes of society from an ethical point of view. This paper is ultimately expected to promote the study of alternative business ethics during a pandemic by re-examining generally accepted ethical guidelines.

Keywords: Business ethics, COVID-19, CSR, Stakeholder Theory, economic crisis

Disasters, Crisis and Infodemics:
Dealing with Information Disaster during the Covid-19 Pandemic

Meutia Irina Mukhlis[1] and Herdito Sandi Pratama[2]

[1] Stratejik: Philosophy and Strategic Issues
Postgraduate Program of Philosophy, Faculty of Humanities, Universitas Indonesia, Indonesia
[2] Department of Philosophy, Faculty of Humanities, Universitas Indonesia, Indonesia
Stratejik: Philosophy and Strategic Issues
Corresponding author's email address: meutiamukhlis@gmail.com

Abstract

Covid-19 pandemic has caused massive disruption to peoples' lives globally. The pandemic, which is caused by the SARS-CoV-2 virus, has not only shown how deadly the virus can be, but also gives birth to another equally destructive phenomenon dubbed by the World Health Organization (WHO) as infodemic. The WHO defines infodemic as an overabundance of accurate and inaccurate claims that spreads confusion among people. The phenomenon is not new per se, but what is unique about today's infodemic is that the inaccurate claims are not only conveyed by the usual suspects such as politicians, government officials or partisan media but also by new actors, who were supposed to command more credibility and respect namely scholars, scientists, health experts and reputable media organization. The danger of infodemic lies in the confusion it spreads. It can endanger people's lives and complicates the handling of a crisis or a disaster. At present, research into the pandemic, including the infodemic phenomena, is still underway to help scholars, scientists, and the public gain a better understanding of the phenomena so that people can better protect themselves from harm. This research is part of this process. Using a descriptive-analysis method, this research aims to strengthen our understanding of the infodemic phenomena, why it came to light, what purpose it serves and how best to deal with it. One of the research findings is that most efforts in restraining infodemic have failed so far because they have not addressed the root cause of the problem. This research found that the problem of infodemic could not only be solved through regulatory mechanisms alone but must also involve a change in the belief system of the entire community.

Keywords: infodemic, the Covid-19 pandemic, information disaster

Padjajaran Kingdom 9th Century Ancient River Management and Flood Hazard Mitigation Practices in Middle Bogor, West Java, Indonesia

Fatma Lestari[1,2], Agus A. Munandar[3], Devie Fitri Octaviani[2], Andrio Adiwibowo[2]

[1] Occupational Health and Safety Department, Faculty of Public Health Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
[3] Archeology Department, Faculty of Humanities, Universitas Indonesia, Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Flood is one of the oldest disasters experienced by human civilization. Thus, ancient civilizations have developed flood mitigation practices trough development of drainage canal and river management including river diversion approach. These flood mitigation practices have been observed in ancient civilizations and kingdoms in Indonesia. One of the kingdoms that had practiced river management to mitigate flood was the Padjajaran Kingdom in 9th century. Here, this study aims to evaluate how Padjajaran river management has impacted and relevant to present conditions. The methodology used was historical literature review on records of the Padjajaran civilization and its river work in West Java. Structural evidences of river management and work of this kingdom were then mapped using the GIS into the present West Java maps. GIS was also used to classify and quantify the structural evidences of Padjajaran river management. Present conditions, including the land use types and vegetation covers, were then compared to the Padjajaran river works. The results show that the Padjajaran Kingdom was located in the middle parts of the current Bogor city. The river works including the development of several river diversions (164.190-284.71 m length) was aimed at distributing and reducing the river water volume, mitigating the flood risk, and providing irrigation for agriculture lands around Padjajaran Kingdom. River management of Padjajaran emphasized on distributing the debit of Cisadane to Ciliwung streams. Currently, the middle Bogor areas that used to be the site of with the Padjajaran Kingdom have experienced less flooding with only 28.57% of total flooding events in 2021. Likewise, the vegetation conditions under Padjajaran river irrigation systems had an NDVI values ranges of 0.127-0.75, indicating the benefits of this system. Unfortunately, the river catchment areas of Cisadane and Ciliwung rivers now have been converted to settlements and this will reduce the effectiveness of river management inherited by Padjajaran civilizations.

Keywords: Flooding, GIS, NDVI, Padjajaran, river

Contested Social Meanings of Technologies to Reduce Tsunami Risks in Indonesia

Esti Anantasari[1], Irina Rafliana[2,3], Hery Yogaswara[3], Mizan Bustanul Fuady Bisri[5,9], Nuraini Rahma Hanifa[3], Semeidi Husrin[4], Qoriatu Zahro[6], Novian Andri Akhirianto[6], Jaka Marwastha[1], Melvi[7], Purnomo Husnul Khotimah[3], Nurul Sri Rahatiningtyas[8,9], Yus Budiono[6], Jan Sopaheluwakan[8], Andi Eka Sakya[6]

[1] Universitas Gadjah Mada, Indonesia
[2] Deutsches Institut für Entwicklungspolitik/German Development Institute, Germany
[3] Indonesian Institute of Science, Indonesia
[4] Indonesian Ministry of Maritime and Fisheries, Indonesia
[5] Kobe University, Japan
[6] National Agency for Technological Assessment and Implementation, Indonesia i
[7] Universitas Lampung
[8] Universitas Indonesia
[9] U-INSPIRE Indonesia
Corresponding author's email address: esti.anantasari@ugm.ac.id

Abstract

A local tsunami event in Maluku, 16 June 2021 had brought together a group of researchers, engineers ,and practitioners to collectively revisit the way tsunami warning system technologies traditionally observed. The 6.1 Mw earthquake had triggered a tsunami warning; fortunately no damages and casualties from the waves. The event had once again reflected the reality that Indonesia is facing a huge potential of very local tsunami with rapid arrival time, less than 5 minutes, of which the current tsunami warning system infrastructures and technologies such as InaTEWS, are constrained. To address the profound challenges, a experimental methodology was implemented to better understand the social realities of technologies and tsunami warning system. The review was performed by observing and critically reflect on the national Focused Group Discussion processes held by BMKG Indonesia as the tsunami warning system authority supported by systematic literature review and relevant documents. This paper will present the review processes and critical reflections which suggested, among others, the avoidance on the 'binary trap', "false sense of security" entailed when understanding technologies, importance of co-creation and co-knowledge production of technologies of different users of the system, and also the cultural aspects of technologies. This paper highlights meso-level of interpretations of different institutions and actors by considering the STS (Science, Technology and Society) perspectives and questions on the meaning of accountability within the contested Indonesia tsunami early warning system. With regards to the branch of STS concerned with the relationships between risk, science, technologies, and publics, tsunami hazard can perhaps be seen as a paradigm case.

This paper is part of an interdisciplinary activity of the Indonesian Tsunami Consortium (Working Package 400 on Risk Culture and Preparedness, and Working Package 500 on Policy Strengthening).

Keywords: STS, social meaning, tsunami warning system, power relation, binary trap

Why Integration Between Siskohat (E-Hajj Indonesia) And E-Hajj Saudi Arabia is Needed? A Study On Hajj Implementation After COVID-19 Pandemic

Ahmad Fauzie, Rachma Fitriati

Faculty of Administrative Science, Universitas Indonesia, Indonesia
Coresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

The creation of a business process renewal scheme in Hajj services in Indonesia makes this system more flexible, efficient, and effective. The integration between Siskohat (e-Hajj Indonesia) and e-Hajj Saudi Arabia can speed up the issuance of hajj visas to prevent delay sin the departure of pilgrims due to visa failures. Through a continuous checking mechanism using the data digitization process, problems can be resolved more quickly and easily when compared to the conventional processing. With this integration, the government budget use becomes efficient. This study used soft systems methodology approach. The results show that by changing the mechanism for hajj registration, which does not require an upfront deposit, the government can focus more on other hajj services, such as the integration of resident e-KTP data for hajj registration and hajj passports. This will create significant efficiency in Hajj budget efficiencies especially with no more data redundancy and the purchase of the same infrastructure. In addition, the registration of Hajj alumni is very important to shorten the Hajj cycle in Indonesia. With this in mind, it will be easier to make equal opportunities to worship in the holy land, especially for those who are older or have never performed Hajj as a priority. The Hajj cycle is a big problem in organizing the Hajj in Indonesia. Therefore it is necessary to improve the regulations for the implementation of Hajj in Indonesia. Hajj alumni data can be used to provide opportunities for pilgrims who are ready to leave and have never performed the pilgrimage to the holy land before. Hajj alumni data can use logs obtained when pilgrims leave and return to Indonesia, using an e-Tracking application based on GPS/RFID technology, and the resulting data is very accurate. The benefits of E-Tracking as a medium for monitoring the presence of Hajj pilgrims are expected to reduce the potential for crime and loss of pilgrims in the holy land. In real-time, the presence of pilgrims is monitored in Saudi Arabia and Indonesia, and the added benefit is as a medium to monitor the level of service providers and service providers in Saudi Arabia.

Keywords: E-Hajj, pilgrims policy, COVID-19, soft systems methodology

Building Village Competitiveness during the COVID-19 Pandemic: Penta Helix in Smart Village Implementation in Kemuning Village

Rachma Fitriati, Kusnar Budi, Arthanti Ayu Puspaningrum, Dhia Elza Salsabila, Trizyana Selvrina Irawan

Faculty of Administrative Science, Universitas Indonesia, Indonesia
Corresponding author's email address: rachma.fitriati@ui.ac.id

Abstract

The pandemic has an impact that can be felt in rural areas with the homecoming flow due to layoffs. In response to this, the Smart Village Nusantara program was initiated by PT Telkom Indonesia (Persero) Tbk (Telkom) together with the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration. One of the villages that are used as a pilot in the smart village program in the archipelago is Kemuning Village. This study used the qualitative approach. The results of the study show that Kemuning Village has collaborated with various stakeholders, namely the provincial government, academia, the private sector, the community, philanthropy, and the media. In regional development, collaborative governance in the Penta Helix model plays a role in increasing collaboration in the implementation of development programs. Collaboration opens up many new opportunities for Kemuning Village to implement smart villages to the fullest. However, Kemuning Village still has ample space to increase cooperation with various parties. Kemuning Village can collaborate more intensively with the private sector, especially those engaged in technology for maximum digitization. In addition, in the era of the Industrial Revolution 4.0, which requires many new innovations, empowerment and collaboration with the younger generation are needed to get the perspective of the younger generation that has the potential to express new ideas for Kemuning Village.

Keywords: Penta helix, smart village, competitiveness, COVID-19

Super Cyclone Amidst Pandemic: Livelihood Impact of Dual Disasters on Barguna and Patuakhali Districts of Bangladesh

Masuma Moriom*, **Mahima Yusuf Tarana, Orfat Ara Chowdhury,**
Nishat Tasnim, Sadia Tasnim, Sadnan Fahim

Institute of Disaster Management and Vulnerability Studeies, University of Dhaka, Bangladesh
Department of Disaster Science Management, University of Dhaka, Bangladesh
Department of English, University of Chattagram, Bangladesh
Environmental Science, Bangladesh University of Professionals, Bangladesh
Department of Environmental Science and Disaster Management, Bangladesh
Correspondent Author: masumamoriom.du@gmail.com

Abstract

Bangladesh is one of the global hotspots of tropical cyclone. Due to its geographical location, every year natural disasters including flood, cyclones, earthquakes, river erosion, tsunami hit Bangladesh and affects the livelihood of the people residing in the coastal areas. However, this time the situation was different from the previous years as Bangladesh faced the strongest cyclone over Bay of Bengal in the 21st century during the time when it was already struggling with Covid-19 pandemic. As the coastal areas of Bangladesh are mostly vulnerable to natural disasters, this research paper tries to identify the impact of dual disasters i.e. super cyclone Amphan and Coronavirus pandemic on the livelihood activities of the people residing in Barguna and Patuakhali, which are one of the most climate vulnerable districts of Bangladesh due to their location near the Bay of Bengal. By reviewing existing literature, collecting and analyzing qualitative and qualitative data from the people residing in Barguna and Patuakhali districts, this study concluded with the findings that super cyclone Amphan along with the Covid-19 pandemic have made the livelihood activities of coastal people harder than ever before.

Keywords: Amphan, COVID-19, coastal-belt, dual-disaster, vulnerability.

Neurosocial Perspective of Resilience in Disasters

dr. Nurhadi Ibrahim, PhD

Department of Medical Physiology, Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: nurhadi.ibrahim@ui.ac.id

Abstract

Disasters affect millions of people around the world. The increasing frequency of disasters and increasing population density will cause more people to be affected by disasters. Disasters affect large and diverse populations. These events emphasize the critical and urgent need to improve and target global disaster mental health planning for individuals, families, communities, and nations. Interventions require rapid, coordinated, effective, and sustainable mobilization of resources. How psychological responses to disasters can be managed is a determining factor in a community's ability to recover. Maintaining community social fabric and facilitating recovery depends on leadership knowledge of community resilience and vulnerability as well as an understanding of stresses, disturbances, and health risk behavioral responses to these events. A coordinated systems approach across the medical, public health, and emergency response systems are needed to meet the mental health care needs in disaster areas. Consequence management for mental health, fostering resilience, reducing and treating disorders, and responding to health risk behaviors requires preparing for, responding to, and focusing on mitigating the effects of disasters and recovery. For those directly affected and those affected indirectly, the added burden of loss of support and increased demands is an ongoing part of disaster recovery. Importantly, early identification of individuals at risk for psychiatric disorders versus those experiencing transient distress is key to providing an effective response in the aftermath of a large-scale disaster. This paper will explain the neuroscientific basis of disaster response and the role of individuals and social resilience in disasters so that they can deal with the impact of disasters effectively and appropriately.

Keywords: Disaster, stress, neuropsychological, resilience, mental health

Supply Chain Management Strategy in the Humanitarian Logistic Distribution of COVID-19 Outbreaks: Indonesian Perspective

Ahmad Hidayat Sutawidjaya[1], Winda Widyanty[2]

[1] Doktoral Program, [2] Faculty of Economy and Business
[1,2] Universitas Mercu Buana, Jakarta, Indonesia
Correponding author's email address: winda.widyanty@mercubuana.ac.id

Abstract

COVID-19 (coronavirus) outbreak that struck various parts of the world in early 2020 is disrupting manufacturing and global value chains, with consequences for businesses, consumers, and the global economy. The purpose of this paper is to develop a model and solution to supply chain management strategy in the humanitarian logistic distribution of Covid-19 outbreak in Indonesia. This study uses discourse analysis to develop supply chain management strategy in the humanitarian logistic distribution model in Indonesia. The findings identify that in dealing with COVID-19, an integral approach is needed to build an optimal management system, careful planning, supply, fabrication, delivery, and sorting which includes storage, transportation, inventory, ordering of goods, and quantity of goods, which can help prevent greater risks. The disaster management model is described as a process that consists of several stages, including: (1) mitigation; (2) preparation; (3) responses; and (4) reconstruction can be used to anticipate this situation. This paper contributes to humanitarian logistics by discussing useful insights for finding strategic models regarding supply chain management for humanitarian logistic distribution used in dealing with COVID-19.

Keywords: Covid-19; Coronavirus; Supply chain management; humanitarian logistic, Indonesia

Gotong Royong as a Dynamic Local Adaptation System: Recovery as Catalyst for Resilience in Chronically Flooded Jakarta Low Income Communities

Micah Fisher and Karl Kim

Urban and Regional Planning, University of Hawaii, Hawaii
Corresponding author's email address: micahrf@hawaii.edu

Abstract

As hydrometeorological hazards intensify with climate change, flood conditions are becoming more severe. Floods most prominently affect urban areas, particularly among informal and lower income communities that lack the state support systems or resources to mitigate against overall exposure and reduce vulnerabilities. In this paper, we examine how local communities experience chronic flooding and focus our lens of analysis around the way communities develop mutual adaptation support systems to reduce flood impacts to their lives and livelihoods. Examined through the lens of gotong royong as mutual support systems in Indonesia, we highlight ways that communities established processes to prepare for floods, help each other during crisis conditions, and how communities patch their lives back together in the face of recurring flood conditions. The research is based on longstanding engagement between 2009-2021 with families from Kampung Melayu in Jakarta, one of the most severely flooded communities in a city with widespread perennial flooding. The findings highlight the origins of adaptive mutual support systems in this community and surprisingly identify that recovery phases to remove post-flood sedimentation from homes were most significant in building community resilience. The recurring labor-intensive initiatives and dependence on neighbors thereafter helped to establish and coordinate efforts at evacuation. We also briefly highlight the rupture that takes place when evictions divide and displace these communities. Overall, the implications of this research help shed light on how autonomous adaptation relates to community resilience, and provides insight into growing interest about social capital in disasters. More broadly, in the study of disasters, foregrounding elements of recuperation and recovery can help community planners and disaster managers reduce risk and better facilitate early warning systems and evacuation efforts.

Keywords: *Gotong Royong*, dynamic local adaptation system, resilience, low income community, Jakarta

Destruction of Civilization and City:
Learning from *Al-Quran* in Perspective of Today's Environment

Moh Rosyid[1] and Lina Kushidayati[2]

1Islamic Education, IAIN Kudus, Indoensia
2Islamic Law, IAIN Kudus, Indonesia
Corresponding author's email address: mrosyid72@yahoo.co.id

Abstract

This article describes the contents of *Al-Quran* as the Holy Book of Islam regarding city and civilization destruction. Data were gathered from *Al-Quran* then analyzed using descriptive interpretation using progressive contextual approach, combining linguistic, sociocultural, and modern science interpretation. This method avoids the textual interpretation of the verses in the *Al-Quran* by implementing these basic principles (1) use meaning-based and interactive translation approach to understand the meaning, both non-textual and textual meaning to avoid passive understanding of textual meaning and (2) text is fluid, not stagnant that the meaning of the text may change according to time, linguistic application, social condition, and history. Results show that the Holy Book depict civilization and city destruction in the Middle East, especially in Sodom City during Prophet Luth era, was due to human's behavior that denied God. This destruction leaves its mark archeologically and historically and should lead to the urgency to apply the lessons learned in today's environment. Therefore, learning from the Al-Qur'an using the progressive contextual approach is very important to learn from the past and avoid making the same mistakes and to build civilization by adapting to the teachings in the *Al-Quran* and the local wisdom in Indonesia, which is known as Nusantara local wisdom.

Keywords: *Al-Quran*, **civilization destruction, progressive contextual approach, local wisdom**

Assessment of Humanitarian Logistics at the Community Level:
A Case of Selected Barangays in Antipolo City, Province of Rizal, Philippines

Mary Ann P. Esporas[1] and Leonardo C. Medina, Jr.[2]

[1] University of the Philippines, School of Urban and Regional Planning, Philippines
[2] Philippine School of Business Administration - Manila
Corresponding author's email address: mpesporas@up.edu.ph

Abstract

The Philippines experiences all kinds of hazards as it lies in the Ring of Fire and Typhoon Belt. Recurrence of hazards that resulted in disasters struck the Philippines like the case of Typhoon Ketsana (locally known as Typhoon *Ondoy*) in September 2009. The super typhoon caused extreme floods due to continuous rainfall which resulted in the declaration of the state of calamity in the National Capital Region and nearby areas. In Antipolo City in the Province of Rizal, most of the barangays experience severe flooding that resulted in damage to properties and livelihood. Crucial in addressing the needs of these affected communities is the humanitarian supply chain that focuses on the efficiency and effectiveness of the distribution of services, information, and relief goods to alleviate the suffering of affected locals. This study assessed the conduct of humanitarian logistics operations and management by the local government unit (LGU) through the barangay officials in four barangays (Barangays Dela Paz and Mayamot of District 1, and Barangays Dalig and Inarawan District 2) in Antipolo City. The research used archival information and key informant interviews of LGU and barangay officials along with focus group discussions with members of the affected communities to described and compared the process of humanitarian logistics at the last mile. In particular, the study focused on the experiences of the beneficiaries to determine the effectiveness of humanitarian support. By revisiting these experiences, the study gathered lessons learned, practices worth enhancing, and services that need improving so that these may be used to guide the amendment of existing practices, protocols, and policies.

Keywords: Humanitarian logistics management, humanitarian supply chain, last mile distribution, flooding, beneficiary perception

Cultural Heritage Preservation in Facing Flood Threats in Jakarta

Jeanne Francoise, Yuniarti Wahyuningtyas

Indonesia Defence University, Indonesia
Corresponding author's email address: jeanne.francoise@idu.ac.id and yuniarti.tyas@gmail.com

Abstract

This paper provides an update on the strategic scheme to reduce the flood risk exposure to the immovable cultural heritages in the Jakarta area. The study was performed using qualitative research methods and theory of cultural heritage, disaster management, and digitalization. The combinations of theories from those perspectives provide a comprehensive analysis that includes: 1) mapping of immovable cultural heritage in Jakarta and their distribution based on the Urgency Level (location, loss of historical and cultural narratives that will be lost, and the impact of disasters on social, political, and economics), 2) evaluation to existing disaster risk reduction strategies for preserving cultural heritage based on various studies at the country, regional, and cross boundaries levels, and 3) outlining strategy for digitizing cultural heritage as a way to preserve the legacy of heritages.This study aims to provide recommendations for the Government of DKI Jakarta Province to develop a better strategy and plan for preserving cultural heritage against flood risk through a collaborating partnership for resilient cities and introducing the means and importance of digitizing culture starting from young age.

Keywords: Cultural heritage, Jakarta, natural hazards, flooding, disaster management, digitalization

Identifying and Analyzing the Dominant Social Factors that Motivates People to Inhabit Flood-Prone Areas of Srinagar City, India

Gowhar Farooq Wani[1*], Rayees Ahmed[1], Syed Towseef Ahmad[1], Pervez Ahmed[1], Ajinder Walia[2]

[1] Department of Geography and Disaster Management, India
School of Earth and Environmental Sciences, University of Kashmir, Srinagar, 190 006, India.
[2] Department of Governance and Inclusive Disaster Risk Reduction, National Institute of Disaster Management (NIDM), Ministry of Home Affairs, India
* Corresponding author's email address: gowhernaz@gmail.com

Abstract

Flooding is a major problem in many parts of the world. The most vulnerable communities in developed and developing countries are at the greatest risk. Climate change, a crisis within multiple crises felt by everyone, and several issues such as population increase, continuous damage to environment and inadequate flood prevention and control measures can amplify flood risks. This study was carried out in the Srinagar City of Kashmir Valley along the Jhelum River, a region prone to multiple hazards such as floods, earthquakes and fires among others. The Kashmir Flood 2014 was historic that caused widespread devastation. The purpose of this study was to go beyond physical aspects and assess the underlying social factors that encourages people to continue dwell, or move to the areas at-risk of flooding. The data was collected at the household level through in-depth semi-structured interviews with residents having direct or indirect flood experience while adhering to the Covid19 protocol and through telephone interviews with local disaster management professionals. The study included both male and female participants to seek diversity of opinion. Several pull and push factors as well as risk trade-offs were identified that include, such as, but not limited to, a sense of place; easy access to quality healthcare and education; good living situation as a result of available urban amenities to accomplish humanitarian needs of people; and equally important being well-adjusted to the flood-hazard situation. A comparative analysis of views shared by residents and disaster management professionals' helped to understand any similarities or dissimilarities in the public and expert opinion. The disconnect between government and people, with residents showing lack of trust in government run flood risk management programmes/policies was a major highlight of this study. Public and experts voiced similar views on many aspects with an exception of capacity building through community involvement, use of traditional knowledge and indigenous technology, disaster planning, accountability, and efficiency in implementation of measures for integrated flood risk management at local level.

Keywords: Floods; Flood risk reduction, flood risk management, urban people, Srinagar India

Statistical and Modelling Tools for Disaster Management

Applying Self-Organizing Map to Investigate the Relationship between Radar Echo Pattern and Pluvial Flood Disaster: A Case Study in Taipei

Lo-Yi Chen[1], Tsung-Yi Pan[2,*],

Yi-Huan Hsieh[3], and Jihn-Sung Lai[4]

[1] International Degree Program in Climate Change and Sustainable Development, Taiwan
[2,*] Center for Weather Climate and Disaster Research, National Taiwan University, Taiwan
[3] International Degree Program in Climate Change and Sustainable Development, Taiwan
[4] Hydrotech Research Institute, National Taiwan University, Taiwan
Corresponding author's email address: typan@ntu.edu.tw

Abstract

A well-developed drainage system is one of the critical infrastructures for a resilient city to mitigate the impacts of pluvial flood disaster. However, the frequency and intensity of hazardous rainfalls have increase year by year under climate change. In Taiwan, a quantitative precipitation estimation and segregation using multiple sensors (QPESUMS) of Center Weather Bureau (CWB) is applied to monitor short-duration high-intensity rainfalls that often induce pluvial flood disaster in communities for nowcasting. It shows how importance of radar echoes for pluvial flood early warning. Unfortunately, QPESUMS only provides deterministic rainfalls without information of uncertainty that can help community emergency response teams (CERTs) adopt a better adaptation. Therefore, the relationship between radar echoes and pluvial flood disaster is investigated using an un-supervised neural network, self-organizing map (SOM) for improving flood early warning for village scale in this study. This study collected hourly radar echo products and pluvial flood reports in the flood-prone area of Taipei City, Zhonghua village in Songshan District, and hourly rainfall data of its nearest observation stations from 2014 to 2018. Then, the study applies a SOM to establish the relationship between the three-dimensional radar echo patterns and pluvial floods. After that, the clustering vectors corresponding to flooding disaster events could be analyzed through extracting the correlation between the radar echo and the probabilistic hazards via k-means clustering. Finally, a hazardous radar echo pattern could be identified, and a hot zone of topological map based on SOM could be carried out for improving pluvial flood warning. Consequently, preliminary research shows that after clustering by SOM and k-means, a certain radar echo pattern is highly correlated with the probability of pluvial flood disaster events that could provide a probabilistic flood warning message with enhanced spatial resolution for CERTs to adopt preventive measures.

Keywords: Radar echo, self-organizing map, k-means, rainfall threshold, flood disaster.

Assessing Fire Station Response Coverage using Network Analysis in East Jakarta, Indonesia

Rizta Melia Andanusa[1], Jarot Mulyo Semedi[1,3,*],
Nurul Sri Rahatiningtyas[1,3], Fatma Lestari[2,3]

[1]Department of Geography, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, Indonesia
[2]Department of Occupational Health & Safety, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
Corresponding author's email address: jarot.mulyo@ui.ac.id

Abstract

The high number of people who choose to live in Jakarta has led to the consequences of dense settlements. According to the 2020 Central Statistics Agency data, 3,037,139 people are living in East Jakarta City, making this city the city with the largest population in Jakarta Province. The high population has encouraged the development of urban areas and densely populated settlements, thus having an impact on the potential for urban fire disasters. East Jakarta has a total of 349 fire cases that have a significant impact on the community, apart from causing material losses with the loss of human life as the most serious consequence. One of the efforts to reduce the impact is the presence of firefighters. However, at the time of rescue, there are challenges that may be faced, such as traffic jams and narrow roads, thereby slowing firefighters arrival to the scene and affecting the achievement of the predetermined response time. The faster the response of firefighters in extinguishing the fire, the lower the number of fatalities and losses will be. Therefore, this study aims to analyze the service area of fire stations, supporting facilities, and the quality of firefighters' response to urban fire disasters. This study used the Network Analysis method with data collection techniques of observation, documentation, and interviews. The results of this study are expected to help the community in tackling urban fire disasters with the help of firefighters in extinguishing the fire, so the response from firefighters is very important. Thus, the number of fatalities and losses can be reduced.

Keywords : Urban fire, fire response, service area, network analysis, GIS

Determining the Best Location of Fire Station in East Jakarta using Fuzzy Analytic Hierarchy Process (FAHP)

Shafiya Yunka Putri[1], Jarot Mulyo Semedi[1,3,*], Nurul Sri Rahatiningtyas[1,3], Fatma Lestari[2,3]

[1]Department of Geography, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, Indonesia
[2]Department of Occupational Health & Safety, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
Corresponding author's email address: jarot.mulyo@ui.ac.id

Abstract

Urban fires in Indonesia are one of the social disasters that often occur. One of the areas that often experience urban fires is the city of East Jakarta. Fire disaster is an event or occurrence of an uncontrolled fire that can endanger life and property. East Jakarta is the most populous city in DKI Jakarta with 28.76 percent of the population. The DKI Jakarta Provincial Fire and Rescue Service stated that East Jakarta City has experienced a total of 349 fire incidents in 2020 at night around 18.00-23.59 WIB. The causes of the fires were dominated by electrical disturbances, explosions, and gas leaks. Sometimes, the situation and condition of the fires in East Jakarta City get worse and cause even greater losses if they do not get prompt and proper handling. The cause of the occurrence is due to the ineffective position of the fire stations and the number of existing fire stations has not been proportional to the need for fire service services throughout East Jakarta City. For this reason, this study aims to determine the best location for fire stations and analyze what factors have the most influence on the selection of fire stations in East Jakarta City. The method used in this study was the Fuzzy Analytical Hierarchy Process (FAHP) based on a Geography Information System (GIS) with criteria of a road network, fire incident data, service area coverage (travel time), hazardous buildings (chemical factories, etc.), buildings typology, population density ratio, and the ratio of the number of buildings. The results of this study are expected to assist policy makers in determining the best and most suitable locations for fire stations in East Jakarta City in order to improve the situation of the city's fire control as a whole.

Keywords : Fuzzy AHP, fire station, GIS, urban fires

Assessment of Village-Level Social Vulnerability to Hydrometeorological Hazards in Jakarta using Optimized Fuzzy Geographically Weighted Clustering

Nadhifan Humam Fitrial, Tiodora Hadumaon Siagian

Statistics Polytechnic, STIS, Indonesia
Corresponding author's email address: 211709877@stis.ac.id

Abstract

Hydro-meteorological hazards are caused by extreme meteorological and climatic events such as floods, tornadoes, and tidal waves. Social vulnerability assessment is important for establishing a disaster risk reduction system. To date, there are few studies that discuss social vulnerability to hydrometeorological hazards. In those studies, social vulnerability is often assessed by a composite index that is constructed from various indicators. However, the composite index approach has the issue of oversimplifying the complexity and relationships among the indicators, so it is less able to capture the diversity of social vulnerability. As Jakarta is often affected by hydrometeorological hazards, this study aims to propose a relative approach to overcome this issue by implementing the Fuzzy Geographically Weighted Clustering-Gravitational Search Algorithm (FGWC-GSA) to assess the village-level social vulnerability to hydrometeorological hazards in Jakarta. Study results showed that there are 4 clusters that can be classified into high, medium, low, and very low of social vulnerability regions. The majority of villages in Jakarta are categorized into high social vulnerability cluster. It is expected that the results of this study can be used to support mitigation, response, and recovery programs to reduce hydrometeorological hazards risks in Jakarta.

Keywords : Hydrometeorological hazards, Social vulnerability, FGWC-GSA, Jakarta

Flood Risk Indexing and Mapping of Poblacion, Batangas City, Philippines

Cheryll C. Malibiran, John Vanni G. Velasco, Nika Dannielle I. Bernales,
SiddArtha B. Valle and Lailanie L. Luna

Civil Engineering Department, College of Engineering, University of Batangas, Philippines
Corresponding author's email address: siddartha.valle@ub.edu.ph

Abstract

Torrential rainfalls brought about by seasonal monsoons and typhoons are primary contributors to localized flooding in areas with tropical climates. Climate change and the expansion of impervious surfaces exacerbate the magnitude and duration of flooding. The current global pattern of rapid urban development and densification of cities lead to the continuous rise of populations exposed to floods. As Metro Batangas has historically been vulnerable to perennial weather disturbances, this study was conducted to identify areas which are most susceptible to flooding. This study profiled the demography and flooding history of twenty-four barangays (wards) of Poblacion, Batangas City. Survey instruments were distributed to 391 residents to gather experiential data on flood severity. The reported flood depth, together with monitoring data on annual rainfall and typhoon frequency from the local weather station, were aggregated and linearized to obtain the hazard indices of each barangay. Vulnerability indices were derived from number of families and gender ratio, while the exposure index was calculated from the flood duration and population density. Hazard, vulnerability and exposure indices were integrated to determine the flood risk index. The hazard and exposure mapping showed that the Barangay 4, an area of low elevation adjacent to Calumpang River, was the most flood-prone based on severity and duration. Residents in this area frequently experience overhead flooding during severe typhoons. Barangay 24 was discerned as most vulnerable for human and physical losses on account of the concentration of households. Overall, Barangay 4 was evaluated as the most at-risk to flooding, owing to its high population density and proximity to Calumpang River, the primary drainage of the Calumpang watershed before surface waters discharge to nearby Batangas Bay. Through flood risk assessment, disaster risk reduction and management programs may be augmented by local government units to mitigate any perceived risks, especially in highly susceptible barangays.

Keywords: Flood, hazard, vulnerability, exposure, disaster risk reduction and management

Relationship of Fire Incidence and Area Vulnerability: A Case Study of West Jakarta Municipality, Indonesia, in 2019

Fajar Nugraha[1,3], Fatma Lestari[2,3], Nurul Sri Rahatiningtyas[3,4,5],
Jarot Mulyo Semedi[3,4] and Andrio A. Wibowo[3]

[1]Center for Biostatistics and Health Informatics Studies, Faculty of Public Health,
Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
[4]Department of Geography, Faculty of Mathematics and Natural Sciences,
Universitas Indonesia, Indonesia
[5]U-INSPIRE Indonesia, West Java Indonesia
Corresponding author's email address: fajar.nugraha.ui@gmail.com

Abstract

The capital city of Jakarta is the most populous city in Indonesia and also the most densely populated city with an average of 15,900 people per sq.km. In 2019, there were 2,109 fire incidents recorded, and nearly 20% of it is located within the West Jakarta City area. This study aims to investigate the relationship of population density and building density which are considered as vulnerability factors of an area to fire incidents which occurred within the West Jakarta City in 2019. This study investigated 56 villages within the eight subdistricts of West Jakarta Municipality. The design of this study was the ecologic study and data were analyzed using the bivariate test withSpearman correlation. The fire incidence significantly correlated with the building density (P-value=0.0001; r=-0.533) and the population density (P-value=0.04; r=-0.276). Spatially, the densely populated and high building density villages are predominantly distributed in the east region of West Jakarta City, whereas the villages with high fire incidents are predominantly distributed in the west region of West Jakarta City.

Keywords: Fire, area vulnerability, West Jakarta

Small Island Settlement Carrying Capacity Based on Environmental and Natural Hazard Characteristics: A Case Study of Bawean Island

[1]R. L. Hidayat, [2]W. Windupranata

[1]Geodesy and Geomatics Engineering Study Program, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[2]Hydrography Research Group, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
Corresponding author's email address: w.windupranata@@itb.ac.id

Abstract

Settlements on small islands are a form of spatial use amid the issue of "limited" utilization. Determination of the carrying capacity of the environment is an instrument that explains the process / method of scientific study to determine / find out the ability of an area to support the needs of human life and other living things. Determination of carrying capacity is also determined to reduce the occurrence of environmental quality problems and degradation such as floods, landslides and droughts, pollution, and so on. The existence of disaster data is required as one of the parameters to calculate the carrying capacity, especially in the land carrying capacity of settlements that require data on flood and landslide prone areas. This research will discuss further about the carrying capacity of settlements on Bawean Island, Gresik Regency, East Java with the aim of calculating the carrying capacity of land for settlements and making maps of that carrying capacity. The research was conducted in 30 villages located on Bawean Island using secondary data. The method used for this research is the calculation of the carrying capacity of settlements using the area of suitable housing, the number of inhabitants, and the coefficient of space requirements. The results of the study indicate that there are 27 villages that have the status of "supporting" carrying capacity and 3 villages have the status of "not supporting". This shows that most of the carrying capacity of settlements on Bawean Island are classified as "supporting", however, there are several things that need to be considered so that each sub-district has the same carrying capacity.

Keywords: Bawean Island, carrying capacity, disaster data, settlement

Analysis of Tsunami Hazard Potential in the Steam Power Plants along the Southern Coast of Java Island, Indonesia

[1]W. Windupranata, [1]C. A. D. S. Nusantara, [2]S. Mahelda, [3]N. R. Hanifa, [4]R. Syahputra

[1]Hydrography Research Group, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[2]Geodesy and Geomatics Engineering Study Program, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[3]RC for Geotechnology, Indonesian Institute of Sciences (LIPI), Bandung, Indonesia.
[4]Perusahaan Listrik Negara, State-Owned Electricity Company, Indonesia

Abstract

Steam Power Plant in Indonesia is the main electricity power supply that support up to 48% national electricity needs in 2021. There are six steam power plants in Java Island that are prone to tsunami hazards due to their location in the southern and western coasts. Potential tsunami hazards in these six steam power plants were analyzed in this paper. Five probabilistic tsunami scenarios from megathurst earthquake along the Indian Ocean were examined. The results showed that the highest tsunami potential of 25.8 meters may occured in Pacitan Power Plant, whereas Pelabuhan Ratu Power Plant may be endangered due to it shortest time of tsunami arrival (15 minutes). Furthest tsunami inundation area may occur in Cilacap Power Plant where all the facilities may be inundated for up to 20 meters. Based on the results appropriate mitigation and risk reduction strategies may be analyzed and selected for each power plant.

Keywords: Steam Power Plant, tsunami, inundation

Meta-ID: 601

Rapid Building Detection by Machine Learning for Identification of Tsunami Hazards Impacted Buildings in Palabuhanratu Village, Indonesia

[1]Reza Fikri Yuzar, [2]Wiwin Windupranata, [3]Deni Suwardhi

[1]Geodesy and Geomatics Engineering Study Program, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[2]Hydrography Research Group, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[3]Remote Sensing and Geographic Information Science Research Group, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia

Abstract

Palabuhanratu village is located on the southern coast of the island of Java and adjacent to a segment of tectonic plates, which causes the Palabuhanratu area to be potentially affected by a tsunami. The three-dimensional city model from Palabuhanratu Village can be used as a basis for visualizing the tsunami hazard. To form a three-dimensional city model, building polygons and elevation data are needed. The manual digitization process to obtain building polygons is quite a time-consuming process. In this study, automated extraction of building footprint from orthophoto using machine learning was carried out and used the extraction results to create a three-dimensional model of the city. To visualize the tsunami hazard, a three-dimensional model of the city is superimposed on the model of the tsunami inundation area. Machine learning model training is conducted by using roof classification on orthophoto as training samples. The model is used to extract building footprints which are later used with elevation data from the digital elevation model to form a three-dimensional city model. From the research results, the accuracy of building footprints extraction using machine learning is 83.75% and could successfully identify 4288 of a total of 6418 manually digitized building polygons.

Keywords: Building footprint extraction, machine learning, Three Dimensional Modeling.

Analysis of Evacuation Modeling and Simulation using Integration of Agent-Based Modeling, Artificial Intelligence, and Building Information Modeling: A Case Study of Pangandaran Village and Pananjung Village, Indonesia

Atik Nurul Aini[1], Dephita Vega Koswara[1], Wiwin Windupranata[2], Intan Hayatiningsih[2], Nuraini Rahma Hanifa[3]

[1]Geodesy and Geomatics Engineering Study Program, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[2]Research Group of Hydrography, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia
[3]Research Center of Geotechnology, Indonesia Institute of Sciences, Indonesia
Corresponding author's email address: atiknurulaini@students.itb.ac.id

Abstract

Pangandaran Village and Pananjung Village are areas in Pangandaran District, West Java, Indonesia which are famous tourist attractions and have high economic activities. This area has a history of earthquakes measuring M7.7 in 2006 and, according to recent research, belongs to the area with the potential for earthquakes measuring M8.7-9, which can trigger an enormous tsunami. This study aims to determine the best evacuation plan for tsunami disaster mitigation. The simulation approach was chosen as the most feasible method in this study. In its application, the Agent-Based Modeling and Simulation method, which can also bridge geoscience and social science, is considered the most suitable for evacuation modeling and simulation. Artificial Intelligence also has a role in modeling the behavior of large groups by simulating the behaviors and interactions of individual agents. Each agent has individual traits, goals, and perceptions and can take unique actions based on that data. The simulation was carried out based on several scenarios that were set according to several parameters, namely evacuation routes, number and location of Temporary Evacuation Places (TEP), population size, and agent characteristics. Digital infrastructure built using Building Information Modeling was integrated with a simulation environment. The modeling results show that Scenario 4 is the best scenario with the least amount of time required by the agent to achieve TEP. This proves that the potential TEP recommended in this study can be included in the evacuation plan. Meanwhile, many congestion points are seen in Scenarios 1 and 3 because the use of vehicles is also strongly correlated with evacuation time. Road widening and directing agents to less congested roads can be used as a solution in this case. The results of the integration of the three methods used in this study are expected to help practitioners in designing the effective and efficient evacuation management.

Keywords: Tsunami, evacuation simulation, agent-based modeling, artificial intelligence, building information modeling

Risk Analysis and Tsunami Disaster Mitigation Strategies in the Pangandaran Coastal Area of West Java Province, Indonesia

Adib Aulia Syamsu[1], Willy Ivander Pradipta[2],
Frezto Samuel Andrew Sinurat[3], Wiwin Windupranata[4]

[1,2,3,4]Hydrography Research Group, Faculty of Earth Science and Technology,
Institut Teknologi Bandung 40132, Indonesia
Corresponding author's email address: adibauliasy@gmail.com

Abstract

Pangandaran is located in West Java and a strategic area for tourism, fisheries, and agriculture as the center of the economy for local residents. However, according to the 2017 National Earthquake Study Center (PuSGeN), Pangandaran also has a potential threat of a tsunami disaster originating from megathrusts along southern Java. In 2006, an earthquake measuring 7.7 M was followed by a tsunami and resulted in 500 casualties and various damage to public facilities and infrastructure. The large number of casualties and losses was due to the community's lack of preparedness for the tsunami disaster. This unpreparedness is influenced by the unequal distribution of information and mitigation measures for the tsunami disaster. One of the mitigation efforts needed is in the form of a tsunami risk map. This study aims to simulate tsunami propagation using numerical modeling methods using COMCOT v1.7 software in five megathrust earthquake scenarios in the south of West Java, which were then visualized using Matlab. A tsunami risk map in the Pangandaran coastal area can be made using a Geographic Information System using the hazard, vulnerability and capacity parameters. Based on the simulation of 5 tsunami wave propagation scenarios, it is estimated that the fastest time required for the first tsunami wave to hit the mainland is 21 minutes. With this estimated time, it is concluded that the existing shelter is still unable to reach areas at risk of being affected by the tsunami with a travel time of 21 minutes. So that it is necessary to add several recommended shelters, both as temporary evacuation sites and final evacuation sites. To increase awareness and disseminate information, a WebGIS-based application was created that can be used by the community to find out risk zones as well as locations and routes to the nearest shelter in the vicinity.

Keywords: Tsunami, pangandaran, mitigation, risk, webGIS.

Spatial Pattern, Emission Trends, and Seasonal Cycle from Satellite-Retrieved NO$_2$ Over Paiton Coal Fired Power Plants

Masita Dwi Mandini Manessa [1,2*], Habiburrachman Alfian H F[2],
Kartika Pratiwi[2]

[1] Geography Departement, Faculty of Mathematic and Earth Science, University of Indonesia, Indonesia
[2] Research Center for Climate Change, University of Indonesia, Indonesia
* Corresponding author's email address: manessa@ui.ac.id

Abstract

Satellite deriving NO$_2$ column data have been widely used to study fossil fuel consumption and pollutant emissions from a coal fired power plants. Based on the NO$_2$ retrievals from satellites OMI for 2004–2021, and Sentinel 5-P for 2018-2021, we analyzed the spatial pattern, emission trends, and seasonal cycle of NO$_2$ emissions over the Paiton coal fired power plants. The result of this study indicated that the highly polluted regions were expanding year by year. During 2004 – 2021, the emission trend has increased 53%. In 2021, the NO$_2$ impact from the Paiton coal fired power plants spread wider that any NO$_2$ emission in big cities of Indonesia except Jakarta Grater Area, such as in Bandung, Semarang, and Surabaya.

Integrating GIS and HEC-RAS for Peak Flow Modelling of the Calumpang River in Batangas, Philippines

John Jeremiah D. Panopio, Becca L. De Chavez, Nina Karmela M. Lumanglas, Erl Jann M. Catungal, Keith Cyrenz M. Legaspi, Derrick Miguel D. Aldovino and SiddArtha B. Valle

Civil Engineering Department, College of Engineering, University of Batangas, Philippines
Corresponding author's email address: siddartha.valle@ub.edu.ph

Abstract

In 2014, the Calumpang Bridge and the surrounding embankments were destroyed by Typhoon Rammasun. The pier of the bridge collapsed due to high water level and strong river current. As a result, rerouting was implemented, thus, roads were closed. Hundreds of motorists around the area experienced longer travel time. The destruction of the bridge and embankments showed that its design may not have been considered to withstand such intense water level and currents. These problems may have been mitigated had the river's hydrology been regularly surveyed. In this context, the researchers' aim was to develop a hydrodynamic model of the Calumpang river, which will be used as a basis for risk analysis of bridges, embankments and the communities along the banks. ArcGIS was utilized to process geospatial information from the digital elevation map of the Calumpang watershed, HEC–HMS to simulate the hydrologic processes within the watershed, and HEC–RAS to model the flow profile of Calumpang river, in consideration of 5-, 50- and 100-year return periods. Hydrologic simulations showed that peak flow rises to 3.4 times with a 5-yr return period, while 6.6 and 7.8 times for return periods of 50 and 100 years, respectively. Batangas City, being a rapidly developing metropolitan area, has seen the expansion of impervious covers, which has resulted in reduced infiltration thereby increasing overland flows draining into Calumpang river. Below a newly-rehabilitated Calumpang bridge, the 5-yr flow was seen to narrow the vertical clearance from an annual average of 6.33 m to 2.03 m. The 50-yr flow significantly closes the gap to 0.47 m. It is expected that this model can then aid in the preparation of disaster risk reduction and management plans, and in the design of bridges and embankments.

Keywords: GIS, HEC-HMS, HEC-RAS, return period, hydrological modeling

Nowcasting Earthquakes: Imaging the Earthquake Cycle with Machine Learning: A Comparison of Two Methods

John B Rundle[1,2,3], Andrea Donnellan[2], Geoffrey Fox[4] and James P. Crutchfield[1]

[1]University of California, Davis, CA, USA
[2]Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA
[3]Santa Fe Institute, Santa Fe, NM, USA
[4]Indiana University, Bloomington, IN, USA
Corresponding author's email address: jbrundle@ucdavis.edu

Abstract

The earthquake cycle of stress accumulation and release is associated with the elastic rebound hypothesis proposed by H.F. Reid following the M7.9 San Francisco earthquake of 1906. However, observing details of the actual values of time- and space-dependent tectonic stress is not possible at the present time. In two previous papers, we have proposed methods to image the earthquake cycle in California by means of proxy variables. These variables are based on correlations in patterns of small earthquakes that occur nearly continuously in time. The purpose of the present paper is to compare these two methods by evaluating their information content using decision thresholds and Receiver Operating Characteristic methods together with Shannon information entropy. Using seismic data from 1940 to present in California, we find that both methods provide nearly equivalent information on the rise and fall of earthquake correlations associated with major earthquakes in the region. We conclude that the resulting timeseries can be viewed as proxies for the cycle of stress accumulation and release associated with major tectonic activity.

Keywords: Nowcasting, earthquakes, machine learning, information

Source Identification of Tsunami Propagation in Palu Bay, Indonesia

Wiko Setyonegoro[1]

[1]Center for Research and Development, Metereology, Climatology, and Geophysics Agency, Indonesia
Corresponding author's email addressl: wiko_setyonegoro@yahoo.co.id

Abstract

An earthquake with Mw 7.5 followed by a tsunami hit Palu Bay, Indonesia, in 2018. The epicenter was located at 0.18 ° S and 119.85 ° East, ~ 80 km north of Palu City, Central Sulawesi Province. According to Indonesia's National Disaster Management Agency (BNPB), 4,340 people were killed, 10,679 injured, and 667 people were declared missing due to collapsed buildings following the earthquake and tsunami. We investigated the potential for landslides in Palu Bay earthquake occurrence by applying a combination of scenario modeling of tsunami propagation sources from earthquakes and landslides in parallel. Then we analyzed it by validating the distribution of the height of the tsunami propagation in several coordinates of the affected area. Research related to the potential source of this tsunami can be used as recommendations for developing critical infrastructure around the Teluk-Palu area.

Keywords: Tsunami, landslide, Palu bay

Accident Causation of Tank Trucks and Road Accident Rate at the Indonesian National Oil Company 2014-2017

Gama Widyaputra[1], Fatma Lestari[2], Zulkifli Djunaidi[2], Mila Tejamaya[2]

[1] Occupational Health & Safety Department, Universitas Binawan, Indonesia
[2] Occupational Health & Safety Department, Universitas Indonesia, Indonesia
Corresponding author's email address: gamawidyaputra@yahoo.com

Abstract

Indonesian National Oil Company (NOC) tank trucks, which operate throughout the archipelago, are the transportation mode used to transport Hazardous Material. These trucks face a risk of accidents, which will affect the environment. This study aims to obtain the Accident Causation, Road Accident Rate (RAR), Severity Rate (SVAR), and Fatality Accident Rate FAR) using quantitative and qualitative approaches. Data from year 2014 to 2017 show that there are 39 fuel terminals and around 2,800 tank trucks. Tank truck accident caused by risk factors that are categorized into human factors, technical factors, infrastructure factors, and external factors. Each risk factor category has several sub factors consist of human errors, overrules procedures, fatique, mechanical and brake system, electrical problem, road condition, wheather, and other party erorrs. There were 612 road traffic accidents from 2014 to 2017 reported by Marketing Directorate of the Indonesian NOC. The accident type was dominated by collision (70.10%), offtrack (20.59%), roll over (5.88%), and caught on fire (3.43%). From the perspective of risk factor category, most of the accidents were caused by human factors (51%) followed by external factors (40.7%), technical factors (7%), and infrastructure factors (1.3%). The average RAR, SVAR, and FAR for the period of 2014 to 2017 were 0.69, 0.089, and 0.025, respectively. The conclusion of this study is that RAR in the Indonesian National Oil Company from year 2017 to 2018 was 0.69, while thethree dominant causes of accidents were external factors, human factors, and technical factors. Significant risk subfactors were other party errors and human errors.

Keywords: Accident causation, FAR, RAR, SVAR, oil company, Indonesia

Vulnerability Assessment of Critical Facilities and its Road Linkages to Climate-Related Hazards: The Case of Tacloban City, Leyte in the Philippines

Geomilie S. Tumamao-Guittap, Jun T. Castro, and Kenneth Niño G. Punay

University of the Philippines, School of Urban and Regional Planning, Philippines
Corresponding author's email address: gstumamaoguittap@up.edu.ph

Abstract

Vital to Disaster Risk Reduction and Management (DRRM) is humanitarian logistics management, as it is responsible for providing the needed resources and equipment for all operating units during disaster response, and it guarantees the speedy recovery and rehabilitation of affected areas and population by ensuring the smooth flow of materials and other needs in the area of operation. The exposure of critical facilities and road linkages that form the physical assets of this vital service to various climate-related hazards can compromise its ability to perform life-saving functions effectively.

Given this premise, the study examined the location of Tacloban City's disaster supply chain for vulnerability to: (1) flooding, (2) storm surge, and (3) rain-induced landslide and the possible cumulative effects of these hazards with sea level rise. The following assumptions were assessed using geospatial analysis: (a) 100-year rain return for flood hazard map and (b) 4-meter maximum tide height for storm surge. The study found that roughly 80 percent of the critical point facilities (CPFs) and lifeline utilities in the area were under high risk to the combined hydro-meteorological risks of flooding, rain-induced landslides, and storm surge. The city's lone airport is also vulnerable to sea-level rise.

Given the importance of having well-conceived, constructed, and managed physical assets that can withstand the impacts of hazard events, without significant damage or loss of functionality, the study findings suggest the need to strengthen or transfer of a substantial number of its CPFs and road infrastructure, as well as consider both redundancy and resiliency–related strategies in rebuilding these physical assets. A rational evaluation of possible sites for consideration was also developed through the use of multi-criteria site selection analysis. In a country often beset with disasters, this methodology provides a science-backed decision-making process for locating key infrastructure investments that ensures sustainability of operations.

Keywords: vulnerability assessment, critical point facilities, climate-related hazards, geographic information systems (GIS), disaster resilience

InfraRisk: A Python-based Simulation Platform for Risk and Resilience Analysis in Interdependent Infrastructure Networks

Srijith Balakrishnan[1,*], Felix Kottmann[1] and Beatrice Cassottana[1]

[1]ETH Zurich, Future Resilient Systems, Singapore
Corresponding author's email address: Srijith.balakrishnan@sec.ethz.ch

Abstract

Existing interdependent infrastructure simulation models generally provide a system-level **Abstract**ion of infrastructure network performance with less emphasis on the component-level operational characteristics. Hence, their ability to perform analyses involving realistic resilience interventions is often limited. On the other hand, available infrastructure-specific models which are capable of capturing the component-level functional characteristics do not consider the interdependencies with other networks. To address the aforementioned limitations of existing tools, we introduce an open-source discrete-event simulation package for the analysis of interdependent infrastructure systems based on the operational characteristics of their components. The simulation platform, named 'InfraRisk' and developed in Python, is capable of simulating disaster-induced infrastructure failures and subsequent post-disaster restoration in interconnected water-, power-, and road-networks.

InfraRisk consists of an infrastructure module, a hazard module, and a recovery module. The infrastructure module integrates existing infrastructure network packages ('wntr' for water networks, 'pandapower' for power systems, and a static traffic assignment model for transportation networks) through an interface that facilitates the network-level simulation of interdependent failures. The hazard module generates infrastructure component failure sequences based on various hazard characteristics. In its current version, point events (such as random failures, terrorist attacks, and fire incidents) and track-based events (such as floods, cyclones, and tornadoes) can be generated using the module. The recovery module simulates the network-wide effects of the disruptive event and the subsequent repair actions. The repair strategy can be either defined by the user or can be derived by an inbuilt optimization method that is based on the concept of model predictive control (MPC). Infrarisk provides a virtual platform for decision-makers to test and develop region-specific pre-disaster and post-disaster policies to enhance the overall resilience of interdependent urban infrastructure networks. InfraRisk also includes an experimental testbed based on the well-known Micropolis virtual urban network for conducting generic resilience studies.

Keywords: infrastructure simulation, interdependent effects, infrastructure resilience, disaster recovery

Hydrological Assessment for Disaster Risk Reduction in Urban Cities of the Philippines

Patricia Ann Sanchez, Allan Tejada, Marie Jehosa Reyes,
John Ruzzel Galoso, and Cyra Gail Fernandez

SESAM, UPLB, Philippines
Corresponding author's email address: pjsanchez@up.edu.ph

Abstract

Urban cities in the Philippines are at the mercy of water-related disasters. The main objective of this study is to quantify the extent of urban flooding in selected major cities of the country and to identify programmatic solutions to reduce the negative impacts of water-related disasters in the area. Five highly urbanized cities were considered in this study: Tagum, Ormoc, Cagayan de Oro, Angeles, and Legazpi. Climate change projections for bias corrected rainfall were identified for 5 years and 100-years return periods. These inputs were incorporated into hydrological models that considered both flooding due to heavy rainfall events and sea level rise. Primary and secondary information were collected from various local sources. Focus-group discussions (FGDs) of key officials and staff were also done to identify the common water-related problems, where they usually occur, and the current policies and programs that the cities have been implementing. Program recommendations and policy review were provided based on the spatially distributed risk maps and existing situations in these urban cities. Hydrological assessment results are vital in both structural and non-structural measures for each city's characteristics and issues. Findings specific for each city should be integrated in the planning and management of the local government to address varying impacts of climate change.

Keywords: Hydrological assessment, disaster risk reduction, water-related disaster, urban

Climate Change Projections Estimation for Rainfall Events using Coupled Model Intercomparison Project Phase Five Global Circulation Models (CMIP5 GCMs) under Varying Emission Scenarios in Lanao del Norte, Philippines

Patricia Ann J. Sanchez[1,5], Emmanuel Zeus S. Gapan[1,5], Mona Liza F. Delos Reyes[2,5], Ramon Christian P. Eusebio[3,5],Joseph E. Acosta[4], Catherine B. Gigantone[1,5] and Jessa O. Aquino[1,5]

[1]School of Environmental Science and Management, University of the Philippines Los Baños, Phillipines
[2]Land and Water Resources Engineering Department, Institute of Agricultural and Biosystems Engineering, Philippines
College of Engineering and Agro-Industrial Technology,
University of the Philippines Los Baños, Philippines
[3]Department of Chemical Engineering, University of the Philippines Los Baños, Philippines
[4]Department of Mathematics, Physics and Computer Science,
University of the Philippines Mindanao, Philippines
[5]University of the Philippines Los Baños Interdisciplinary Studies,
Center for Water (UPLBIDSC Water), Philippines
Corresponding author's email address: esgapan@up.edu.ph

Abstract

Water resources management is critical in sustaining domestic and industrial activities. Hence, effective monitoring and anticipation of changes in rainfall magnitude, occurrence, and duration is pivotal considering the adverse effects of climate change in the facets of rainfall events. A process of ranking Global Circulation Models (GCMs) from the Coupled Model Intercomparison Project Phase Five (CMIP5) archived in the Data and Integration Analysis System (DIAS) under two (2) emission scenarios or Representative Concentration Pathways (RCPs 4.5 and 8.5) using spatial correlation (S_{corr}) and root mean square error (RMSE) resulted to top six (6) GCMs: Beijing Normal University Earth System Model (BNU-ESM), Community Climate System Model 4.0 (CCSM4), Community Earth System Model 1 – Biogeochemistry (CESM1 (BGC)), Community Earth System Model 1 – Community Atmospheric Model 5.0 (CESM1 (CAM5)), Centre National de Recherches Météorologiques – Climate Model 5.0 (CNRM-CM5), Flexible Global Ocean-Atmosphere-Land System Model: Grid-point v2 (FGOALS-g2). Eighty-six (86) points bounding Lanao del Norte were used to obtain and downscale projections of future scenarios related to rainfall. Projections of the selected GCMs were then integrated to the existing Rainfall Intensity-Duration-Frequency data of the province at 5-, 10-, 25-, 50-, 100-, 150-, and 200-year recurrence intervals. Dryer conditions were observed in most projections under RCP 4.5 while projections under RCP 8.5 exhibited wetter conditions A decrease in the observed rainfall could mean less river discharge and groundwater recharge while an increase may result in larger surface runoffs which might result in flooding in low-lying areas during storm events. These observed changes in rainfall events due to climate change must be addressed with soft and hard infrastructure interventions to manage potentially devastating effects brought about by water-related disasters.

Robust Clustering of COVID-19 Pandemic Worlwide

Rizki Agung Wibowo[1], Khoirin Nisa[1], Hilda Venelia[1]

[1]Department of Mathematics, Faculty of Mathematics and Natural Sciences
Universitas Lampung, Indonesia
Corresponding author's email address: khoirin.nisa@fmipa.unila.ac.id

Abstract

In December 2019, an outbreak of pneumonia of unknown origin was reported in Wuhan, Hubei, China. This outbreak was caused by novel coronavirus known as SARS-Cov-2 or more familiarly as COVID-19. The COVID-19 pandemic is described as humanity's worst crisis since World War II. From December 2019 until August 2021 based on the dataset provided by WHO, globally there are 236 countries in the world affected by this virus. There are 205.338.159 confirmed cases and 4.333.094 death cases caused by this virus. In this paper the data of 236 countries are described using a robust clustering method namely K-medoids cluster analysis. Based on the result, 236 countries in the world can be divided into 3 clusters based on number of confirmed and death cases. The first cluster with high cases consists of USA, India and Brazil. The second cluster consists of Russia, France, The United Kingdom, Turkey, Argentina, Colombia, Spain, Italy, Iran, Germany, Indonesia, Mexico, Poland, South Africa, and Peru. The last cluster consists of 217 countries.

Keywords: COVID-19, cluster analysis, K-Medoid.

Robust Biplot Analysis of Natural Disasters in Indonesia by Province in 2019-2021

Hilda Venelia[1], Khoirin Nisa[1], Rizki Agung Wibowo[1]

[1]Department of Mathematics, Faculty of Mathematics and Natural Sciences,
Universitas Lampung, Indonesia
Corresponding author's email address: khoirin.nisa@fmipa.unila.ac.id

Abstract

Indonesia is one of the most natural disaster prone countries in the world that is frequently exposed to a range of hazards. Currently, Indonesia has 34 provinces and natural disasters that occur in each province are different. Therefore, it is necessary to analyze the mapping of natural disasters that often occur in each province to provide scientific analysis for risk management of the natural disasters. One of the quick steps in describing data that can be used is biplot analysis as biplot analysis can describe a lot of data then summarized it into the form of a two-dimensional graph. The purpose of this study is to map 34 provinces in Indonesia based on the incidence of natural disasters from 2019 to 2021 using robust biplot analysis, to obtain information about the similarity of provinces, the diversity of natural disasters, the relationship between natural disasters, and the relative position of the provinces to natural disasters. Based on the result, robust biplot analysis can explain 91.9% of the information on natural disasters in every province in Indonesia. Bengkulu, Lampung, Bangka Belitung Islands, Special Region of Yogyakarta, Gorontalo, North Sulawesi, Maluku, North Maluku, Papua, and West Papua are provinces that have similar natural disaster characteristics. Floods and forest fires are variables that have the biggest variance compared to other natural disasters. The provinces with the highest floods, landslides, and tornadoes are West Java and Central Java. Then, the province with the highest forest fires is South Kalimantan.

Keywords: Natural disaster, risk management, biplot.

Logistic Modeling of Indonesian Economic and Social Factors to the Interest in Purchasing Flood-impacted Insurance Products

Yulial Hikmah[1]*, Ira Rosianal Hikmah[2]

[1]Vocational Education Program, Universitas Indonesia, Indonesia
[2]Cybersecurity Engineering Study Program, National Cyber and Crypto Politechnic, Indonesia
*) Corresponding author's email address: yulialhikmah47@ui.ac.id

Abstract

Indonesia is an archipelagic country located on the equator with a high potential for various types of hydrometeorological-related disasters, such as floods, flash floods, droughts, extreme weather, etc. Almost all cities in Indonesia experience flooding every year, including DKI Jakarta Province as the capital of Indonesia. Based on data from the National Disaster Management Agency (BNPB) in 2020, East Jakarta is the city in DKI Jakarta Province that is prone to flooding. According to BNPB (2013), flooding is a disaster that relatively causes the most losses. Losses caused by floods, especially indirect losses, may rank first or second after the earthquake or tsunami. Floods cause so many losses, and it is necessary to have disaster mitigation efforts to minimize the possibility of flood risks. One of the risk mitigation due to natural disasters is to buy insurance products. However, not everyone buys flood impact insurance products due to economic and social factors. This study aims to create a model with the Logistics Regression Model to determine the factors that influence Indonesian people's interest in purchasing flood-impact insurance products. Furthermore, with a significance level of 10%, the logistic regression model obtains four significant regression coefficients. In the end, the obtained model is evaluated based on its level of accuracy. The results showed that the accuracy rate is almost excellent, namely 89.3%.

Keywords: Flood, risk mitigation, Logistic Regression Model, insurance products

Community Empowerment for DRR

Use of Maps to Explain Flood Hazards and Climate Change Impacts

Widi Auliagisni

School of Built Environment, Massey University, New Zealand
Corresponding author's email address: W.Auliagisni@massey.ac.nz

Abstract

Climate change increases precipitation and enhances the risks of community living in the floodplain. In New Zealand, the government has been working to protect the people by raising awareness and communicating the hazard risk to the community. One of them is through flood hazard maps. However, the community's acceptance of information and responses varies, affecting the decision and resiliency level. This study investigates how the availability of flood maps influenced community decision to protect their property. Are the community-based flood maps a solution? This study uses the Northland region considering most residents living in the flood plain area. A mixed-method was used to capture a global overview of people's attitude towards flood risks and documents the real experiences of dealing with a flood in the Northland. Preliminary findings indicate that maps are intricate for the public to access and understand. Overall, the study shows that ninety per cent of the rural community knew their risk of flood from the past events, but it is not the case for the urban community. In addition to the findings, there is incomplete documentation of previous flood events, limited research into flood risk management program in the Northland, and tension between the government and the communities. The results imply that community-based policy and program have an essential role in promoting awareness and reinforcing social networks that enhance community resilience. This paper provides a critical overview accommodating the floodplain community with information based on the past trends to the future prediction. It proposes innovative community-oriented maps to raise awareness towards flood hazard and climate change impacts on the flood risk.

Keywords: Climate change, community, floods maps

Geographic Assessment of Coping Capacity to Fire Incident in East Jakarta

Sebastian Tri Anggoro[1], Nurul Sri Rahatiningtyas[1,3*],
Jarot Mulyo Semedi[1,3], Fatma Lestari[2,3]

[1]Department of Geography, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, Indonesia
[2]Department of Occupational Health & Safety, Faculty of Public Health, Universitas Indonesia Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
Corresponding author's email address: nurul.sr@ui.ac.id

Abstract
East Jakarta City is the biggest city in Jakarta metropolitan area by population. With a density of 16.624 people per km² it drives the formation of a very dense settlement such as slums where usually are also the places for fire to break out. In 2020, there were 349 cases of fire incidents throughout the city of East Jakarta that cost the community from property losses to loss of life. One of the efforts to reduce the risk of a fire breakout is to serve the information about community capacity level in dealing with fire incidents. The purpose of this research is to know the level of community capacity to cope with potential fire incidents in residential areas and to know what are the factors that influence the coping capacity. This research is quantitative research that uses statistics and spatial analytics. To collect the data, this research uses questionnaires that are filled by the head of the neighborhood (RW). The collected data are processed using Analytical Hierarchy Process (AHP) and ArcGIS 10.8 to visualize the coping capacity level for fire incidents geographically. The coping capacity index map is produced by assessing the community risk awareness, community response, and community management in handling fire incidents. The result of this research will show the coping capacity level in East Jakarta. This result will be an input to reduce the risk of fire disaster by increasing the community capacity level in high risk areas.

Keywords: Urban fire, community capacity, disaster mitigation

"Sensing, Drawing, and Seeing" El Nino: Metaphor-based learning for anticipating the consequences of climate change

Iqbal Hafizhul Lisan[1]

[1]Antropologist, Indonesia
Corresponding author's email address: iqbal.hafizhullisan@gmail.com

Abstract

Since the end of 2009, Science Field Shops (SFSs) have provided agrometeorological learning for farmers that have limitations in accessing climate information. The SFSs was established by anthropologists from Universitas Indonesia that collaborate with agrometeorologists from Agromet Vision and recently from the University of the Free State. The main objective of SFSs is to increase farmers' knowledge on the application of climate information to cope better with climate change. In 2018, SFSs were introduced in a new location, Sumedang Regency in West Java Province. Interestingly, in a relatively short period of time, some farmers have shown their anticipative ability to face the mild El Nino phenomenon from December 2018 to March 2019. Investigation based on collaborative action research revealed that the ability emerged because farmers heavily used metaphors during learning. We argue that metaphors were not only useful as a means to facilitate the interpretation of new knowledge elements in the enrichment process of agrometeorology schemes, but also beneficial to assist farmers in decision-making. Metaphors were also increasingly established and enriched through two practices facilitated by SFSs, i.e. the practice of measuring and observing rainfall using simple technology created by farmers called *Omplong* (rain-gauge) and the practice of drawing simple rainfall graphs. Further implication of this research is to propose a metaphor-based learning approach in implementing community empowerment for disaster and risk reduction.

Keywords: Agrometeorological learning, metaphor, anticipation, decision-making, disaster risk reduction

Local Community Empowerment in Maritime Ecotourism as Strategy for Coping with Global Warming Disaster through Mangrove Planting and Blue Carbon Storage in Karawang Coasts, West Java, Indonesia

Andrio A. Wibowo[1], Nana Suryana Nasution[2]

[1]University of Indonesia, Indonesia
[2]University of Singaperbangsa, Indonesia
Corresponding author's email address: AAWHealth@outlook.com

Abstract

Coastal community is the most threatened community in terms of global warming disasters. One solution to mitigate global warming disaster in coastal settings is through community empowerment. Karawang coast in West Java Province is one of the coasts in Indonesia that has experienced massive land conversions, converting intact mangrove forest into settlements and fish ponds. Deforestation of mangrove covers may cause the emergence of global warming disaster threats ranging from sea level rise, release of CO_2 into atmosphere, and temperature rise hazards. Recently, local community in Tangkolak and Pasir Putih Villages of Karawang has initiated mangrove planting and promote the sustainable uses of mangrove through maritime ecotourism. The planting and ecotourism were developed through the community empowerment program started by educating the local community and followed by development of restoration areas assigned for mangrove planting and conservation. Mangrove restoration areas now were used as ecotourism areas that can attract visitors. The presence of ecotourism has provided sustainable revenues for local community by selling food, beverages, and non timber merchandises for visitors. This community empowerment through mangrove ecotourism has protected the mangrove and safeguarded the Karawang coast from global warming disaster since the protected mangrove can sequester more CO_2 from atmosphere. As a result, mangrove restoration in Pasir Putih has reached size of 0.347 km^2 while Tangkolak Village has reached 0.46 km^2. It is estimated that the potential blue carbon storage in the forms of carbon stocks in the restoration areas is ranging from 84 ton/ha (95%CI: 77-91 ton/ha) to 92 ton/ha (95%CI: 88-96 ton/ha). From the results of the study, it can be concluded that the global warming hazards can be avoided and mitigated through local community empowerments in the forms of mangrove planting, ecotourism, CO_2 sequestrations, and blue carbon storage.

Keywords: Coast, CO_2, ecotourism, Karawang, sequestrations

Trauma Healing for Children Affected by the Disasters: A Study of Volunteerism of Universitas Tirtayasa and Komunitas Relawan Banten

Heru Susetyo

Faculty of Law, Universitas Indonesia, Indonesia
Corresponding author's email address: hsusetyo@ui.ac.id

Abstract

Trauma Healing activities are performed to recover the psychological conditin of children who have experienced trauma caused by a disaster. The various games performed are expected to restore the trauma of children who became victims of disasters. Although they will not immediately recover, the first treatment for disaster victims will help children not to experience ongoing trauma after the disaster. By inviting disaster victims' children to play, they will develop the strength in facing the disaster. They feel that they have brothers and sisters who care about them. If the children are happy again, the parents expectedly will become less worry. Trauma healing is one of the efforts to foster joy and fulfil children's rights, especially in disaster areas. Apart from the conventional trauma healing program, the program in Banten Province was conducted by Non-professional and non-related scholars that include academicians and students from Faculty of Law, Universitas Tirtayasa Serang, Banten and their counterparts from Komunitas Relawan Banten. The purpose of this study is to explore more about volunteering and the motives behind the program, including the methods, approaches, and expected goals. This study was conducted in 2018 - 2020 through participatory observation, interviews, and focus group discussions with faculty members, students, and volunteers. The notion of Justin Davis Smith (2000), who stated that there are at least four different types of volunteer activity, namely mutual aid or self-help, philanthropy or service to others, participation, and advocacy or campaigning, will be explored and studied. Temporary findings from the study show that in order to support trauma healing for children, skills and knowledge are essential but not the most important. Passion, caring, bonding, and affection are more important.

Keywords: Trauma healing, children, Banten, disaster, Tirtayasa Law chool

Chasing Communities' Resiliency: Eleven Years after the Enactment of the Philippines' Disaster Risk Reduction and Management Act

Emilia S. Visco, Dhino B. Geges, Jennifer Marie S. Amparo, Gillian D. Consignado, Ron P. Dangcalan, Marife B. Dapito, Maria Emilinda T. Mendoza, Rocky T. Marcelino[1], Diana A. Torio

Department of Social Development Services, College of Human Ecology, University of the Philippines Los Banos, Los Banos, Laguna, Philippines

[1] Institute of Statistics, College of Arts and Sciences, University of the Philippines Los Banos, Los Banos, Laguna, Philippines
Corresponding author's email address: esvisco@up.edu.ph

Abstract

Eleven years after the enactment of the Philippines' Disaster Risk Reduction and Management Act, communities resiliency to different hazards is still a dream of too many. This was revealed in the community profile and needs assessment study conducted by researchers of the University of the Philippines Los Banos, Philippines in partnership with the Department of Science and Technology (DOST) IVA under their Community Empowerment Thru Science and Technology Program. The purpose of the study was, among others, to determine the needs and identify challenges of six municipalities in the Philippines focusing on health and nutrition (HN); water sanitation; environmental protection and conservation; human resources, basic education, and literacy economic development/livelihood opportunities; and disaster risk reduction and climate change adaptation (DRR and CCA). This paper will only focus on HN, DRR, and CCA. Data were gathered through survey, focused group discussions key informant interviews and secondary data. Quantitative data was analyzed using descriptive statistics such as percentages and frequencies and qualitative statements were simultaneously transcribed and analyzed using thematic analysis.

The identified problems/needs for HR include prevalence of malnutrition, lack of medicine supply, access to health care services and facilities, covid 19 vaccine, and apprehension to covid 19 vaccines. The continued lockdown and other restrictions by the government lead to loss of jobs and livelihood opportunities. Since the country hosts more than 20 strong typhoons per year, flooding almost always follows. State of emergencies were declared, people were either evacuated or forced evacuated to elementary/high schools in the area since infrastructures like operation centers and evacuation centers, response tools and equipment are lacking and trained personnel to permanently work on DRR are still lacking until now. Furthermore, the no pronounced wet and dry season continuously affect the farmers' cropping calendars. Based on the results, recommendations were formulated and submitted to DOST.

Keywords: Needs assessment, health, disaster risk

People-Powered Community Pantries in the Philippines:
A "Whole-of-Society" Approach to Ensure Food Availability
for Hungry Families during the COVID-19 Pandemic

Prof. Ebinezer R. Florano, PhD

National College of Public Administration and Governance, University of the Philippines, Indonesia

Abstract

Many of the major urban areas in the Philippines have been placed in "Community Quarantine" since March 15, 2020 until now to avert the spread of SARS-CoV-2. As a result of this, many residents lost their jobs due to business closures, and the cessation of operations of public transportations and other service-oriented enterprises. Due to the prolonged lockdowns, many families, whose breadwinners lost their jobs, ran out of money to sustain themselves during the lockdowns. In April 2021, a young lady opened a "community pantry" by placing a wooden table filled with fresh vegetables and canned foods in one of the corners of Maginhawa ("Prosperous") Street in Quezon City. The pantry gave free farm products and canned foods to the poor, and encouraged those with excess to donate to the pantry. In a matter of days, long lines of queues of residents in the street were seen availing themselves of the free items, which is taken as a sign that many could no longer buy food, and the government's assistance were severely lacking/ insufficient. In this context, the paper aims to discuss the philosophy, mechanisms, effects, sustainability, and challenges of the community pantry in the Philippines as a mechanism to ensure the availability of food for poor hungry families in the time of the COVID-19 pandemic. Is it a manifestation of the failure of the government and its "whole-of-government" approach? Or is it's the people's way of helping themselves and others, which is locally known as "*bayanihan*" (or "mutual help")? Or in a deeper sense, is it the people's expression of impatience with the government? Or all? The people-powered community pantries have shown that in the time of the COVID-19 pandemic, the response may not necessarily be limited to "whole-of-government" but "whole-of-society" as well.

Keywords: Community pantry, COVID-19 pandemic, food security, lockdown

Strengthening Partnership among Youth and Young Professionals in Science, Engineering, Technology, and Innovation for Disaster Risk Reduction: Lens of U-INSPIRE

Nuraini Rahma Hanifa[1,2], Mizan Fuady Bustanul Bisri[3,2], Irina Rafliana[1,4], Iffah Farhana Abu Talib[2], Ahmad Sufyan Mohamed Aslam[2,5], Pradip Khatiwada[2,6], Sachi Suzuki[2,7], Mohd Khairul Zain Ismail[2,8], Ranit Chatterjee[2,9], Bhola Saha[2,10], Kaushal Raj Gnyawali[2,11], Serikhan Atanov[2,12], Ginbert Permejo Cuaton[2], Ahmad Reshad Aziz[2], Fathmath Shadia[2,13], Miriam Caryl Carada[2,14], Bo Wang[2,15]

[1] Indonesian Institute of Science, Indonesia, [2] U-INSPIRE Alliance, Indonesia, [3] Kobe University, Japan [4] Deutsches Institut für Entwicklungspolitik/German Development Institute, Germany [5] International Science Council, French, [6] Youth Innovation Lab, Nepal [7] UNESCO Office Jakarta, Indonesia [8] Universiti Kebangsaan Malaysia, Malaysia [9] Kyoto University, Japan, [10] The Assam Royal Global University, India, [11] Himalayan Risk Research Institute, Nepal, [12] UNESCO Almaty, Kazakhstan [13] Maldives National University, Madives [14] University of the Philippines, Philippines [15] IDMR Sichuan University, China
Corresponding author's email address: rahma.hanifa@uinspire.id

Abstract

Young people between the age of 15 to 39 years populate 38% of the global population today about 2.9 billion. Disaster often requires rapid response and adaptation of modern technology, which is also sensitive to each different local and social contexts. Young people embody the much-needed abilities to bridge the gap between new and conventional techniques, such as the Internet of Things and Information Technology, and working directly on the field with local people. A regional and global movement had been evolved in the past years to contest the idea that young people are vulnerable, ignorant to disaster, and idle in the context of resilience. This paper aims to showcase empirical evidence on the evolution processes through the youth and young professionals within the U-INSPIRE network, which has significantly and effectively contributed towards DRR implementation at the national and regional level by using SETI. For example, in scientific research, analyzing data and information, risk communication, design and development of innovative and low-cost technologies and tools. The YYPs' also applied SETI's advancement for local actions, bridging from academic research to implementation in the community, and supporting evidence-based policy making and advocacy based on actual science data collected from the fields.

The paper demonstrates how creative experimental spaces for collaboration are possible through interactions with scientists, policymakers, government, private sector entities, social entrepreneurs, and civil society organisations. The paper also suggests how vast potential to strengthen partnership with existing international and local stakeholders, making opinion and contribution from youth more visible and incorporated into various recommendations. These collaborations empower their roles and extend their network in addressing transboundary issues, promoting dialogues, and bridging information gaps from global to local, and transversely. The growing pool of YYPs' in both numbers and know-how could significantly impact DRR through the use of SETI.

Keywords: Partnership, youth, youth partnership, science, engineering, technology, innovation, DRR, U-INSPIRE

Early-Career Researchers Needs Assessment and Future Research Leadership for Resilience Building

Mizan Bustanul Fuady Bisri[1,2], Devina Khoirunnisa[2], Prodita Sabarini[3]

[1] Kobe University, Japan
[2] CARI! Cerdas Antisipasi Risiko Indonesia, Indonesia
[3] The Conversation Indonesia, Indonesia
Contact: mbisri@people.kobe-u.ac.jp

Abstract

Research is critical to development. It supports local and global solutions to many, often interrelated issues, slowing climate change and protecting the environment, preventing and curing diseases, ensuring people have enough nutrition, and creating conditions for a society to make decisions that benefits all and have public accountability. More than ever, the world needs good quality research from researchers from developing countries, where around 74% of the world's population lives. Despite increased research output, Indonesia's research impact is still low, judging from the country's overall H-index, the metrics to measure the productivity and impact of researchers. For researchers to better address complex challenges, collaboration with academics from different disciplines and broader stakeholders is needed. However, most Indonesian researchers carry out their research in silos. Few collaborate with their peers, either nationally or internationally. Indonesian researchers need the capacity, tools and networks to carry out collaborative research that answers complex problems, seek competitive research funds, publish their research and communicate it to a general audience to produce impactful high quality and relevant research.

This paper provides baseline information on the challenges faced by early-career researchers (ECR) in Indonesia in the fields related to national resilience, including against disaster risk, climate change, and ocean matters. It also summarizes their needs for capacity building for transforming cohort early-career researchers to become future research leaders. The data used in this paper are originated from a survey to 289 Indonesian ECRs, two focus group discussions with ECRs, and key informant interviews in science and technology ecosystem of Indonesia.

Keywords: Resilience building, early-career researchers, research leadership

Climate Literacy to Increase Young Generation Awareness and Knowledge of Climate Change

[1]Hidayat, N. M., [2]M. Ulfah, [3]R. Luvian, [4]Siswanto

[1,2,3,4]Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG), Indonesia
Corresponding author's email address: nmanarul@gmail.com[1]

Abstract

Climate crisis and climate action have become a global challenge dealing with climate change problems. Understanding and knowledge of climate change in the public's perspective is a key to building a public awareness toward climate action. Climate literacy for the young generation is part of BMKG's effort to engage young people and communities to care about climate change and support climate change mitigation and adaptation actions. Various activities of the BMKG's climate literacy between 2015 - 2021 are aimed to optimize the dissemination of climate change information in the education sector with students and the younger generation. For the last 5 years, BMKG Climate literacy has been delivered in several locations with a total participant of 816 students / youngsters. The participants included students per level, namely elementary school level (502 participants), junior-senior high school (224 participants), and youngsters in a community based (90 participants). The climate literacy at school based have been implemented in the formal and private schools located in Jakarta, Bogor, Depok, Tangerang, Bekasi, Subang and Purwakarta. While climate literacy for youngsters and community based has been implemented in, Cilebut-Bogor, Magelang, and Kepulauan Seribu. The method used during the literacy program was descriptive narrative with a simple assessment indicating knowledge measure. The assessment applied a post and pre test questions to obtain an overview of participants' perspective and understanding on climate change and climate action. The results of the assessment showed that the given climate literacy in this program is able to increase the participant's knowledge by 10% on average. The participants were also trained to propose mini-project climate actions so they have a group program related to climate awareness in their circumstances. BMKG's climate literacy can also accommodate the needs of teachers concerning the synchronization of learning materials in the school curriculum.

Keywords: Climate, literacy, young, education, knowledge, action

How Well Do You Know Your Flood Risk?
Evidence from Frequently Flooded Communities in New Zealand

Suzanne Wilkinson[1], Widi Auliagisni[1], Mohamed Elkharboutly

[1] School of Built Environment, Massey University, New Zealand
Corresponding author's email address: s.wilkinson@massey.ac.nz

Abstract

Northland, in New Zealand, is subject to recurring floods. In the last 50 years some communities have been flooded multiple times, causing millions of dollars of damage, community displacement and long recoveries. However, when people are asked how well they know their flood risks, and what measures they take to reduce their flood risks, the answers are surprising. Scientific knowledge is available on flood risks, but often communities do not know where the information is held, how to access the information or the reliability of the information. Without adequate locally understood knowledge, flooding will continue to occur, and flood risks will continue to be misunderstood. In this paper, we propose some solutions to help communities with understanding their flood risks.

Keywords: Recurring flood, community, New Zealand

West Nusa Tenggara - A Multiple Crisis Leadership during COVID-19 Pandemic

Fatma Lestari[1,2,*], Rifelly Dewi Astuti[3], Nida Hanifah Nasir[4]

[1] Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center Universitas Indonesia, Indonesia
[3] Faculty of Economic & Business, Universitas Indonesia, Indonesia
[4] Campus HSE Unit, Universitas Indonesia, Indonesia
Corresponding author's email address: fatma@ui.ac.id

Abstract

West Nusa Tenggara has implemented a combination between disaster mitigation leadership, one goal one mission, community engagement, participative collaboration and public health measures during pandemic COVID-19. This study explores the implementation of learning from previous disaster mitigation leadership at which West Nusa Tenggara has an experienced on dealing with natural disasters including a significant earthquake during 2018. A disaster mitigation involves a strong multiple crisis leadership, a strong community engagement, and public health measures in the effort to flattening COVID-19 curves. Methodology used in this study includes literature review, in-depth interview and Focus Group Discussion. Data were then analyzed using thematic and content Analysis. Several challenges faced by West Nusa Tenggara have been identified and lessons learned have been explored for future recommendations. Results suggested that a combination between strong crisis leadership including one goal one mission, public health measures and business continuity, community engagement, a combination mixture between local & traditional approach can be implemented for pandemic COVID-19 mitigations.

Keywords: Pandemic COVID-19, Crisis Leadership, Community Engagement

Indonesian National Security System in Community Empowerment to Face the Dynamics of the 21st Century Strategic Environment during the COVID-19 Pandemic

B.D.O Siagian, Anak Agung Banyu Perwita, Rizerius Eko Hs, Yusuf Ali, Rachma Fitriati

Abstract

Currently, several countries are implementing an integrated national security system in a national security ecosystem in the face of multidimensional threats. This study aims to build a concept of a national security system that contains the dimensions of what objects will be threatened, which actors will handle it, and what is the nature of the national security system itself, including in building governance of communities, land, and forests in the COVID-19 pandemic in Indonesia. This is a qualitative research methods using literature review, focus group discussions, and in-depth interviews. The results show that several countries implement different policies. Concerning the national security system, India has enacted the Security Act of 1980. The UK, which previously did not have an integrated national security system, formed the Security Council in 2010. Japan in 1986 changed the National Defense Council to the Japanese Security Council and in 2013 changed again became the National Security Council. Furthermore, some countries also do the same thing related to the management of their national security system. Meanwhile, the United States and Turkey have been using the concept of national security since 1945. Indonesia is trying to build its national security system, marked by the inclusion of national security concepts and concepts in Law No. 17 of 2011 on State Intelligence, although it does not yet comprehensively cover a complete national security system. For this reason, the five dimensions of national security, and the division of actors, and the mechanism for involving actors must be precise so that they do not overlap and the system can run well, including in building governance of communities, land, and forests during the COVID-19 pandemic so that it is Sustainable Development Goals in Indonesia can be carried out as expected.

Keywords: Forest governance, community empowerment, *national defense council*, SDGs, COVID-19
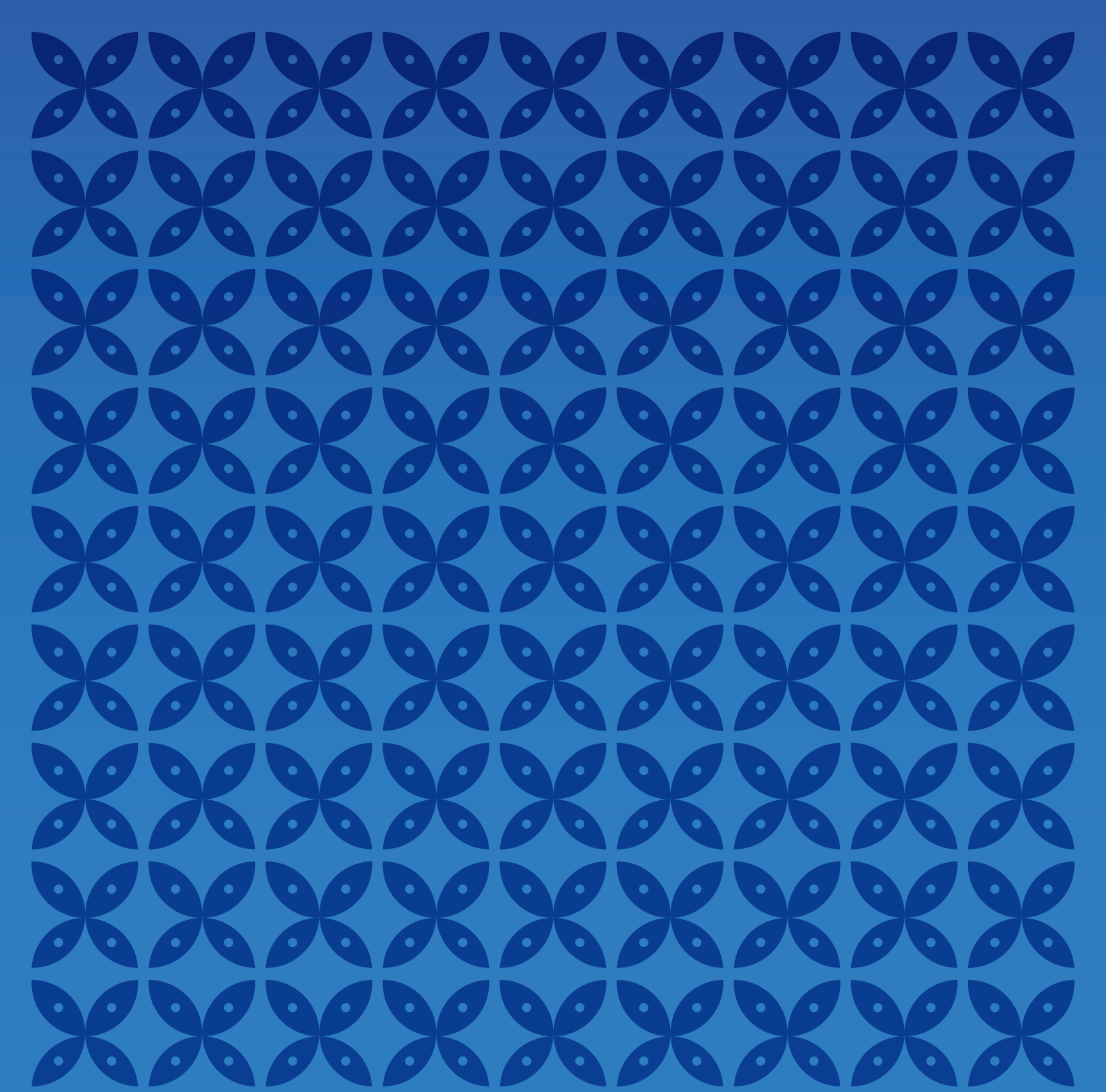
Media and
Communications

Impact of New Media in Climate Change Adaptation Strategies and Disaster Risk Reduction in Urban Cities in Sri Lanka

Kalani Irosha Dharmasiri

Department of Mass Media, University of Colombo, Sri Lanka
Corresponding author's email address: kalanidharmasiri7@gmail.com

Abstract

This paper reviews impact of the potential of New Media in the communication of disaster risk reduction (DRR) and climate change adaptation (CCA) have contributed to the understanding of how cities are responding to climate change risks and hazards. Sri Lanka has been facing natural disasters from a long time. Ancient people could find out disasters by observing their nature. After that the government issued early warning to the public using modern media before disasters occur. Now using new media technology for sharp communication, people don't have enough knowledge about those new media equipment and technologies. Preparedness is the best way to avoid the disasters. The main purpose of this research is studying about new media equipment and to find out the weaknesses and the potentialities are, when issuing early warning to the Urban People in Sri Lanka through the new media. It's also tries to find out, what extent new media technology has spread in Sri Lanka. Methods like questionnaire; Interviews and Participatory Observation have been used to achieve these objectives. Colombo, Gampaha, and Kaluthara are the three districts in western Province in Sri Lanka selected in order of priority based on frequency of disasters occurring. Three hundred persons were selected randomly in each district. **AMOS** Software was used for data analysis. It is a powerful structural equation modeling (SEM) software helping support this research and theories by extending standard multivariate analysis methods, including regression, factor analysis, correlation, and analysis of variance. So far the early warning messages had been sent targeting only the key persons therefore the overall purpose of this research is to find out how this method can be expanded, to send messages to the community as a whole. Finally indicated that people had a lack of knowledge about early warning systems and these technologies have not reached the society effectively. In this research aimed main three areas such as hazards, risks and uncertainty, impact parameters, exposure, vulnerability, and equity and societal responses adaptive capacity and resilience.

Keywords: Disaster, climate change adaptation strategies, risk reduction communication, new media

Smartphone Application During Disaster: ATP-SB-MEDIS as An Innovative System in Disaster Medicine

Boy Subirosa Sabarguna, Tommy Abuzairi, Aria Kekalih, Agus Sugiharto, Levina Chandra Khoe

Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

Medical Information System during a Disaster on a Smartphone is an information system that supports when a disaster occurs on a small scale even in the Primary Care environment. ATP-SB-MEDIS is one of the Medical Information Systems to be used in DIsaster. This study has the objectives of running ATP-SB-MEDIS, which is a medical information system during disaster, in real condition and develop the guideline for widespread application of the system. It is also expected that the institutions adopting this system will require this application in every situation during disaster management. **This application is an innovative product in the form of** a smartphone application created since 2011. It has several versions, including the desktop, CD on line or local host, and smartphone application. The smartphone application will be made separated with a new copyright. The testing of ATP-SB-MEDIS consists of several stages: Need Assessment, Programmer test, User test, Usage test, survey that involves 10 persons from primary care emergency officer using open and closed questions in a questionnaire and case studies were used in usage test. These activities were performed during a 12 month period from April 2019 to March 2020 with the participation of the Emergency Response Team of DKI Jakarta Provincial Health Office. Results of the study show that 50% of the features still need to be repaired based on the results of need assessment. The Programmer Test resulted in 98% (good) while the User Test resulted in 84% (good). The Usage Test also gave good results. Guidelines have also been developed for training and dissemination. In conclusion, the ATP-SB-MEDIS has good performance and can be used along with the guidelines for use and dissemination. However, it is necessary to make adjustments according to each step in order to increase the role and to improve the use of this application.

Keywords: Application, smartphone, disaster, medical, test

User Test of ATP-SB-MEDIS as A Smartphone Application During Medical Response in Disaster

Boy Subirosa Sabarguna, Agus Sugiharto

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

Relevant information related to disasters and medical treatment is needed to provide fast and better services, so the existence of a Medical Information System during a disaster on a smartphone is needed. The ATP-SB-MEDIS is one of the Medical Information Systems to be used in DIsaster. This study has the objectives of running ATP-SB-MEDIS in real condition and develop the guideline for widespread application of the system. It is also expected that the institutions adopting this system will require this application in every situation during disaster management. **This application is an innovative product in the form of** a smartphone application created since 2011. It has several versions, including the desktop, CD on line or local host, and smartphone application. The smartphone application will be made separated with a new copyright. There are several potential markets for this application including BNPB (National Disaster Management Agency), Provincial BPBD (Provincial Disaster Management Agency), District/City BPBD (District/City Disaster Management Agency) and Training centers, which give a total of around 1,500 units. The user test for this application involved a survey on 10 persons from primary care emergency officers using open and closed questions in a questionnaire on using the application during a 12-month period of April 2019 to March 2020. **The** results of this user test were as follows: 0% bad, 20% poor, 68% good, and 6% excellent. Meanwhile, materials of the smartphone application received the following results: 2.7% bad, 17.9% poor, 75, 8% good, and 3.5% excellent. To conclude, 84% of users consider the application good and excellent while the materials are considered good by 79.2%. It is suggested that auto-fill ability should be included for information that has been entered previously and replace the main complaint for weak conditions. It is also important that the guideline should be used.

Keywords: Application, smartphone, disaster, medical, user

Need Analysis Test of ATP-SB-MEDIS as A Smartphone Application During Medical Response in Disaster

Boy Subirosa Sabarguna, Levina Chandra Khoe

Faculty of Medicine Universitas Indonesia
sabarguna08@ui.ac.id

Abstract

Fast and reliable means for conveying relevant information related to disasters and medical treatment is needed. The ATP-SB-MEDIS is one of the Medical Information Systems to be used in DIsaster. This study has the objectives of running ATP-SB-MEDIS in real condition and develop the guideline for widespread application of the system. It is also expected that the institutions adopting this system will require this application in every situation during disaster management. **This application is an innovative product in the form of** a smartphone application created since 2011. It has several versions, including the desktop, CD on line or local host, and smartphone application. The smartphone application will be made separated with a new copyright. The need analysis for this application involved a survey on 10 persons from primary care emergency officers using open and closed questions in a questionnaire. This survey involved the Emergency Response Team, DKI Jakarta Provincial Health Office. This need analysis consisted of requirements review and analysis to improve the desktop version to adapt to the current conditions and the link with the smartphone version. Result show that 49.2% present now and 50.8% present the future, meaning that 50% improvement is needed. The followings are the improvements necessary for this system: a) System must be adapted to the needs of the organization; b) Status of development should be displayed to enable evaluation; c) Problem solving must done in collaboration. In conclusion, half of the existing features of the system must be improved to suit current needs, For this, collaboration in development and problem-solving is required. System must be tailored to the need of the organization; thus, a tailor-made system for each organization is considered ideal.

Keywords: Need analysis, medical information system, disaster, smartphone

Mobile Hospital for Medical Response in Disaster: Use of Telemedicine and Clinical Decision Support System

Boy Subirosa Sabarguna

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

During disaster, access to disaster location, services, and human resources are often difficult and limited. Therefore, Mobile Hospital and Telemedicine are considered a necessity to provide adequate services. This study aims to create a Mobile Hospital using telemedicine network and decision support system that connects Mobile Hospital, Supervisor Hospital, and Control as an integrated system in times of disaster. The development of this system involves the Controller of UI Hospital (Universitas Indonesia Hospital) and BNPB (National Agency for Disaster). **In the Need Assessment, there are** 4 stages included to build the mobile hospital, integrated telemedicine, and Decision Support System for Disaster: preparation, procurement, application and implementation. As for the output, the expectation is to get 3 patents and 3 certificates of Copyright for Medical Disaster Information System; 3 certificates of copyright for Clinical Decision Support System for ECG, EEG, USG-Obstetrics; 8 certificates of copyright for Decision Support System for Hospital Services, and call for funding. **It is expected that this product will connect** all University Hospitals in Indonesia. The use of this mobile hospital, telemedicine, disaster information system is expected to make data sharing easier. The period of this study is 3 years, starting from 2022 to 2024. In conclusion, collaboration is needed, as well as call for funding for the preparation, procurement, application and implementation of Mobile Hospital with Integrated Telemedicine and Decision Support System Network for Disaster.

Keywords: Mobile hospital, telemedicine, network, disaster, clinical decision support system.

Early Warning System Using Mobile Application For Medical Reponse in Disaster

Boy Subirosa Sabarguna

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

A web-based software on Early Warning System Using Mobile Application for Medical Response in Disaster has been built in 2012. However, improvements are needed to make it more user-friendly which will enable a closer proximity with the target and fast mobility. Thus, the web-based software needs to be converted into a mobile application for more portable use. This study aims to create a mobile application that can be used by trained people. The development of this mobile application was divided into Need Analysis, System Development, User Test, and Expert Comment stages. Results show that the mobile application can be developed and used for early warning systems. The training and user guide developed were simple that it can be said as user friendly. In conclusion, the mobile app is user friendly but still need improement to make it simpler and easier to use. .

Keywords: Mobile application, disaster, early warning system, system development, expert commend.

Improvement of Disaster Medical Information System Book

Boy Subirosa Sabarguna

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

The Disaster Medical Information System book was published in 2012, which is almost 10 years ago. Many advances have happened in the field of disaster medical information system, especially with the rise of digitalization and information technology. Therefore, it is necessary to update the book to accommodate the changes. This paper elaborates the effort to make the Disaster Medical Information System book up-to-date by assessing the gaps with the existing advances in the field of disaster medical information system. It was identified that the following subjects need to be included in the book: Telemedicine, Mobile Application, Mobile robotics, Mobile Clinic and Hospital, Voice and Video recognition, and artificial intelligence. Thus, it is necessary to include those subjects in the book to make the book relevant for the current situation. It is suggested that the content of the book should be re-assessed every 3-5 years to include new developments in the field.

Keywords: Book, medical information system, application, robotic, recognition.

Mobile Application For Disaster Mitigation in Disaster Medicine

Boy Subirosa Sabarguna

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

In 2012, a web-based software on Disaster Mitigation Information System for disaster medicine has been created, containing patient data and disaster mitigation methods in the form of disaster prevention exercises. This application is only suitable to be used by doctors and nurses. Currently, a similar software, albeit mobile, is needed to be able to be used by trained people, not only medical workers. This is to enable medical response to have a broader coverage and closer to the target. The objective of this study is to create a Mobile Application that can be used by a trainer person for disaster mitigation. The development of such application will require Need Analysis, System Development, and User Test. Results show that the mobile application developed can be used by trained people guided by the user guide for medical mitigation in disaster. It is also evident that the application is user-friendly. In conclusion, the developed application user-friendly. However, user test with more users is needed. It is also necessary to make the explanation in the user guide easier.

Keywords: Mobile application, disaster, mitigation, system development, user test.

Role of Media For Communication During Disasters

Yuliana

Udayana University, Indonesia
yuliana@unud.ac.id

Abstract

The nature of the disaster is unpredictable; therefore the role of media for communication during the disaster must be optimized. Effective communication is critical in daily life, especially during a disaster. Media as a tool for communication must provide clear information without any ambiguity. During a disaster, face-to-face communication is difficult to be done; thus, the media's role is essential. This paper aims to describe the role of media in communication during a disaster. This is a literature review on articles retrieved from Science Direct and Google Scholar. The articles were selected based on the title, **Abstract**, and full-text screening. Results revealed that the roles of media are essential such as making people understand the types of disaster risk, providing information and solution for managing risks, engaging people power, disseminating information, hosting a discussion between government and people, creating a sharing idea platform, and communicating emotions. Media language and communication type must be well prepared to disseminate the right information at the precise time. In conclusion, the media's role is essential in disseminating information, solutions, and emotions among people during a disaster. Therefore, the language and communication type must be carefully selected to deliver precise information at the right time.

Keywords: communication, disaster, media

Analysis of Post-Disaster Publications along with Media Ethics in Sri Lanka

K.A.D.P.K.Kodippili, Dilanthi Amaratunga, Richard Haigh,

University of Huddersfield, United Kingdom

Abstract
Electronic and Print media institutions should adhere to the code of Media Ethics which aims to ensure the responsible and sensitive to the needs and expectations of the receivers of the message it sends out while maintaining the highest standards of journalism. Natural and human-caused disasters pose a significant risk to the health and well-being of community. Journalists and news organizations can fulfil multiple roles related to disasters, ranging from providing disaster information. Electronic/Print media reporting of post-disaster situations to the audience mostly feel irritated or frustrated, because they trigger the memories of the incident of the escaped family members, neighbors and people in the vicinity. This is a common issue in Sri Lankan tele media in case of post-disaster reporting, and important to find whether they are acting according to the Tele- Media ethics. Also, it is important to find out whether television media ethics exist for post-disaster reporting in Sri Lanka. Ethical considerations in Television media Reporting is not practiced or honored by Sri Lankan Tele Media in post disaster reporting aspect by violating the basic ethics of Informed consent, Voluntary participation, do no harm, Confidentiality, Anonymity, and only assess relevant components. Unethical Post disaster Tele media reporting affect the communities and violation of ethical considerations by the Tele media on reporting of post disaster conditions effect the society and ultimately the victims largely and severely in their present and future, physically and psychologically. This paper considers possible functions of disaster journalism and draws on past data analysis with 20 media publications in Sri Lanka to understand better their approach to the discipline.

Keywords: Post-disaster publication, electronic and print media, media ethics, Sri Lanka

Use of Social Media as A Disaster Communication Strategy in Bekasi City Disaster Management Agency in Flood Disaster Management in Bekasi City

Ferdianto[1], Choirul Umam[2]

[1]Communication Department, AKMRTV Jakarta, Indonesia
[2]Communication Department, Faculty of Communication, Gunadarma University, Indonesia
Corresponding author's email address: ferdianto@gmail.com

Abstract

Indonesia, as a country that has many low lands, has experienced many floods in several areas. One of the areas affected by flooding is Bekasi City in West Java Province. This area has a long riverbank, making it more prone to floods. To be able to deal with the flood, communication is needed in the context of disasters. The authority that is responsible for disaster management in Bekasi City is the City Disaster Management Agency (BPBD). This study aims to explore the use social media as a communication strategy in communicating flood disaster management by Bekasi City BPBD Public Relations. This study used the quaiitative approach to understand the phenomenon. Data used were primary data that were collected through in-depth interviews, observation, and literature study. Four informants were involved in this study. It was demonstrated that Bekasi City Disaster Management Agency used social media as their disaster communication strategy, especially in communication regarding floods. This is because social media has a massive and rapid effect on disseminating information. The information provided includes information on prevention measures, pre-disaster, and post-disaster information. Another strategy used by Bekasi City Disaster Management Agency (BPBD) is education and collaborative communication media. This agency also form neighborhood watch, create disaster response communities and volunteers, and perform.

Keywords: Flood Disaster, Communication Strategy, Bekasi City Disaster Management Agency, Social Media, Disaster Management

Narrating Resilience in Jakarta: Mapping out Flood Challenges and Solutions in the Mainstream Media

Nurul Hasfi[1], Micah R Fisher[2]

[1]Departement of Communication Science, Universitas Diponegoro, Indonesia
[2]Departement of Urban and Regional Planning University of Hawai, USA
Corresponding author's email address: nurul.hasfi@live.undip.ac.id

Abstract

Mainstream media plays a key role in shaping understandings of disaster, and with increasing climate-driven chronic disasters like flooding, ideas expressed in the media echo and shape elements of blame, priorities for mitigation, and overall ideas of resilience in society. This paper examines how the media portrays dynamics of recurring flood risk management tensions in Greater Jakarta, Indonesia, particularly as recurring events continue to grow in magnitude, intensity, and impact from year to year. We focus on stories central to media narratives and describe their common explanations of cause and effect and examine the ways that various key actors arrive at proposed solutions. We also spatially situated various solutions at different scales. The analysis was conducted through qualitative text analysis around two overarching questions: flood causes and solutions. The top 50 in depth reporting were collected from mainstream Indonesian media outlets, including tempo.co, *majalah* tempo, kompas.id, tirto.id, the conversation, bbcindonesia.com. The results on flood causes pointed to i) poor public service management, especially around drainage maintenance, inconsistent river "normalization," inadequate pump system management, bad planning and zoning enforcement, and the slow progress of the large Jakarta seawall initiative; ii) intensifying flood conditions, such as increased rainfall from climate change, sea-level rise, land subsidence, and land use change from influx of people and rapid growth. The solutions map closely to the causes, with public service management prioritizing narratives of large-scale infrastructure interventions and enforcement, especially against the most vulnerable. Others include addressing systemic causes of rapid growth by relocating the political capitol of Indonesia and restructuring the city's flood management system to address increased flood exposure. Overall, the media narrative of building resilience in Jakarta reinforces priorities among elite networks, underplaying calls for alternative and more localized solutions.

Keywords: Jakarta, flood, resilience, mainstream media

Role of The Indonesian National Army With The Social Communication, Study of The Role of Village Commissioner in Implementing Community Activities Restrictions to Reduce COVID-19 Transmission

Arief Prayitno, Rachma Fitriati
Corresponding author's email address: arief.prayitno@idu.ac.id

Abstract

The Indonesian National Army contributes to the Micro-Community Activity Restriction (PPKM) efforts applied by the Government of Indonesia to reduce COVID-19 transmission rate by strengthening the four pillars through the role of *Bintara Pembina Desa* (Babinsa). Babinsa is the Village Leadership NCO (fifth and lowest level of the Army territorial command system). It is one of the Kodam (Military Regional Command) forces under the Military Rayon Command (Koramil), the Military District Command (Kodim), and the Military Resort Command (Korem). Babinsa is an element of the implementation of the Koramil in charge of carrying out Territorial Development (Binter) in rural/urban areas. In the current reform era, the ability of Babinsa is crucial for Binter's success so that, in performing his duties. Babinsa always coordinates with relevant stakeholders in the Village/Urban Village n such as community leaders, religious leaders, and youth leaders to ensure the successful implementation of their duties. These four pillars have a solid function to carry out prevention, treatment, guidance, and support for implementing micro PPKM. Support for strengthening the implementation of micro PPKM starts from the neighborhood units (RT) and community units (RW). This study used a soft systems methodology-based action research approach. The study results show that the RT/RW assisted by village midwives, Babinsa, and Bhabinkamtibmas were able to map the COVID_19 cases in their area. The map enables the RT/RW to isolate the areas that need to be restricted. They are also able to restrict the movement of residents based on the results of close contact tracing. Therefore, symptomatic residents can be immediately handed over to the hospital for referral, and asymptomatic patients can undergo self-isolation or centralized isolation. Various efforts to strengthen micro PPKM are also continuously carried out by Babinsa to suppress the increase in the daily number of cases by educating the public about COVID-19 prevention and management protocols through Social Communication activities. Social communication with the community is critical in creating closeness and unity to break the chain of the spread of COVID-19. For example, in Riau Province, the strengthening of the implementation of micro PPKM is carried out by Babinsa by strengthening testing and tracing and separating people who need self-isolation at home or centralized self-isolation. Meanwhile, to reduce the spread of COVID-19 cases in Kudus cluster, the Indonesian National Army through Babinsa also strengthens the micro PPKM with testing, tracing, and guarding activities in village areas. Babinsa also support the law enforcement regarding public places operational hours. .

Keywords: Indonesian National Army, Village Leadership NCO, the Micro-Community Activity Restriction, COVID-19

POSTER PRESENTATION ABSTRACTS

Natural Hazards Triggering Technological Disasters (Na tech)

Identifying the Cause and Reconstruction After the Great Flood in Bireuen, Aceh Province, Indonesia

Eka Djunarsjah[1], Miga Magenika Julian[1,2], Anas Ardian Pradana[1]

[1] Hydrography Research Group, Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia.
[2] Institut für Geographie, Lehrstuhl für Geoinformatik, Friedrich-Schiller-Universität, Germany.
Corresponding author's email address: lautaneka@gmail.com

Abstract

Major floods have previously occurred in Bireuen District and cause damages, such as the destruction of a connecting bridge. Around the Bireuen District area, there is the Peusangan River Basin. The Peusangan River Basin passes through at least 5 Districts/Cities and about 107 rivers from 12 sub-river basins empty into this basin. Research needs to be done to see the real cause of the flooding. We looked at historical records of extreme rainfalls that have occurred at the site in a one month period and reconstruct it using a water balance model. Our reconstruction was carried out to estimate the water entering the Peusangan Watershed system and to calculate the water holding capacity of the Peusangan River Basin system. This study expects that the water balance model and geospatial tool can be employed as a powerful tool to reconstruct the assessment of environmental changes on the hydrological dynamic during flood events.

Keywords: Major floods, extreme rainfall, watershed, water balance model

Pandemics and Public Health Issues

Malaria Study at Oil and Gas Company

Boy Hidayat

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: boyhidayat@gmail.com

Abstract

Malaria remains a serious health problems worldwide. Mosquitoes kill an average of 1 million humans per year, mostly from malaria, with infants, toddlers, and pregnant women as the most vulnerable group. This disease also lowers labor productivity. *Anopheles* spp. is the vector of malaria in Indonesia. Oil and gas sector workers, due to the nature of their job, are often exposed to *Anopheles* mosquitoes in their work premises. This study was conducted to establish a baseline data in order to make a proper health program to prevent, control, and treat mosquito-borne diseases, especially malaria, for oil and gas sector worker. This was a cross sectional study to identify breeding places, mosquito densities, mosquito resistance to insecticide for *Anopheles* spp., *Plasmodium* parasites survey, and work premises inspection implementation in onshore oil and gas work premises. The study sites include **the** plant area, office building of and camp area of the premise. Results showed that the density of Anopheles larvae was > 1 in the swamp area near one small oil processing office building area.Standing water at control tub, conduit at a gas plant, 2 small oil processing plants and at conduits, control tubs, and a reservoir water of main oil processing work premises were found. Adult of Anopheles mosquito density survey at gas processing work premises showed that the An. barbirostris had the highest man biting rate (MBR=0.75) while *An. vagus had the lowest MBR (*0.25). Anopheles mosquito density survey at main oil processing work premises showed *that An. nigerrimus* had the highest MBR of 0.33 while An. vagus' MBR was 0.08. Anopheles mosquito resistance test against insecticide to *An. barbirostris* and *An nigerrimus* against Malathion 5% resulted in 86% and 74% mortality in 24 hours at a gas and an oil processing work premises, respectively. Survey of *Plasmodium* (malaria parasites) showed all subjects, n= 38 and n= 74 workers, were negative for P. *falciparum* and P. *vivax* at a gas and an oil processing work premises, respectively. Field inspection showed that spraying or fogging performed was done incorrectly in terms of schedule, chemical use, and method. One work premises had a high risk for malaria parasites to breed because the number of vector larvae of Anopheles spp. was higher than the national standard. Others work premises had potentials for malaria risk due to existence of stagnant water in work premises. The high MBR has brought the study to the conclusion that these area are at a high risk for Malaria. However, no malaria parasites were found in all subjects. It shows that malaria incident is low at those work premises. However, malaria program still need to be established to prevent the incident of Malaria disease especially regarding the method of combating the parasites in animal phase.

Keywords: Malaria, mosquito density, man biting rate, prevention program, oil and gas industry

COVID-19 Preparedness Analysis oF Deli Serdang Regional General Hospital Lubuk Pakam Indonesia

Dewi Kartika[1], Herlina J. EL- Matury [2*], Tati Murni Karo-Karo[3] , Felix Kasim[4], Romauli Anna Teresia Marbun[5]

[1,2,4]Faculty of Public Health, Medistra Health institute Lubuk Pakam, Indonesia
[3]Faculty of Nursing And Physiotherapy, Medistra Health institute Lubuk Pakam, Indonesia
[5]Faculty of Pharmacy, Medistra Health institute Lubuk Pakam, Indonesia
*Corresponding author's email address: herlinajelmatury.hjem@gmail.com

Abstract

Indonesia is facing various natural and non-natural disaster such as earthquake, tsunami, flood, landslide, volcanoes, COVID-19 pandemic, etc. Health care service facilities must be accessible and functionable during and immediately after a disaster. This study aims to assess COVID-19 preparedness and readiness at Rumah Sakit Umum Daerah Deli Serdang (regional general hospital). This study used a mix method approach. Data were collected through interviews, observations, and document reviews by referring to the guideline in WHO checklist COVID-19. Variables studied were leadership and management system; coordination and communication; surveillance and information management; risk communication and community engagement; administration, finance, and business sustainability; human resource; surge capacity; sustainability of essential support services; patient management; occupational health, mental , and psychological support; rapid identification and diagnosis; and infection prevention and control. Results showed that the achievements for those variables are as follows: leadership and management systems with percent achievement, 93%; coordination and communication, 92%; surveillance and information management, 92%; risk communication and community engagement, 100%; administration, finance and business sustainability, 69%; human resources, 75%; surge capacity, 80%; sustainability of essential support services, 83%; patient management, 63%; occupational health, mental and psychosocial support, 70%; rapid identification and diagnosis, 92%; and infection prevention and control, 84%. The Safety Index score for the hospital was 0.826, and was classified at level A. Therefore, the hospital is ready for the COVID-19 pandemic, but long-term prevention efforts are still needed to improve disaster safety index.

Keywords: WHO checklist, preparedness, COVID-19

Meta-ID: 591

Impact of Covid-19 Pandemic on Working Age Population in Central Java, Indonesia

Fajrin Fauzan Affandi[1], Endan Suwandana[2]

[1]BPS – Statistics Indonesia, Indonesia
[2]BPSDMD Banten Province, Indonesia
Corresponding author's email address: fajrin@bps.go.id

Abstract

COVID-19 pandemic has become a social reality, which does not only affect the public health situation but also undeniably affect multi-sectors that it brings a horrifying impact on global economics. Many countries around the world have reported the difficult situation that they are currently facing and even downturn on economics growth. This similar economic slowdown situation also occurred in Central Java, one of provinces in Indonesia. This study aims to provide a clear and deep description about the impact of the Covid-19 pandemic on working age population and to reveal the probabilities of person in the category ofworking age population to be affected by COVID-19 pandemic, based on their demographic and occupational characteristics in Central Java province. Results indicated that 3.96 million of working age people in Central Java were affected by the Covid 19 pandemic, both those who became unemployed and those who experienced a working less hours due to COVID 19. This pandemic hits the millenial generation, who were born between 1980 and 1995, harder than other generations, such as X generation, Z generation, or baby boomers. In terms of field of bussines category, people who work in the manufacturing industry are the most affected by the pandemic, followed by people who work in retail and education services categories. The working age population in Central Java with the following characteristicsof female, baby boomer, lives in rural areas, works in the agricultural sector, and does not use the internet at work has a higher probability to not being affected by the COVID-19 pandemic

Keywords: Working age population, COVID-19, impact of pandemic.

Safety and Efficacy of Favipiravir Therapy in COVID-19 Patients at Sanglah Hospital Bali, Indonesia

Herni Damayanti[1], I Gede Ketut Sajinadiyasa[2], Rani Sauriasari[1*]

[1]Faculty of Pharmacy, University of Indonesia, Indonesia
[2]Department of Pulmonology, Department of Internal Medicine, Udayana University-Sanglah Hospital, Bali, Indonesia
Correspondence: rani@farmasi.ui.ac.id

Abstract

Favipiravir is one of the antivirals used for Covid-19 therapy and has received an emergency use authorization from the Indonesian Food and Drug Administration. However, evidence for the efficacy and safety of favipiravir in Indonesia is limited. This study analyzes the efficacy and safety of favipiravir in moderate to critical stage COVID-19 patients treated at Sanglah Hospital, Bali, Indonesia. The efficacy of therapy can be seen from the improvement in the clinical condition (free of fever and respiratory problems) of the patient at the end of the isolation period. Therapeutic safety was assessed by adverse events (AE) that occurred in patients receiving antiviral therapy. This is a single-center study with a retrospective cohort method using patient medical record data. One group received favipiravir, and another was receiving non-favipiravir (remdesivir or oseltamivir). Consecutive sampling showed 192 COVID-19 patients who received favipiravir (n = 96) and non-favipiravir (n = 96) from August 2020–January 2021. The results showed patients who received favipiravir had better clinical conditions than the non-favipiravir group (79.2% vs. 56.3%; RR 2.104; 95% CI = 1.053–4.205, p=0.035). However, this clinical condition was significantly influenced by the severity of the patient on hospital admission. Adverse events observed in the use of favipiravir were increased levels of SGOT & SGPT (11.5%), increased levels of SGPT (4.2%), constipation (7.3%), nausea and vomiting (2.1%), flatulence (3 ,1%), indigestion + increased SGOT SGPT (2.1%), and numbness in the face (1%). Causality analysis with the Naranjo algorithm shows that the AE is included in the "possible" category. In this study, favipiravir shows more effectiveness than non-favipiravir, and no serious adverse events are observed.

Keywords: favipiravir, antiviral, COVID-19, efficacy, safety

Cement Irritant Contact Dermatitis in a Construction Helper
An Occupational Medicine Case Report

Mohammad Firmansyah[1], Kasyunnil Kamal[1], Dewi Sumaryani Soemarko[1], Dewi Yunia Fitriani[1]

[1]Occupational Medicine Specialist Study Program, Community Medicine Departement, Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: dokterfirman81@gmail.com

Abstract

Irritant contact dermatitis is a nonspecific response of the skin to direct chemical or irritant damage by releasing inflammatory mediators, mainly from skin epidermal cells, while allergic contact dermatitis is a delayed (type 4) hypersensitivity reaction to exogenous contact antigens or allergens.Visually, Irritants can be classified as cumulative toxic (e.g., hand soap causing irritant dermatitis in hospital employees), subtoxic, degenerative, or toxic (e.g., exposure to hydrofluoric acid in chemical plants). This study presents a case of a irritant contact dermatitis case triggered by occupation-related causes. A 23-year-old man who works as a construction helper was presented to the dermatology clinic with complaints that had started since about 1 year ago. He complained of itchiness, dryness, and cracks on his right and left hands after contact with cement while working. The cement used in his workplace contained potassium dichromate, crystalin silica (bricks), iron sand dust, calcium silicates, aluminate, ferrites, and calcium sulfate. The patient's job required him to prepare tools, mix cement with sand, and deliver the mortar to the masons, and clean used tools from Monday to Saturday. He used cement, sand, shoe, shovel, cement spoon, bucket, sandpaper, bricks in his work for 2 years. Examination revealed that one of the causes of this skin damage was the chemical process during the preparation of cement mixing and other subsequent work processes that involved cement. Wet cement contains water-soluble hexavalent chromate (potassium dichromate) which has a corrosive effect and most commonly causes irritant contact dermatitis in workers regularly exposed to or has a deep cement burn effect from lime base in untrained workers. Patient had well-defined lesions with xerosis, macular erythema and vesicles, predominantly hyperkeratosis and lichenification. In this case, the right and left manus regions erythema, scale, fissure and lichenification were visible, more lichenification predominant, deep burn like to irritant than sensitizer of allergen, proving the presence of irritant contact dermatitis. It is therefore important to involve occupational specialist to provide education on irritation caused by contact with cement and how to avoid contact with chemical irritants, including using moisturizer on hands before wearing gloves, to relevant workers. Control should also be exercised to measure the environment and biomonitoring of chrome, silica and iron dust, aluminate to prevent skin and respiratory problems. Personal protective equipment (PPE) leather gloves can prevent contact with irritants. In this case, patients is deemed temporary UNFIT to work and must avoid contact with irritants until the inflammatory process and pain have subsided, seeking immediate treatment to relieve inflammation and pain and prevent infection. Compensation must be given according to Regulation PP No.82 2019 (9% Class 1 AMA Guidelines).

Keywords: Cement, construction helper, irritant contact dermatitis, occupational medicine

NCD Posbindu Development in Hypertension Preventive Program Using DASH Diet

Rahma Listyandini, Tika Noor Prastia

Faculty of Health Sciences Universitas Ibn Khaldun Bogor, Indonesia
Corresponding author's email address : listyandini@gmail.com

Abstract

The world is currently facing double burdens of pandemic and non-communicable diseases (NCDs).   Hypertension is not only one of the non-communicable diseases with the highest prevalence in Indonesia, but also as a comorbidity for COVID-19 patients. One of the preventive steps we can take is to strengthen NCD Posbindu to act as the front line of hypertension prevention in the community. This study aims to increase the knowledge and skills of posbindu cadres in preventing hypertension through the application of DASH Diet. The strategy used was dissemination and training activities as well as monitoring and evaluation of the activities. This study was performed in Ciaruteun Udik Village, Cibungbulang, Bogor District during June-July 2021 in collaboration with the Village Midwife. The program targets were posbindu cadres and representatives of PKK women totaling 25 people. Methods of delivering materials were online methods, which included the use of Whats App Group and Youtube. The counseling materials was in the form of video uploaded to Youtube and the discussion was held in the Whats App Group. Materials on how to prepare the DASH diet menu was provided in an electronic booklet. The result of this program was the implementation of dissemination to Posbindu cadres about hypertension and its prevention, as well as training in DASH Diet menu preparation. The dissemination was divided into 2 sessions: session 1 on Hypertension and session 2 on CERDIK Behavior. The result of the evaluation is an increase in knowledge based on pre-test and posttest results. Thus, Thus, training for NCD Posbindu cadres can improve the knowledge and skills of cadres in preventing hypertension through DASH Diet.

Keywords: Hypertension, COVID-19, Commorbidity, DASH Diet, CERDIK

Treatment Adherence and Incidence of Coronary Heart Disease in Type 2 Diabetes Mellitus Patients: Four-year Follow-up to the PTM Bogor Cohort Study, Indonesia

Ahmad Sahlan Baniu, Rani Sauriasari[a], Woro Riyadina[b]

[a] Faculty of Pharmacy, University of Indonesia, Indonesia
[b] National Institute of Health Research and Development, Ministry of Health, Indonesia.
Corresponding author's email address: alanlowus@gmail.com

Abstract

This study aims to compare the incidence of coronary heart disease (CHD) in type 2 diabetes mellitus (T2DM) patients who have shown treatment adherent and non-adherent behavior over four years. We conducted a retrospective cohort study and analyzed baseline and fourth-year data sets from 2011 to 2018 obtained from The Cohort Study of Non-Communicable Disease Risk Factors in Bogor (the PTM Bogor Cohort Study) of the Indonesian Ministry of Health. All study subjects were not diagnosed with CHD at the beginning of the study. The sample was divided into two groups. One group had adhered to treatment from health centres and followed the treatment instructions (adherent group), while the other had not followed the treatment instructions (non-adherent group). Out of 5690 subjects, 276 were eligible to be study subject, (84 subjects in adherent group and 192 subjects in non-adherent group). The incidence of CHD in the non-adherent group was 2.3% higher than that of the adherent group (p=0.564). The non-adherent group had a 1.7 times greater risk of developing CHD than the adherent group, but not statistically significant (adjusted HR=1.739,95% CI 0.673-4.490). Uncontrolled LDL increased by 3.5 times the likelihood of CHD (adjusted HR = 3.566, 95% CI 1.419-8.976), while increased physical activity lowered the risk of CHD by 78% (adjusted HR = 0.220, CI 95 % 0.081-0.600). In this study the number of non-adherent T2DM patients was higher than the adherent group. After observed over four years, non-adherent T2DM patients had a greater risk of developing CHD than adherent T2DM patients.

Keywords: Diabetes Mellitus (DM), Coronary Heart Disease (CHD), treatment adherence

Safety of Favipiravir as Antiviral Agent Against COVID-19: An Update Systematic Review

Rizki Oktarini, Ratika Rahmasari, Rani Sauriasari*

Faculty of Pharmacy, Universitas Indonesia, Indonesia
*Corresponding author's email address: rani@farmasi.ui.ac.id

Abstract

Studies about the adverse event of favipiravir on its use in the treatment of COVID-19 have progressed since it was established as a therapeutic option. A better understanding of the adverse events of favipiravir from recent studies is critical in developing and evaluating the adoption of effective treatments for COVID-19.

Methods: The author conducted a systematic review based on clinical trial studies and case reports using favipiravir monotherapy for COVID-19. Included studies are accessed via PubMed, SCOPUS, Science Direct, SpringerLink, and MedRxiv. The outcome discussed in this review is the observation of adverse events based on laboratory results during or after favipiravir use.

Results from 12 studies consisting of 8 clinical trials and 4 case reports showed that four clinical trial studies used other antivirals as a comparison and the rest compared with standard therapy. The most common adverse effects were diarrhea, elevated liver enzyme and hyperuricemia where only 1 study showed a significant difference between the adverse effect of favipiravir and other antivirals. All of adverse effects were reversible after therapy was discontinued. The case report found increased viral load and acute generalized exanthematous pustulosis induced by favipiravir after discontinuation of therapy. In conclusion, the use of favipiravir in the treatment of COVID-19 causes dose-dependent adverse events such as diarrhea, alteration of liver enzymes and increase in uric acid, which are not significant compared to other antivirals. The development of incidence reports about antiviral adverse event in special populations such as children, pregnant women and impaired organ function is important to improve the efficacy and safety for COVID-19 therapy.

Keywords: Favipiravir, SARS-Cov-2, COVID-19, adverse event.

Online Larva Monitoring as An Improvement in The Quality of Information and Records for The Prevention of Dengue Hemorrhagic Fever: A Review

M. Azmi Maruf[1], Ririh Yudhastuti[2*], Hari Basuki Notobroto[3], M. Farid D. Lusno[2], Aldio Yudha Trisandy[1]

[1]Master Student of Environmental Health Department, Faculty of Public Health, Universitas Airlangga, Indonesia
[2]Environmental Health Department, Faculty of Public Health, Universitas Airlangga, Indonesia
[3]Biostatistics and Demography Department, Faculty of Public Health, Universitas Airlangga, Indonesia
Corresponding author's email address: ririh.unair@gmail.com

Abstract

Dengue hemorrhagic fever is an infectious disease caused by the dengue virus. It is transmitted through mosquito vectors of the Aedes aegypti and Aedes albopictus species, which attack approximately 400 million people worldwide annually. Effective vector or mosquito control measures are essential to achieve and maintain a reduction in the morbidity caused by dengue fever. However, vector control can be both capitals intensive and labour intensive. An effective early warning system will improve preparedness and response to outbreaks, an important element in early intervention planning and resource allocation. Independent larval monitoring activities that are carried out routinely play an important role in preventing and eradicating DHF. This research method reviews various articles on the data management of larva monitoring and the new opportunity to improve the logging system. The current study used multiple search engines (Scholar, Springerlink, Science Direct, Proquest, Sage). DHF, Online, Larva Monitoring, Logging selected as important keywords to find studies that fit this topic. Monitoring independent larvae is certainly not an easy thing. Independent larval monitoring activities that are carried out routinely play an important role in preventing and eradicating DHF. This activity can inhibit the development of dengue vectors. The result of communication technology and the internet allows current monitoring reporting using online applications. In addition, external stimuli are needed, such as support from health workers related to education assisted by health cadres and community leaders.The success of this dengue fever prevention effort is largely determined by the cohesiveness and awareness of the community as a whole. It is necessary to improve the recording and reporting of larvae-free numbers so that ABJ can be used as a better indicator of DHF vector growth. ABJ is reported every month to improve the quality of existing reporting.

Keywords: DHF, online, larva monitoring, logging

Correlations between Mass Gathering Events, Physical Distancing Noncompliance Cases, and COVID-19 Trends in West Java Province, Indonesia, from January to June 2021

Diah Safitri[1], Raditha Cahyani Isty Ningdiyah[2], Fatma Lestari[3,4], Debby Paramitasari[4], Abdul Kadir[4], Andrio Adiwibowo[4]

[1]Public Health, Faculty of Public Health Universitas Indonesia, Indonesia
[2]Environmental Health Department, Faculty of Public Health Universitas Indonesia, Indonesia
[3]Occupational Health and Safety Department, Faculty of Public Health Universitas Indonesia, Indonesia,
[4]Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia,
* Corresponding author's email address: fatma@ui.ac.id

Abstract

Mass gathering event is still considered as a grand challenge in dealing with COVID-19. This is becoming a concern since mass gathering events lead to the physical distance non compliances and resulted in the surge of COVID 19 cases. This phenomenon is common mainly in Asian countries where mass gathering events are a routine. In this study, a mass gathering event was classified based on its location where the events occurred and event activities, and correlated with the COVID-19 cases. The study period was 6 months, from January to June 2021, and the research took place in West Java Province considering that this is a province with a large population size. The results show an increasing trend of COVID-19 cases and confirm an increasing numbers of mass gathering events. The COVID-19 cases were having significant correlations ($r = 0.67$) with shopping events and family gatherings ($r = 0.53$). While recreation event were not contributing to the COVID-19 cases significantly. According to the locations where the mass gathering event occurred, the mass gathering in indoor has contributed more to the COVID-19 cases ($r = 0.73$) rather than outdoor events ($r = 0.56$). Thus, it can be concluded that the mass gathering events in the form of shopping activities mainly in indoor are potential contributions for the COVID-19 cases.

Keywords: COVID 19, correlation, physical distancing, mass gathering

Disaster Mitigation: Policies, Practices, and Alternatives

Potensi SAR Bandung Efforts in Preserving Digital Archives as Mitigation of the Lembang Fault Earthquake

[1]Achmad Fachmi, [2]Tamara Adriani Salim

[1,2] Department of Library and Information Science, Faculty of Humanities,
Universitas Indonesia, Indonesia
[1]achmad.fachmi01@ui.ac.id, [2]tamara_susetyo@yahoo.com

Abstract

This study describes efforts to implement knowledge of Potensi Search and Rescue (SAR) Bandung in preserving digital personal archives as an effort to mitigate the Lembang Fault earthquake disaster. Bandung, the capital city of West Java, is known to have a potential of an earthquake with a maximum strength of 6.8 SR, at any time, from the Lembang fault, which is an active fault in the province of West Java. As stated in Law no. 24 of 2007, in dealing with disasters the most important thing is to prepare yourself by means of disaster mitigation, including saving personal archives in digital form, because mitigation is the initial stage of the four stages in disaster management planning according to International Federation of Library Association (IFLA) that consist prevention, mitigation, response, and recovery. This study used a descriptive qualitative method with data collection conducted through online interviews, observation, and literature study. The informants were Potensi SAR Bandung involved in disaster organizations and hd prior knowledge of disasters and awareness of the impact of the Lembang Fault Earthquake. The result is that as individuals with disaster mitigation skills admit that they are using the cloud for their effective preservation of digital archives in terms of access to digital archives. Awareness about this already exists, but the goal is not as a form of disaster mitigation. It is expected that this research can provide a perspective on community efforts, especially individuals who have prior knowledge of disaster.

Keywords: Personal archives, digital archives, preservation, disaster mitigation, Lembang Fault

Lesson Learned from Japan for Flood Disaster Risk Reduction in Indonesia

Titisari Haruming Tyas[1], Ahmad Fatkul Fikri[2], Syamsul Maarif[3], I Dewa Ketut Kerta Widana[4], Adi Subiyanto[5]

[1,2,3,4,5]Disaster Management Master Program, Republic of Indonesia Defense University, Indonesia
Corresponding author's email address: titisariht@gmail.com

Abstract

Indonesia and Japan are countries that have experienced hydrometeorological disasters, primarily annual floods disasters. The two countries have experienced losses due to improper disaster management. However, along with the times, Japan, an expert in technology development, can reduce its flood risk. Japan has established itself as a country of example in disaster risk reduction. The Japanese government promotes a concept, namely "Build Back Better," which is to build a post-disaster area to restore the area to its original state and take opportunities to develop better than before. Meanwhile, Indonesia, which is a developing country, is still trying to reduce the risk of flood disasters that cause considerable losses to the nation. Therefore, this study aims to analyze the lessons learned from Japan for flood risk reduction in Indonesia. This study used a qualitative descriptive method with data collection techniques through Focus Group Discussions (FGD) with professors and researchers from Japan and reviewing disaster risk reduction documents. The results of this study indicate that there are several keys to success that Japan has in reducing flood risk, such as a) a mindset to be able to make disasters a challenge for the better; b) policies and disaster management systems that are structured from the national to the subnational level; c) encouraging the development of SETI (Science, Engineering, Technology, and Innovation) for disaster risk reduction in many sectors; and d) Japan's ambition in implementing Society 5.0 which is relevant to Disaster Risk Management (DRM).

Keywords: Flood, disaster risk reduction

Disaster Management Institution Development Model in Jember District, Indonesia

Joko Mulyono, Lukman Wijaya B., Elly Suhartini, and Jati Arifiyanti

Abstract

Disaster management with many actors requires adequate institutions. Hence, institutional development is obligated to be found because all actors are accommodated as a force or power. In this case, the Subnational Disaster Management Agency must have an accommodative institution that can coordinate and synergize various cross-sectional actors supported by internal, linkage, and external forces. The purpose of this research is to formulate a PB institutional development model in Jember District. A qualitative method with a gap analysis. The research results are still some institutional aspects that are not yet entirely by the normative level. The agency's head is held at the OPD echelon IIb which the regional secretary should own as ex-officer echelon IIa. There is often a change in the head of the agency with the status of PLT because of the strong intervention of the regional head. The Perda PB policy has not been made. The steering team has not been mobilized. The program tends to be relatively responsive, and the disaster mitigation program is still relatively small. PB institutional development models include internal aspects; requires a leader with definitive status with democratic characteristics supported by the following abilities: conceptual, competent, committed, and consistent, strengthening the principles of good governance including participatory and democratic, completing and mobilizing the organizational "directing team" structure, completing regulatory documents from Regional Regulations PB to Standard Operational Procedures (SOP), it needs to be supported by adequate infrastructure. Strengthening the linkage aspects include; enable linkage and functional supporting linkage, normative linkage, and functional linkage. Environmental aspects that the BPBD institutional management is avoided as far as possible from the regional head's political interests.

Keywords: Disaster, institusional, internal, linkage, eksternal.

Urgency of Digital Preservation: A Case Study of Collections at the Nepal Museum

Intan Dahayu Prastutiningtyas[1], Tamara Adriani Salim[2], Prasnurzaki Anki[3]

[1] Department of Library Science, Faculty of Humanities, Universitas Indonesia, Indonesia
[2] Department of Library and Information Science, Faculty of Humanities, Indonesia
[3] Department of Mathematics, Faculty of Mathematics and Natural Science, Universitas Indonesia, Indonesia
Corresponding author's email address: intan.dahayu@ui.ac.id

Abstract

Educational institutions, especially libraries, have a tendency for having local collections and resources provided externally from sources that are included in the form of subscription services and other libraries. In general, digital libraries have the potential to be able to combine internal and external resources. A bundle is a unified collection from the user's point of view, with a single gateway and a comprehensive set of support services, so that it can serve to digitally preserve long-standing collections. Some resources are "born digital" while others are of physical origin and require transformation into digital form, a process that can be difficult and expensive. Preservation has different meanings in different contexts. Discussions about digital preservation have begun to stagnate and libraries just continue with their usual preservation activities. In the study using qualitative research methods based on the philosophy of post positivism describe in the paper, the aim is to explore the condition of natural objects, where the researcher is the key instrument. Sampling was performed using the purposive and snowball approaches using combine collection technique. Data analysis was performed inductively or qualitatively, which emphasized meaning rather than generalization. After analyzing the two types of preservation, manual and digital preservations through workshops, it was revealed that manual preservation took longer time than digital preservation. Thus, digital preservation is superior to manual preservation. Based on a study conducted on preservation conducted at the Nepal Museum, the authors suggest that in the future digital preservation can be carried out more quickly and can be completed in a shorter time.

Keywords: Libraries, preservation, collection preservation, digital records, digital preservation

Emergency and Crisis Management

Early Warning and Incident Coordinating Strategy for Implementing Local DRR System in Sri Lanka

**J.M.A.R. Jayarathne[1], Professor Dilanthi Amaratunga[2],
Professor Richard Haigh[2]**

[1]Applied Science, University of Huddersfield, UK
[2]School of Applied Sciences, University of Huddersfield Global disaster Resilience Center, UK
Corresponding author's email address: ravijayarathne@gmail.com

Abstract

Strategic implementing mechanism liaise with Disaster Risk Reduction framework and alien with the National Disaster Management Plan, National Emergency Operation Plan, SOPs, and other institutional Disaster Management Plans in Sri Lanka. It is a standardized, on-scene, all-hazard incident management concept. The early warning and incident coordinating strategic plan have incident commanding flow and coordination mechanism from national to local level until to the vulnerable communities. Local authority administrative system and central administrative system may be cordially integrated to achieve incident management. Allows its users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents without being hindered by jurisdictional boundaries. The early warning and incident coordinating strategic plan have been developed based on the national emergency operation plan. The NEOP executed all communication, coordination, and cooperation mechanism. (Ref: NEOP chpter2,2.3) At the sub-national level, direction and the guidance of the political leadership either at the provincial or local authority level, need to be assured in the decision-making process. It is harmonizing according to implementing committees in this plan where implementation and Administration Strategy of local DRR plans (GN level working committee, Divisional Secretary. level working committee, District level steering committee, provincial Monitoring committee, National level Oversight committee). The Divisional Secretary interacts with the respective Local Authorities (Municipal Councils, Urban Councils, and Pradeshiya Sabhas) for resource sharing and other support services available at the Local Authority level. The mode of response to disasters will depend on the severity of the event. Provincial/District EOC will coordinate and respond to local events. The National EOC will assist local level EOCs on request or if the severity of the disaster is beyond their capacity.

Keywords: DRR, early warning, incident coordinating system, Sri Lanka

Fire Disaster Risk Area Analysis in West Jakarta City, Indonesia

Andri Cahyadi[1], Fatma Lestari[1,2], Abdul Kadir[2]

[1] Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
* Corresponding author's email address: fatma@ui.ac.id

Abstract

West Jakarta is one of the areas in the capital city of Indonesia with dense population and is a home of more than 2.4 million people in 2020. The dense population of West Jakarta increases the risk of fires, which is evident from 333 fires in 2020, and catastrophic fires. The purpose of this study was to conduct a Fire Risk assessment in West Jakarta. This was a cross-sectional study using a non-probabilistic sampling/stratified sampling approach. Data collection was performed in 8 sectors with a total of 38 neigborhood (RWs) using the Fire Risk Assessment Checklist, selected documents, focus group discussions, and questionnaires. The instrument was developed using a disaster Fire Risk approach including Fire Hazard, Vulnerability, and Fire Protection/Fire Management. Two types of questionnaire were used: Fire Risk Assessment Checklist for Local Government Fire Service which contains 22 questions and RW Chair Questionnaire with 22 questions. Data were analyzed using univariate analysis, bar charts,and spider webs, and contemplation on the map of Jakarta. The results showed that the location with the highest fire risk in West Jakarta was Jembatan Besi, with a risk classification of 70.9. There are several recommendations suggested to improve community-based fire protection or to empower local communities in fire response, such as providing fire hydrants in some areas with water shortage or poor water supply and a Structured and Massive Online Open Systematic Fire education and promotion to raise public awareness about Fire safety.

Keywords: Disaster, vulnerability, fire management

Fire Risk Mapping in Sector 2 And 3 of East Jakarta Region, DKI Jakarta Province, Indonesia

Sekarsari Kartika Putri[1], Fatma Lestari[1,2,*], Miranda Surya Wardhany[2]

[1] Occupational Health and Safety Department, Faculty of Public Health Universitas Indonesia, Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia (DRRC UI), Indonesia
Corresponding author's email address: fatma@ui.ac.id

Abstract

Jakarta Province is the capital of Indonesia with a population of 10.562 million. The Administrative City of East Jakarta is the densest area in this province, with 28.75% of Jakarta's population live in this area. With a density of 14,390 people/km2, this city demonstrates increased potential risks of fire especially in areas with high level of hazards, such as industrial estate and residential areas. This study aims to create the fire risk map in sector 2 and sector 3 of East Jakarta City. Sector 2 has an Industrial Estate, the Pulogadung Industrial Estate, with 375 companies while sector 3 is where the Cakung Archipelago Bonded Zone with 104 companies is located. This is a cross-sectional study with non-probabilistic stratified sampling. Data were collected using a fire risk assessment checklist and questionnaire and were verified through focus group discussions with Local Fire Department. These two instruments contain 22 variables to identify hazards, vulnerabilities to, and protection from fire. Data were then analyzed using univariate analysis, bar chart, and Spider web and mapped to the sectors 2 and 3 of East Jakarta. The results show that both sectors were classified as having a heavy fire risk (62.2%). Thus, it is recommended to increase the reliability of city hydrants under the East Jakarta Fire Department and to improve the communication networks, and active participation of residents and industrial areas to reduce the risk. Provide an early warning system and implementation of fire risk management are also needed.

Keywords: Fire risk, fire hazard, vulnerability, fire protection

Fire Risk Mapping Analysis for East Jakarta Region in 2021

Fitra Nurahim[1], Fatma Lestari[1,2,*], Nida Hanifah Nasir[3]

[1] Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia
[2] Disaster Risk Reduction Center, Universitas Indonesia
[3] Occupational Safety, Health, and Environement Unit (QSHE), Universitas Indonesia
*Corresponding author's email address: fatma@ui.ac.id

Abstract

Fires have become a problem in cities with high population density condition, one of them is DKI Jakarta, especially East Jakarta which known as densely populated region and also have caused loss of soul, material, and environment. The losses can be minimalized by increasing prevention and fires controls efforts in DKI Jakarta region, the primary step can be done by fire risk mitigation. The purpose of this study is to analyze and conduct fire risk mapping in East Jakarta region. This research is a semi-quantitative study with descriptive study design. Data were collected through Focus Group Discussion (FGD) with firefighters, filling out questionnaires, interviewing head of hamlet, and study of related documents. The studied variables were divided into 3 components namely, fire hazard, vulnerability, and fires protection. The result revealed that the major of hamlet area in Jatinegara and Duren Sawit sub-districts classified as medium fire risk level as many as 11 hamlet areas and 4 others included as high fire risk level. There are several aspects need to be improved or considered as efforts to minimize the fire risk in the area namely as, community activities aspect, density of populations and buildings, quality of buildings and the slum level, the problems faced by fire stations in the form of road access, etc. buildings gap aspect, community resilience systems, and the city hydrants. Therefore, the prevention and fires controls efforts in the area need an involvement and attention from other parties either from Dinas Pemadam Kebakaran DKI Jakarta, neighborhood and hamlet managers, community, and other related parties.

Keywords: Fire hazard, vulnerability, fire protection, East Jakarta, mapping
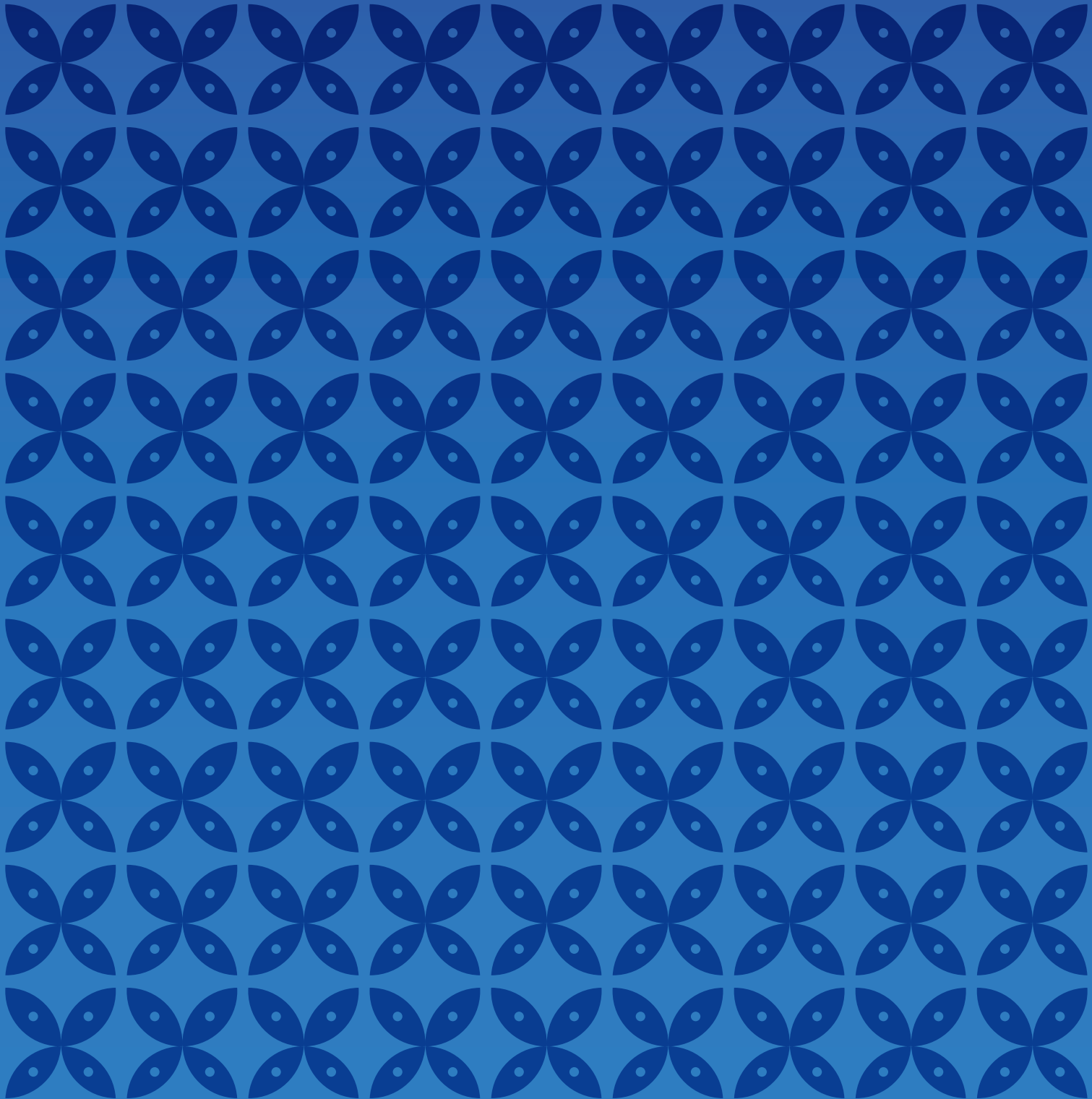
Business Continuity Management and Disaster Insurance

Association Between Fatigue and Human Performance for Business Contuinity Management

Achmad Dahlan, Baiduri Widjanarko

Occupational Health and Safety Department, Faculty of Public Health,
Universitas Indonesia, Indonesia
Corresponding author's email address: achmad.dahlan@gmail.com

Abstract

Business Continuity Management is crucial to ensure the company's lifetime where it is determined by the human performance of the workers. In contrast to machines that can work contiously for 24 hours, workers have capability and capacity limitations in working time. If workers exceed them, they will be working in non optimal mental and physical condition as known as fatigue. These conditions can affect the human performance of workers. This study aims to analyze the association between work fatigue and human performance among Indonesian oil and gas workers. This study was a cross-sectional study that used self-administered validated questionnaire "Occupational Fatigue Exhaustion Recovery Scale (OFER)" and a questionnaire related to human performance. There were 1650 workers from multiple entities (i.e, production, drilling, well service, construction, and administration/office) participating in this study. The results showed that partially chronic and acute fatigue had an effect on human performance (Sig.=0.000) and simultaneously chronic and chronic fatigue were able to predict human performance with an effective prediction of about 43.5% (R=0.435). The results of this study can be used as a consideration of how important it is to prevent and control fatigue in the workplace to maintain and improve human performance for business continuity management.

Keywords: Business Continuity Management, fatigue, human performance

Business Downturn Mitigation Strategy in the Capital Market Due to Non-Natural Disasters (COVID-19 Pandemic) in Indonesia

Warsito[1], Palupi Lindiasari Samputra[2], Heru Subiyantoro[3]

[1,2]National Resilience Studies, School of Strategic and Global Studies, University of Indonesia, Indonesia
[3]Graduate School of Economic. Borobudur University, Indonesia
Corresponding author's email address: palupi.ls@ui.ac.id

Abstract

The 2019 Corona Virus Disease (COVID-19) pandemic is a non-disaster aspect that poses a severe threat to the business world, especially the capital market in Indonesia. The COVID-19 pandemic caused severe shocks and high fluctuations in the Jakarta Composite Index (JCI) in the capital market, especially at the start of the pandemic. A stretagy is needed to anticipate the decline in the JCI during the COVID-19 pandemic. This study examines the effect of tax revenues, interest rates, oil prices, gold prices, the Dow Jones Index, and COVID-19 on the JCI and formulates a policy strategy to mitigate the decline in the JCI due to the COVID-19 pandemic. The study conduct from March to December 2020. The research methid used in this study was the Vector Error Correction Model (VECM). The results showed that tax revenues, interest rates, oil prices, the Dow Jones Index, and COVID-19 had a significant effect on the JCI in the short term. Meanwhile, oil prices and COVID-19 have a significant effect on the JCI in the long term. The short-term policy strategy that can be applied to mitigate the decline in the JCI is to reduce tax-revenues either through tax cuts or incentives and raise interest rates. The tax reduction policy will be effective after 14 days, while the interest rate increase policy will be effective after 16 days. In the long term, a decrease in COVID-19 cases will lower the JCI, while a decline in oil prices will raise the JCI. The Implication is that mitigation of a decline in the JCI only depends on the decline in oil prices, and it is necessary to increase vigilance in the event of significant increase in oil prices.

Keywords: COVID-19 pandemic, tax-revenues, interest rates, JCI, VECM

Implementation of Business Continuity Management at Bank Mandiri

Arief Budiman, Rizki Pratama, Retnodi

Bank Mandiri
Corresponding author's email address: arief.budiman_sap@bankmandiri.co.id

Abstract

Along with the increasing trend of natural disasters and the COVID-19 pandemic conditions, it is necessary to handle and manage disruptive conditions such as natural disasters. In some companies, it has been anticipated through a business continuity management (BCM) system. The existence of BCM in the company becomes a tool to be able to control and evaluate so that the company can continue to run normally in the midst of disruption. The Bank is also supervised by the Bank Indonesia Regulator (BI) and the Financial Services Authority (OJK) to have strategic procedures for operational sustainability and IT sustainability. The current COVID-19 pandemic is certainly a disruption that has a significant impact on every company. However, companies that already have BCM will certainly find it easier to deal with these disturbances because they already have a clear methodology in responding by implementing certain policies during disruptions. This is also a tip for Bank Mandiri to deal with the COVID-19 pandemic.

Keywords: Business continuity management, continuity, COVID-19

Social Science
Perspectives in Disaster

Development and Impact of Intercultural Training in Disaster Aiding Non-Profit Organizations

Ethel N. Ilias, Wei-Wen Vera Chang

Graduate Institute of International Human Resource Development
National Taiwan Normal University, Taiwan
Corresponding author's email address: 60986027i@gapps.ntnu.edu.tw

Abstract

From community development to post-disaster recovery, non-profit organizations play an important role in the management of disaster reduction around the world. They are the body that connects all stakeholders to address these issues and create short-term and long-term recovery plans that build disaster resilience.

Nowadays we have observed multiple international disasters happening simultaneously around the world. The process for disaster risk reduction involves intervention and collaboration supported by different social actors from multiple cultures, and such a process requires NPO employees to have intercultural competences. For example, during COVID-19 pandemic, many countries and organizations have been working together to reduce the negative impact and to mitigate its risk. Therefore, developing NPO employees' abilities to work under an intercultural environment is crucial. However, there are limited studies that examine the effects of proper training for employees working in an international environment at the NPO sector, and its development process/plan to provide a successful intercultural service.

The aim of this research is to examine how NPOs develop their employee's intercultural competences through different strategies, programs and trainings that impact directly in the mitigation and response of disaster reduction. In this research we are interviewing NPO workers with different job functions who provide a service to intercultural groups. The aim of this research is to systematically examine the strategies and trainings that international organizations involved in disaster recovery projects create to develop intercultural awareness among its workers. Through this qualitative research, we identify the challenges, benefits, and training practices for intercultural competence development and understand their impact on the outcome of minimizing disaster risks. Implications are provided for NPO leaders and professional workers.

This research will contribute to the future research by improving disaster management and prevention process at NPOs through better training and performance methods for intercultural competences.

Keywords: Disaster recovery, non-profit organizations, intercultural competence

Statistical and Modelling Tools for Disaster Management

Assessing Residential Vulnerability to Fire Incident using Spatial Multi-Criteria Analysis Approach In East Jakarta, Indonesia

Wahyu Ika Nur Fitriyani[1], Nurul Sri Rahatiningtyas[1,3*], Jarot Mulyo Semedi[1,3], Fatma Lestari[2,3]

[1]Department of Geography, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, Indonesia
[2]Department of Occupational Health & Safety, Faculty of Public Health, Universitas Indonesia, Indonesia
[3]Disaster Risk Reduction Center, Universitas Indonesia, Indonesia
Corresponding author's email address: nurul.sr@ui.ac.id

Abstract

The population growth in metropolitan cities like Jakarta triggers the demand for residential space. The increase in the need for housing will encourage the development of densely populated areas which are directly proportional to the intensity of human activities that produce fire sources. The typology of the house will affect the speed of fire propagation which is adjusted to the construction of the building on the land unit. Urban fire is one of the urban disasters that causes physical, material and loss of life. DKI. Jakarta's Statistics Agency for 2020, detailing the most densely populated area in Jakarta Province is the administrative city of East Jakarta with a population of 3.037.139 people or 28.76% of the total Jakarta's population. In 2020, the East Jakarta Administrative City had a frequency of 349 fire incidents. The purpose of this study was to analyze the level of vulnerability to residential fires and identify the typology of housing at the location of settlement fires. The data analysis method used is the Spatial Multi Criteria Analysis (SMCA) technique through standardization of physical, social, and economic vulnerability to residential fire disasters. This research is expected to provide information about the level of vulnerability and typological characteristics of houses to the dangers of residential fires. Therefore, the results of the research become recommendations for the government and the community in dealing with residential fire disasters.

Keywords: Urban Fire, SMCA, housing typology, vulnerability

Analysis of Land Carrying Capacity for Settlements and Protection Function in Small Islands: A Case Study of Pahawang Island, Lampung, Indonesia

Sahla Syalsabilla, Wiwin Windupranata

Institut Teknologi Bandung, Indonesia
Corresponding author's email address: salsabilasahla@gmail.com

Abstract

Small islands in Indonesia are generally used for conservation areas, tourist destinations, and settlements. Due to their relatively small size, the availability of natural resources and environmental services are more limited than the big island. These problems drive the need to determine the environmental carrying capacity of a small island so that existing resources can be used sustainably without disturbing the environment. Pahawang Island is one of the small islands in Marga Punduh Subdistrict, Pesawaran District, Lampung Province. This study aims to analyze the carrying capacity of residential land and the protection function of Pahawang Island. The method of calculating the carrying capacity of land for settlements and protection functions is carried out based on the function and purpose of land (spatial approach). The results show that the status of the settlement carrying capacity of Pahawang Island is very high with a DDPm value of 25.904, meaning that it is still able to accommodate population of 25.904 times the population in 2021 (40.980 people) assuming the area suitable for settlement is constant. Meanwhile, the carrying capacity of the protected function is in the good category with the value of DDL is 0.654. This also shows that the Pahawang Island area is in a good condition to preserve the environment. Recommendations that can be given for land management on Pahawang Island are: 1) the establishment of area suitable for settlement and 2) protection of the function of the protected area.

Keywords: Carrying capacity of land, settlements, protection function, Pahawang Island

Characteristics and Projection of Tourism Comfort Levels in Banyuwangi District, Indonesia

Hidayat, N.M.[1], Ramadhan, G. R.[2],

[1,2]Indonesian Agency for Meteorology Climatology and Geophysics (BMKG), Jakarta, Indonesia
nmanarul@gmail.com[1]

Abstract

Tourism development is the flagship of Banyuwangi District due to its the beautiful natural panorama of the Sun Rise of Java area. This analysis links the characteristics to the projection of the comfort level of the climate with several climate index calculations. The calculation method used was the Tourism Climate Index (TCI), the Holiday Climate Index (HCI), and the Tourism Climate Comfort Index (TCCI). The climatic parameters used were air temperature, maximum temperature, minimum temperature, rainfall, wind speed, relative humidity, length of sun exposure, and cloud cover, which were obtained from the Banyuwangi Class III Meteorological Station, Malang Climatology Station, ECMWF, CHIRPS and CDS Copernicus. The results show that when during period of 2007 – 2014, the level of tourist comfort affects 8-29% on the increase in the number of tourist visits in Banyuwangi District. During the period 1991 - 2014, the results showed a year-round Comfort index using the TCI and HCI indexes with a peak of Very Comfortable in July to August and a minimum value in January in the Comfort category. Specifically for the TCCI index, Uncomfortable results were seen throughout the year except for the maximum value in August to September with the Comfortable category. In projection for period of 2056 - 2080, it is predicted that the Comfortable index will be throughout the year using the TCI and HCI indexes with the peak of Very Comfortable in July and August using the TCI index and July with using the HCI index while the minimum value was seen in January with Comfortable category. The TCCI index specifically, presents Uncomfortable results throughout the year except during the maximum value in November with Comfortable to Very Comfortable results.

Keywords: Climate, tourism, index

Community Empowerment for DRR

Defining the Communities-based Information Board on Tsunami Hazard in Panggarangan Village, Lebak District, Banten Province, Indonesia

Anggi F. Saputra[1,*], Endra Gunawan[2], Nuraini R. Hanifa[3,4], Wiwin Windupranata[5]

[1]Geophysical Engineering, Institut Teknologi Bandung, Indonesia
[2]Global Geophysics Research Group, Faculty of Mining and Petroleum Engineering, Institut Teknologi Bandung, Indonesia
[3]Research Center for Geotechnology, Indonesian Institute of Sciences, Indonesia
[4]UInspire, Indonesia
[5]Hydrography Research Group, Faculty of Earth Science and Technology, Institut Teknologi Bandung, Indonesia
Corresponding author's email address: sanggiferdian03@gmail.com

Abstract

Subduction zone in the south of Java prone to future megathrust earthquakes which potentially generate tsunami. One of the megathrust earthquake scenarios with Mw 8.9 in the western Java could generate a tsunami with a maximum height of 20 m and an average height of 4.5 m along the south coast of Java. This study highlights an activity of strengthening the communities Panggarangan village, Lebak district, Banten Province, Indonesia, to achieve an acknowledgment as UNESCO IOC Tsunami Ready region. We conduct discussion and field survey in Pangggarangan village to obtain a communities-based information board on tsunami hazard in this region. The communities-based information board on tsunami hazard contains comprehensive information, such as tsunami hazard evacuation map, evacuation route, title, the history of the earthquake in Lebak, an explanation of the tsunami, self-evacuation, tsunami response, 3-step tsunami response, an explanation of signs, applications that can help residents to be able to monitor earthquake and tsunami events, and the logo of the agencies that helped in this tsunami ready activity.

Keywords: Tsunami, UNESCO IOC Tsunami Ready, Tsunami Hazard Information Board, contain. Panggarangan village.

Meta-ID: 533

Identification and Mapping of Tsunami Evacuation Route in Panggarangan Village, Lebak district, Banten Province, Indonesia

Muhammad Iqbal Khatami[1,*], Endra Gunawan[2], Nuraini Rahma Hanifa[3,4], Wiwin Windupranata[5]

[1]Geophysical Engineering, Institut Teknologi Bandung, Indonesia
[2]Global Geophysics Research Group, Faculty of Mining and Petroleum Engineering, Institut Teknologi Bandung, Indonesia
[3]Research Center for Geotechnology, Indonesian Institute of Sciences, Indonesia
[4]UInspire, Indonesia
[5]Hydrography Research Group, Faculty of Earth Science and Technology, Institut Teknologi Bandung, Indonesia
Corresponding author's email address: work.khatami@gmail.com

Abstract

Potential tsunami disaster caused by megathrust threatens Panggarangan Village, Lebak, Banten. Therefore, it is necessary to improve community preparedness, one of which is by fulfilling the UNESCO-IOC Tsunami Ready indicator. This activity aims to fulfill the UNESO-IOC Tsunami Ready program on the making of an easy-to-understand tsunami evacuation route map. A drawing evacuation map was discussed and prepared with local community during the workshop. To confirm the actual condition of the map, a field survey is carried out with the goal is to identify, track, and geotag the evacuation routes and evacuation sites. The location of public and economic facilities was also mapped as well as several suggestions regarding the placement of evacuation signs, additional evacuation sites, and road repairs. The collected data from field survey is then processed into GIS and Google MyMaps to result a tsunami evacuation route map. The map will later be placed on the information board in Panggarangan Village. This study highlight a community preparedness on tsunami threat through identification and mapping of tsunami evacuation route in Panggarangan village.

Keywords: Tsunami, evacuation route, GIS, Panggarangan village

Descriptions of Basic Needs Fulfillment of People Affected by Disaster in Banyubiru Village, Labuan District, Pandeglang Regency, Banten

Kemala Asri Hediati[1], Tuti Nuraini[2,*], Dewi Gayatri[2]

[2]Basic Nursing Department, Faculty of Nursing, Universitas Indonesia, Indonesia
Corresponding author's email address: tutinfik@ui.ac.id

Abstract

Assessment of the basic needs of people affected by disasters is important for the government since it will enable the government to provide solutions which are appropriate to the needs and conditions in the community. This study aims to determine the fulfillment level of the basic needs of people affected by disaster in Banyubiru Village based on biological, psychological, sociocultural, and spiritual aspects. The design of this research is descriptive analysis. The study was conducted with 80 respondents who were selected using simple random sampling technique in Banyubiru Village. The instrument used was a respondent characteristic and the level of fulfillment of basic needs questionnaire with a validity test value of 0.126-0.521 and a Cronbach alpha of 0.683. The results of this study indicate that the data distribution was not normal, so that the median value was used as a cut-off point with the results of the community's basic needs fulfilled reached 52.5% or more than half of the community. It is expected that the findings of this study will inform the government as to pay more attention of the affected community's needs according to their characteristics and get the community to participate in post-disaster rehabilitation.

Keywords: Basic needs, community, disaster
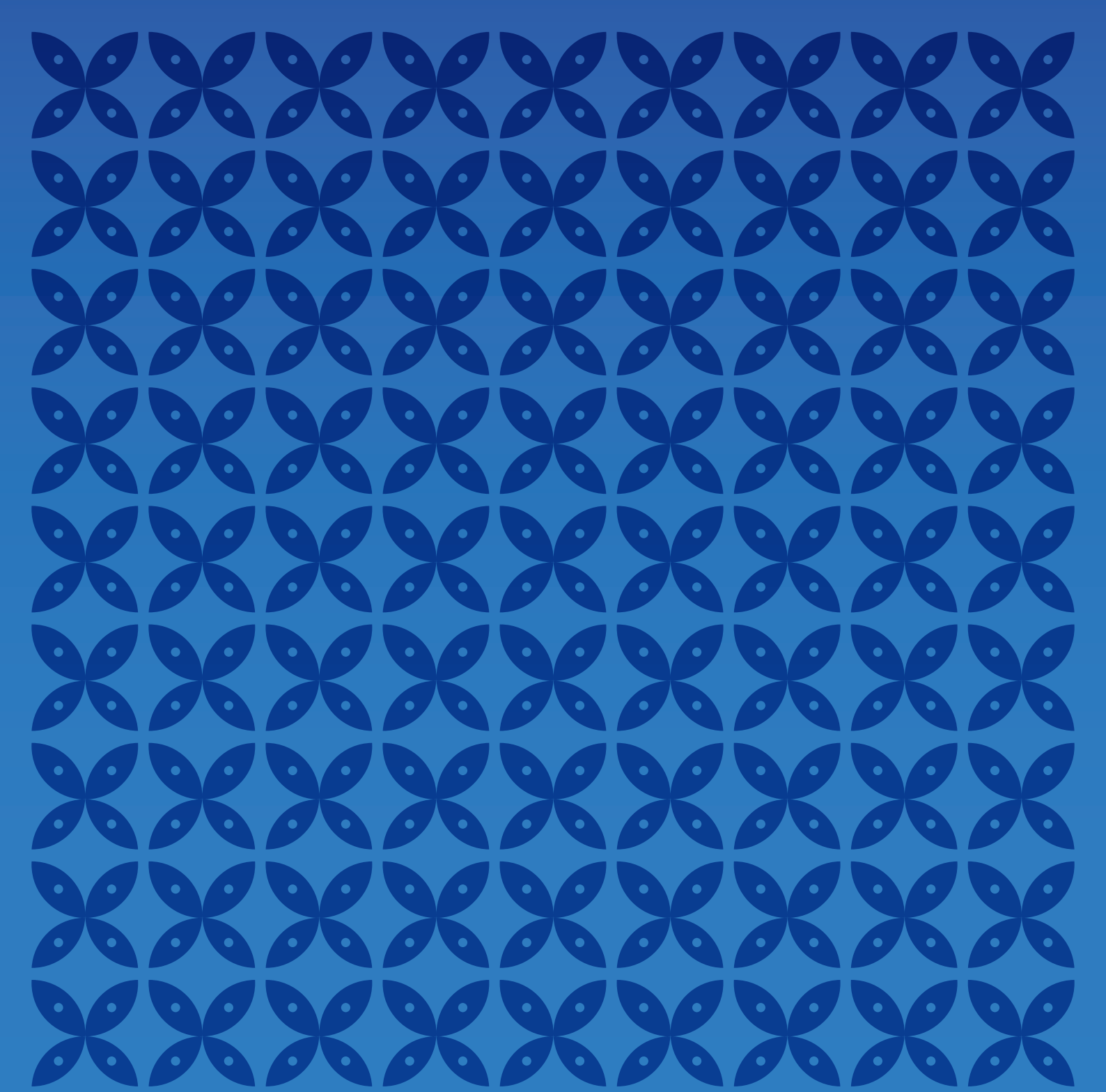
Media and
Communication

Smartphone Application During Medical Response in Disaster (ATP-SB-MEDIS)–Usage Test

Boy Subirosa Sabarguna, Tommy Abuzairi

Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: sabarguna08@ui.ac.id

Abstract

Medical Information System during a Disaster on a Smartphone is an information system that supports medical response during a disaster, even in a small scale such as in the Primary Care environment. TP-SB-MEDIS is one of the Medical Information Systems to be used in DIsaster. This study has the objectives of running ATP-SB-MEDIS, which is a medical information system during disaster, in real condition and develop the guideline for widespread application of the system. It is also expected that the institutions adopting this system will require this application in every situation during disaster management. **This application is an innovative product in the form of** a smartphone application created since 2011. It has several versions, including the desktop, CD on line or local host, and smartphone application. The smartphone application will be made separated with a new copyright. **A s**urvey on10 primary care emergency officers was performed using open and closed ended questions in a questionnaire and case studies for application use. This activity involved the Emergency Response Team from DKI Jakarta Provincial Health Office. Results of the usage test for medical response in disaster were as follows: poor, 0%; inadequate, 21.98%; good, 71.43%; excellent, 6.59%. Thus,78.13% considered this application good and excellent. In terms of materials of the smartphone applications, the results were: poor, 1.73%; inadequate, 19.38%; good, 75.43%; and excellent, 3.46% special. Thus, 78.89 considered the materials good and excellent. In conclusion, this application is usable and can be disseminated; however, it is necessary to provide feedback and include a better classification of disaster (earthquakes, fires).

Keywords: Application, smartphone, disaster, medical, usage

Smartphone Application for Medical Response During Disaster (ATP-SB-MEDIS)–Programmer Test

Boy Subirosa Sabarguna, Aria Kekalih

Faculty of Medicine Universitas Indonesia
sabarguna08@ui.ac.id

Abstract

Relevant information related to disasters and medical treatment is needed to provide fast and better services, so the existence of a Medical Information System during a disaster on a smartphone is needed. The ATP-SB-MEDIS is one of the Medical Information Systems to be used in DIsaster. This study has the objectives of running ATP-SB-MEDIS in real condition and develop the guideline for widespread application of the system. It is also expected that the institutions adopting this system will require this application in every situation during disaster management. **This application is an innovative product in the form of** a smartphone application created since 2011. It has several versions, including the desktop, CD on line or local host, and smartphone application. The smartphone application will be made separated with a new copyright. There are several potential markets for this application including BNPB (National Disaster Management Agency), Provincial BPBD (Provincial Disaster Management Agency), District/City BPBD (District/City Disaster Management Agency) and Training centers, which give a total of around 1,500 units. The user test for this application involved a survey on 10 programmers who were not involved in the development of the application. These programmers were asked to answer open and closed ended questions in a questionnaire and used the application during a 12-month period of April 2019 to March 2020. The results on the general description of the smartphone application were as follows: poor, 0%; inadequate, 0%; good, 86%; and excellent, 12% excellent. Meanwhile, for the smartphone application, the results were: poor, 0%; inadequate, 2%; good, 90%; and excellent 8%. Thus, 98% of the respondents consider the application good, both in general and in terms of materials. It is recommended that a user guide should be provided online and also prepared for remote areas. .

Keywords: Application, smartphone, disaster, medical, programmer

Telenursing Application in Improving the Quality of Home Care Nursing Services During the Covid-19 Pandemic: Literature Review

Mira Asmirajanti[1*], Royani[2]

[1]Nursing Programe, Faculty of Health Sciences, Esa Unggul University, Indonesia
[2]Student of Nursing Programe, Faculty of Health Sciences, Esa Unggul University, Indonesia
Corresponding author's email address: miraasmirajanti@esaunggul.ac.id

Abstract

Telenursing is a type of nursing service as a result of the development of health technology and Home care services using communication media as a follow-up care so that health services are comprehensive and sustainable. The application of telenursing is expected to improve service quality. This study aims to identify the application of telenursing in improving the quality of home care nursing services during the COVID-19 pandemic. This research was conducted in a literature review on 40 articles using database search between 2015 and 2020. The studies used in this article consist of literature review, quasi-experimental, and development research and cross-sectional surveys. **Results:** The application of telenursing can improve the quality of home nursing services from the aspects of physical evidence, reliability, responsiveness, assurance, and empathy. Telenursing services are used for monitoring, consultation, education and assessment. Monitoring is carried out to monitor the compliance of pulmonary TB clients in drug consumption, children's activities at home, the implementation of client self-care while at home and the client's health status. The consultation consists of the patient's activities, factors that can increase postoperative complications and emergency conditions. Education related to patient care. The assessment was conducted to determine the complaints felt by the patient. Telenursing services can be an alternative service if the number of health workers is less. Telenursing services can be used for patients with degenerative disorders who require a long treatment because services can be done without conditions and can reduce costs. Nurses, patients and families can be relied upon by using cellphones, whether voice or video calls. They can be accepted and applied conveniently over long distances. In conclusion, telenursing is quite effective in home care nursing services. Clients can efficient in the cost and time of travel to health services.

Keywords: Telenursing, nursing home care, quality of service
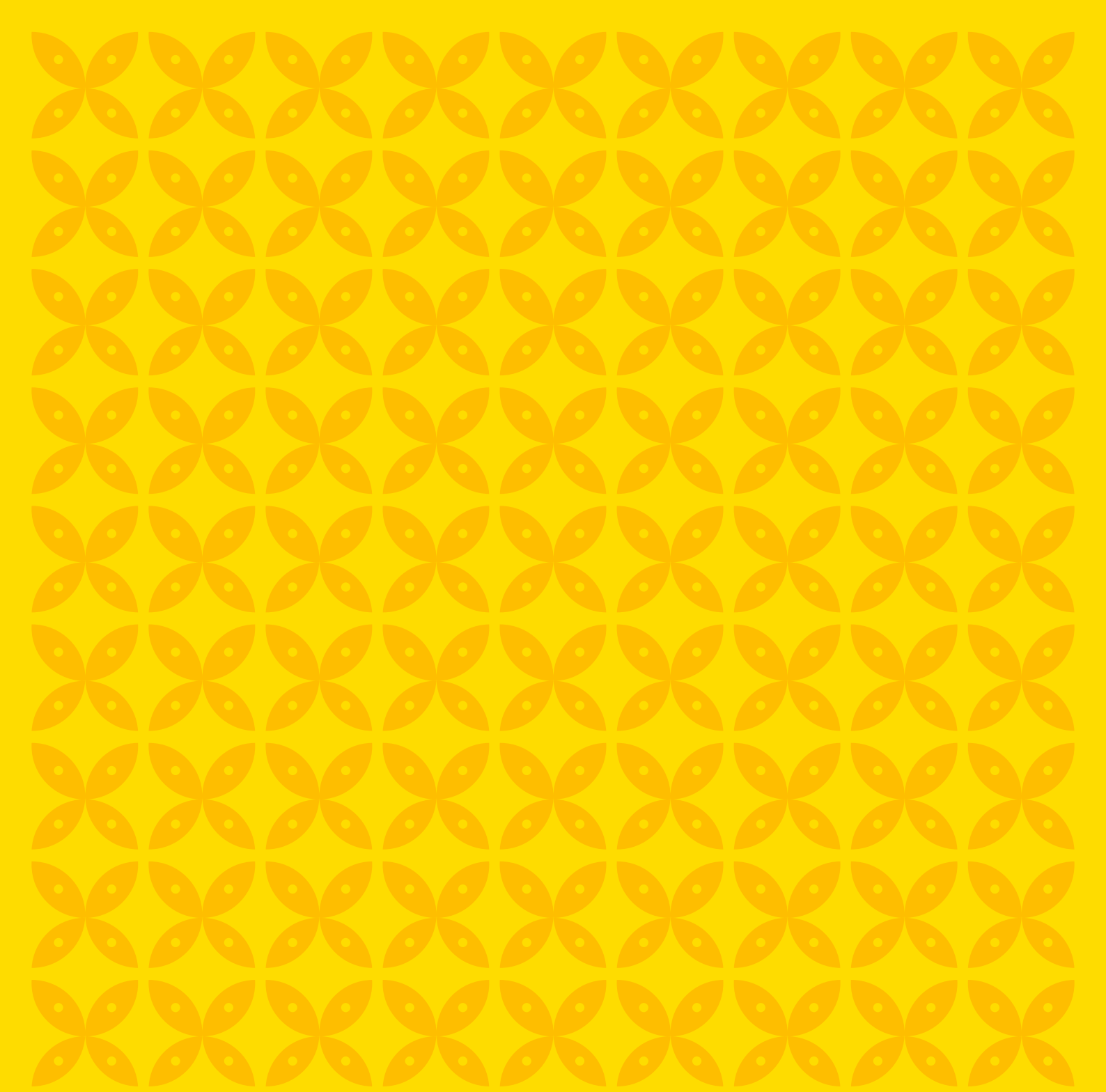
ABSTRACTS SUBMITTED TO THE SYMPOSIUM

ABSTRACT OF ORAL PRESENTATIONS

Engineering and Infrastructures in Disaster

Physical Building Vulnerability towards Potential Eruption of Kelud Volcano

Yan Abdi Rahmanu[1*], Danang Sri Hadmoko[1], Djaka Marwasta[1]

[1] Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Indonesia
[*]Corresponding author's email address : yanabdir@gmail.com

Abstract

Kelud Volcano has explosive eruptions by removing rock material, sand and volcanic ash reaching 200 million m^3 in 2014 with the scale of the Volcanic Eruption Index (VEI) 4. Puncu Village located in Disaster Prone Areas (DPA) I and II suffered damage up to 2,195 buildings. The purpose of this study is: (1) Identify building characteristics that influence the physical vulnerability of buildings in Puncu Village and (2) Analyze the level of physical vulnerability of buildings in Puncu Village. The study was conducted by interview method, literature study, field identification and conducting vulnerability modeling in ILWIS 3.3 software through Spatial Multi Criteria Evaluation (SMCE). The variables used are the slope of the roof, roofing material, roof truss, building type, age of the building, orientation of the building and the distance of the building from the center of the eruption. The sample of the building used is consisting of 416 buildings with various types of buildings. The results showed that the dominant building characteristics are roof slope 6^0-35^0 (61.5%), tile and asbestos roof material (50.2%), wooden roof truss (92.3%), permanent building type (88.5%), building age 0-20 years (46.9%), the orientation of the building is 22.5^0-67.5^0 (63%) and the distance from the eruption center is 6-10 km (100%). The level of physical vulnerability of buildings in Puncu Village consists of very low class (0.7%), low (4.6%), medium (40.1%), high (52.6%) and very high (1.9%).

Keywords: Buildings, Puncu Village, physical vulnerability, SMCE, Kelud Volcano

Transmission Characteristics of the Acquisited WSN-Gateway Data of Krakatau Observatory Network

Muhamad Abdul Nasir Nasution, Melvi, Mona Arif Muda Batubara, Aris Susilo, Perdana Anugerah Agung, Nora Aditiyan, Ardian Ulvan[*]

Department of Electrical Engineering, Universitas Lampung, Indonesia
Corresponding author's email address: ardian.ulvan@eng.unila.ac.id

Abstract

The observatory network of Gunung Anak Krakatau consists of several sensor networks to observe the activity of the volcano and the surrounding environment. Each sensor network seizes specific data that related the the disaster, then transmit the data continuously on wireless mode to a wireless sensor network WSN gateway (WSN-G) before forwarded to the database center at the internet cloud. We have implemented and tested the WSN-G which is based on LoRaWAN. The study focused on the performance of the WSN-G when three different WSNs transmitted the acquired data from their sensors by using the Intenet Protocol (IP). The tests were carried out in three stages by sending the data to the WSN-G from one WSN, then two WSNs, and then three WSNs simultaneously. Several gateway parameters i.e., delay, jitter, throughput, and packet loss were concerned as the Quality of Services (QoS) of the WSN-G. The TIPHON standard of the WSN-G's QoS has been used as the benchmarking. All transmitted data on the system were analyzed before characterized. The test results showed that data transmission was successfully carried out from the WSN on site to the WSN-G, then the WSN-G forwarded the data to the TTN server, at the internet cloud. All stored data in the TTN Server were also successfully redirected to the localhost. In addition, the measured QoS are 1,735 ms, 2,614 ms, 53,399 Bytes/second, and 6,563% for delay, jitter, throughput, and packet loss respectively. All those QoS value does not meet the TIPHON standard due to the absent of telecommunication specifications on LoRaWAN manufacturing.

Keywords: LoRa, LoRaWAN, wireless sensor network, Quality of Service, Krakatau, T-EWS

Performance based Fire Protection of the Large Volume with Atrium of Market Building: A Case Study of the New Design of Pasar Atas Bukit Tinggi, Indonesia

Wahyu Sujatmiko[1], Yulia Rahmawati[2], Ramadan Pratama Gumilar[2]

[1]Directorate of Settlement and Housing, DG Cipta Karya, Ministry of Public Works, Indonesia
[2]Sub-DG Building Construction Reliability, Directorate of Settlement and Housing, DG CIpta Karya, Ministry of Public Works, Indonesia
Corresponding author's email address: wsujatmiko@pu.go.id

Abstract

Traditional market buildings must meet the building's functional feasibility, market qualification standards, and green building concept. Currently, traditional market buildings are becoming increasingly popular with many new buildings which are designed as large-volume mall buildings equipped with atriums. This condition certainly requires attention related to fire safety. This paper presents a case study of performance-based safety planning for the atrium market, with the example of the Pasar Atas Bukit Tinggi case. The method used is modeling and simulation of the existing plan drawings, with a number of fire modeling scenarios being carried out, to simulate ASET (hazard growth time) using Pyrosim software and RSET (time required for rescue evacuation) with Pathfinder software. Then the analysis and recommendation of the required protection system are carried out based on the simulation results. The results of the study show that one of the challenges is related to atrial management. It is hoped that the results of this study can serve as an example of an effort to plan market buildings that meet standards, are functional, and support green buildings that comply with fire safety.

Keywords: Fire protection, traditional market, atrium design

Pandemics and Public Health Issues

Pandemic and Public Health Issues: Compulsory License as A Tool to Access Lifesaving Medicines with Special Reference to Selected Developing Countries in Asia

Muthukuda Arachchige Dona Shiroma Jeeva Shirajanie Niriella

Professor, Department of Public and International Law
Faculty of Law, University of Colombo, Sri Lanka
Corresponding author's email address: jeevaniriell@gmail.com, jeeva@law.cmb.ac.lk

Abstract

Large pharmaceutical industries have historically supported strong patent rights. They opposed anyone temporarily retracting them, even to save people's lives in pandemics. Unlike normal situations pandemics forces this industry to reconsider their rigid position. Also, the pandemics impetus the countries to revisit their views and laws especially in situations where there is high demand for medicine to save the lives. Compulsory license of pharmaceutical products in the Trade Related aspects of Intellectual Property Rights (TRIPs) Agreement attempts to balance the interest of patent holders and the right to health of general publics. The access of medicines in developing countries for the epidemic diseases, medicine is crucial to protect the right to health. The European Union, Canada and Israel have issued new policies and passed legislations facilitating their ability to provide drugs to their citizens for the duration of the pandemic utilizing compulsory licensing. However, developing countries still struggling to get the required medicine for their citizens. The objective of the paper is to analyze comprehensively the legal implication of compulsory license for the pharmaceutical product to the protection of the right to health in developing countries. It is a normative juridical study by applying conceptual and comparative approaches. The paper attempts to engage in the implementation of compulsory license in accordance with the international human right law and legal implication of the compulsory license causes the adoption of policy and regulations regarding the protection of the right to health in developing countries, such as Sri Lanka India and a few other Asian countries.

Keywords: Compulsory license, pharmaceutical products, legal inference and right to health

Dr. Djasamen Saragih Hospital Pematang Siantar
Preparedness for Disasters and Covid-19 Pandemic in 2020

Indah selviana[1], Herlina J. EL- Matury[2]*

[1,2]Deli Husada Health Institute, Indonesia
*Corresponding author's email address e-mail:herlinajelmatury.hjem@gmail.com

Abstract

Indonesia is one of the countries that is prone to disaster events, this is indicated by several disaster events based on BNPB noting that there were 1,205 disasters that occurred such as floods, hurricanes, forest/land fires, earthquakes, tidal waves/abrasion, drought, and landslides during January to May 2021 by causing damage to houses, damage to public facilities, educational facilities, worship facilities, and damage to health services. North Sumatra experienced 372 disaster events based on the BNPB of North Sumatra from January to May 2021, disaster events that occurred included floods, cyclones, landslides, earthquakes, tidal waves and land fires. The purpose of this study was to determine the hospital's preparedness for disasters and the COVID-19 pandemic at dr. Djasamen Saragih Hospital Pematang Siantar in 2020. This research used a mixed method, which is a research method by combining two forms of approaches in research, namely qualitative and quantitative. The assessment uses the WHO Hospital Safety Index and the WHO Checklist for COVID-19. The results indicate the source of danger at the location of RSUD dr. Djasamen Saragih, among others, with a structural safety score of 0.56, a non-structural safety score of 0.61, a functional safety score of 0.36, a safety index at RSUD dr. Djasamen saragih is 0.53 which means it is included in classification B which means that RSUD dr. Djasamen Saragih is still at risk in the event of a disaster. RSUD dr. Djasamen Saragih is expected to make improvements to parts that get low and medium scores as well as regular training to be ready to face the COVID-19 disaster and pandemic.

Keywords: Preparedness, disaster, hospital, COVID-19 pandemic

Lesson Learned from Local Wisdom Approach and Public Health Measures in Flattening COVID-19 curves in Lampung, Indonesia

Hayati Sari Hasibuan[1], Fatma Lestari[2]

[1]School of Environmental Science, Universitas Indonesia, Indonesia
[2]Occupational Health & Safety Department, Faculty of Public Health, Universitas Indonesia, Indonesia
Corresponding author's email address:hayati.hasibuan@ui.ac.id

Abstract

Pandemic COVID-19 pandemic has given a tremendous lessons learned for the public health and public policy. A combination between disaster management and Public health Measures as well as local wisdom approach has need to be implemented as a new strategies to cope with this new pandemic and very challenging situation. Lampung has been known has a wide variety and diverse cultural and Local Wisdom in their Society. This paper explores a combination strategies between disaster management, Public health measures and Local wisdom in shaping the COVID-19 curves, The Methodology used in this study includes Document review, in-depth interview and Focus Group Discussion. Data were then analysed using thematic and content Analysis. Results suggested that disaster management, Public health approach are best implemented with a combination of cultural best practices and local wisdoms in shaping and flattening curve of COVID-19. Several challenges, gaps and lessons learned have been identified and future recommendations can be developed based on these findings.

Keywords: Local wisdom, public health measures, COVID-19, curve

Neutrophyl Lymphocyte Ratios (NLR) of COVID-19 Suspects with Nonreactive Rapid Test Antibody Result

Dewi Anggraeni, Dr. Luthfiralda Sjahfirdi, M.Biomed.,

Dr. Trevino Aristarkus Pakasi, FS, MS, PhD, Sp.KKLP, FISPH, FISCM

Universitas Indonesia, Indonesia

Abstract

This study potrays of Neutrophil Lymphocyte Ratio (NLR) on COVID-19 suspect patients with nonreactive result of Rapid Antibody Test. The aim of the study is to evaluate the NLR ratio in order to identificate role of NLR on suspect populations with nonreactive result of Rapid Antibody Test. This study is using medical record data from student and employees who stayed at Asrama UI. As much as 70 blood samples were collected and proceeded to do the Rapid Antibody Test dan complete blood count to determine NLR. All samples showed nonreactive results to Rapid Antibody Test. The complete blood count showed that the NLR of the objects (2,00 ± 0,82) were not rise up, contrary to COVID-19 patients. This result also showed that nonreactive results could be interpreted as true nonreactive. To be concluded, NLR was potential as a supporting data to complete and describe the nonreactive result of Rapid Antibody Test.

Keywords: COVID-19, Neutrophil Lymphocyte Ratio (NLR), rapid antibody test

Review and Future Adjustment for Integrated Health-Emergencies and Disaster Response in Indonesia: Learning from COVID-19

Mizan Bustanul Fuady Bisri[1,2], Devina Khoirunnisa[2], Yos Malole[2], Dewa Putu AM[2], Ainur Ridho[2], Dinda Safira[2]

[1] Kobe University, Japan
[2] CARI! Cerdas Antisipasi Risiko Indonesia, Indonesia
Corresponding author's email address: mbisri@people.kobe-u.ac.jp

Abstract

Despite the limitation of people movement during the COVID-19 pandemic, disasters are still threatening communities globally. In Indonesia, several major disasters including floods, tropical cyclone, and earthquake had happened amidst the background of the COVID-19 pandemic. These disasters, interacting with the weaked healthcare and economic capacity due to the pandemic, results in increased disaster risk up to a yet unknown level. Amplified by the impacts of climate change, communities in Indonesia are under higher future risk against combined seismic, climate-related, and biological hazards. However, current response in Indonesia has a long way towards integrated and multi-hazard approach. This paper will explore what has been studied in Indonesia on the multiplexity of the disaster threat during the COVID-19 pandemic. We conducted a systematic literature review on 31 original research papers on the interactions of the COVID-19 pandemic on natural disasters in Indonesia. The aim throughout is to define what are the key loopholes and forward steps for an integrated health-emergencies and disaster response in Indonesia. The paper is also taking insights from the ongoing process of the Indonesian National Standard drafting for Epidemic Disaster Management System (RSNI/ Indonesian ISO).

Keywords: Health emergency, COVID-19, disaster response, system

Analysis of Public Sentiment on Twitter for Tourist Destinations in Indonesia at The First Year of COVID-19: A Case Study of 6 Tourist Destinations in Indonesia

Ahmad Afif Adrinanta, Yuliagnis Trasver Wijaya

Statistics Polytechnic, STIS, Indonesia
Corresponding author's email address: 221709505@stis.ac.id, yuliagnis@stis.ac.id

Abstract

Tourism is an important thing of the Indonesian economy. There are so many tourist destinations in Indonesia that are very beautiful that can attract tourists from various origins, both from the domestic and from foreign countries. However, in 2020 the tourism sector weakened due to the COVID-19 pandemic. So it is necessary to do research to find out how the impact of COVID-19 on tourist destinations in Indonesia. This study uses a sentiment analysis method and uses a polarity score in assessing its impact. The data for this study were collected from twitter. From the results of data collection, tweets with neutral sentiment still dominate the overall tweet with a percentage of 53%, 37% for tweets with positive sentiment, and only 10% tweets with negative sentiment. The results of this study demonstrated that COVID-19 has a negative impact in the first 3 months in Indonesia, but over time the average polarity score moves in a positive direction so that the negative impact of Covid-19 is getting less and less.

Keywords: Sentiment analysis, COVID-19, travel destinations, tourism

Analysis of the Impact of COVID 19 on Maternal and Child Health Services and Family Planning at Manokwari Health Office, West Papua Province

Chreisye K. F. Mandagi

Faculty of Public Health, Sam Ratulangi University, Indonesia
Corresponding author's email address : chreisyemandagi@gmail.com

Abstract
The Covid-19 pandemic has greatly affected various health services in Manokwari Regency, especially in MCH and family planning services. There was a decrease in antenatal visits and deliveries by health workers in March - November 2020 and percentage of antenatal care visits (K1,K4) also decreased, where K1 only reached 50.9% and K4 only reached 30.9%. In addition, the examination of anemia in pregnant women has not reached 80%. The purpose of the study is to provide an overview of the impact of COVID-19 and the policy efforts made by the government on the Maternal and Child Health service program in Manokwari Regency. The research method used is a mixed method. The writing was compiled after conducting a study of quantitative and qualitative data where the data were taken from the e-monev dashboard and then coordinated with the Manokwari District Health Office. The analysis was carried out after all the data had been collected. The results of the study were that in addition to a decrease in services for pregnant women and children, there was also an increase in cases of health workers who were exposed and confirmed positive in several health centers and hospitals, so that health services were disrupted. Therefore, a notification of the closure of health services was issued.

Keywords: MCH, family planning, health services, pandemic

Support for Mental Health during COVID-19: Development of Family-Based Mental Health Digital Application in Depok City, Indonesia

Dini Rahma Bintari[1], Betty Purwandari[2], Dr. Inayati[3], Fajar Tri Waluyanti[4]

[1]Psychology, Universitas Indonesia, Indonesia
[2]Computer Science, Universitas Indonesia, Indonesia
[3]Administrative Science, Universitas Indonesia, Indonesia
[4]Nursing Science, Universitas Indonesia, Indonesia
Corresponding author's email address: dini.rahma@ui.ac.id

Abstract

The COVID-19 outbreak and physical distancing have made people realize the need for digital services that are easily accessible to the public, especially in the health sector. Mental health has a great influence in the healing process from a physical illness. Working conditions and schooling from home make people also experience new mental health problems. Therefore, optimizing the role of families in maintaining mental health by using mental health digital service applications is important. The government of Depok, as the city that was first identified as having patients affected by the outbreak, needs to seriously consider making this service immediately and to anticipate similar problems in the future. Research on community needs and appropriate digital application models need to be carried out as the basis for making policies regarding digital services in the health sector in Depok. This research went through three phases of data gathering. First was a need assessment survey about mental health literacy and for the using of mental health application to Depok residents and stake holders. Second, semi structured interview on what kind of digital application needed, were conducted to future user of the application, which are citizen, psychologists as provider of mental health service, and the government of Depok that will use the data. Third, try out of the pilot model of the digital application were conducted to users, with follow-up interviews. The research resulted in a tested pilot model digital application that can be used and developed into application by Depok government. The novelty of this digital application is family involvement. From preventive side, this application can share Psychological First Aid guidance to help family member with mental help problems. From curative side, this application will provide family counseling services such as child counseling, elderly counseling, family therapy and etc.

Keywords: Depok, mental health, development of digital application, family.

Factors Related to the Incidence of Diarrhea in Students at SDN 01 Karangkamulyan, Cihara District, Lebak District, Banten Province in 2020

Ilham Ibrahim[1], Ratu Ayu Dewi Sartika[1], Tria Astika Endah Permatasari[2], Triyanti[1]

[1]Nutrition, Universitas Indonesia, Indonesia
[2]Nutrition, Universitas Muhammadiyah Jakarta, Indonesia
Corresponding author's email address: Ilhamibrahim1899@gmail.com, Ratuayu.fkm.ui@gmail.com, tria.astika@umj.ac.id, triyantigizi@gmail.com

Abstract

Diarrhea is an endemic disease that has the potential to create extraordinary events (KLB) in a country, including Indonesia. In the Lebak district, the highest cases of diarrhea were found in Banten Province, with the highest number in the school-age group. This study aims to determine the relationship between the incidence of diarrhea on child characteristics, child behavior characteristics, mother/family characteristics, and environmental characteristics. This study uses secondary data with a cross-sectional design with a total sample of 151 elementary school children. The dependent variable is the incidence of diarrhea and the independent variables are the frequency of snacking, the frequency of eating raw vegetables, nail hygiene, nail length, washing hands before eating, washing hands with soap and running water, washing hands after defecating, mother's education, mother's occupation, parental income, the habit of open defecation, presence of latrines, drinking water sources and drinking water storage areas. The results showed that there was a relationship between the frequency of eating raw vegetables, and washing hands before eating with the incidence of diarrhea in students at SDN 01 Karangkamuyan.

Keywords: Diarrhea incident, students

Identification of Drug-Related Problems in Hospitalized COVID-19 Patients at the University of Indonesia Hospital in 2020

Nabila Junita Purwarini*, Anita Natasya,** Retnosari Andrajati*-**

*Faculty Of Pharmacy, University of Indonesia, Indonesia
** University Of Indonesia Hospital, Indonesia

Abstract

In general, the number of COVID-19 patients who are hospitalized is more than in the ICU, thereby this becomes an urgency to provide the best service by providing effective treatment to increase the number of recovered patients. In prescribing drugs, errors can occur which will cause treatment for COVID-19 patients to be ineffective, one of which is Drug-Related Problems (DRPs). This study aims to identify DRPs in hospitalized COVID-19 patients at RSUI in 2020. This study is a descriptive study with a cross-sectional study design. The data used in this study are secondary data taken retrospectively from prescriptions and patient medical records. The DRP classification used in this study refers to the Hepler and Strand classifications. Identification was carried out on 406 COVID-19 patients who met the inclusion and exclusion criteria. The results of the study indicated that there were 26 DRP events in 22 out of 406 hospitalized COVID-19 patients at RSUI with the proportion of events for untreated indications of 3.85%; improper drug selection, 11.54%; failure to receive drugs, 23.08%; adverse drug reactions, 19.23%; potential drug interactions, 42.31%; and no incidence of sub-therapeutic dosage, overdosage, and drug use without indication. Based on the results, it can be seen that the treatment for hospitalized COVID-19 patients at RSUI has the potential to experience drug related problems.

Keywords: COVID-19, Hepler and Strand, drug related problems, hospitalized, RSUI

Meta-ID: 758

Identification of Drug-Related Problems in COVID-19 Patients at Intensive Care Unit (ICU) University of Indonesia Hospital in 2020

Anisah Haras *, Anita Natasya,** Retnosari Andrajati*-**

*Faculty Of Pharmacy, University of Indonesia, Indonesia
** University Of Indonesia Hospital, **Indonesia**

Abstract

COVID-19 patients have clinical conditions ranging from asymptomatic to severe or critical. COVID-19 patients with severe illness may experience complications, organ failure, Acute Respiratory Distress Syndrome (ARDS), sepsis, and septic shock, thus requiring treatment in the Intensive Care Unit (ICU) and at higher risk for drug- related problems (DRPs). This study aims to identify DRPs in COVID-19 patients at ICU RSUI in 2020. This study is a descriptive study with a cross-sectional study design. The data used in this study are secondary data taken retrospectively from prescriptions and medical records. Identification of DRPs was carried out using the classification made by Hepler and Strand on 185 patients who met the inclusion criteria. The results of the study showed the presence of DRPs in 38 COVID-19 patients (20.54%) at ICU RSUI in March – December 2020 with 53 DRPs events. Identified DRPs categories, included untreated indications (3.77%), improper drug selection (5.66%), failure to receive drugs (1.89%), overdose (1.89%), adverse drug reactions (7.55%), potential drug interactions (79.25%), and no events of subtherapeutic dosage and drug use without indication. Therefore, it can be concluded that treatment in COVID-19 patients at ICU RSUI has the potential to experience drug-related problems with the most occurred DRP is potential drug interactions.

Keywords: COVID-19, drug-related problems, Hepler and Strand, Intensive Care Unit, RSUI

Relationship Between Exercise Habits and Eating Habits During The COVID-19 Pandemic on Nutritional Status of High School Students

Rizti Millva Putri[1], Ratu Ayu Dewi Sartika[2]

[1,2] Public Health Faculty, Universitas Indonesia, Indonesia
Corresponding author's email address: rizti.millvaputri@gmail.com

Abstract

Coronavirus Disease-19 (COVID-19) has caused a global pandemic that has infected various countries in the world, including Indonesia. Restrictions on activities outside the home including school closures in suppressing the transmission of COVID-19 have an impact on changes in physical activities and eating behavior in a direction that endangers the health and causes nutritional problems including overnutrition and obesity and increases the risk of NCDs that can exacerbate COVID-19 disease. This study aims to determine the exercise habits and eating habits (snacks, fast food, fried foods, soft drinks, vegetables, and fruits) of students during the COVID-19 pandemic and analyze their relationship to the nutritional status of selected high school students in West Lampung Regency. This study is a cross-sectional study using primary data obtained through anthropometric measurements, questionnaires and FFQ conducted in July 2020. The research sample consisted of 295 students who were selected by purposive sampling method at selected public high schools in West Lampung Regency. Bivariate analysis using chi-square test. Multivariate analysis using multiple logistic regression test. Univariate results showed the prevalence of overweight and obesity in students was 18%. The results showed that there was a significant relationship between exercise habits (p = 0.029, OR = 2.674; 95% CI 1.152-6.209) and fried food habits (p = 0.000, OR = 4.737; 95% CI 2.328-9.641) with overweight and obesity status in selected high school students in West Lampung Regency. The most dominant factor in the overweight and obesity status of students is the habit of eating fried foods during the COVID-19 pandemic. Based on the results of this study, it is hoped that education will be carried out on a healthy lifestyle and balanced nutrition, especially during the COVID-19 pandemic, and the importance of monitoring body weight by maximizing the delivery of information through various media.

Keywords: Nutritional ststus, COVID-19, consumption habits, exercise habits, adolescents

Reinforcement Learning Enhanced Gamification Model for Solving Critical Issues During Covid-19 Pandemics

Chen-Min Lian [1], Meng-Hsueh LEE [2], Chi-Hua Yu [1]

[1]Department of Engineering Science, National Cheng Kung University, Taiwan
[2]Cross College Elite Program, National Cheng Kung Universitym Taiwan
Corresponding author's email address: altolee@gmail.com

Abstract

In the past few months, Taiwan was locked down due to the Covid-19 pandemic outbreaks. As a result, all the on-site courses have to be transformed into online lectures synchronously or asynchronously. However, there are some challenges for the professors and students, such as the lack of interaction and the limited capability of the hands-on workshop. Here, we proposed a gamification model as a framework for an online course to help students understand specific critical issues. Our course studied the difficulties of the on-site COVID-19 quarantine process at the airport by introducing gamification. We first implemented a virtual environment for students to mimic the process at the airport through the online course as a sandbox. By applying the Unity game engine to construct the flow of the quarantine process, we developed a gamification model according to the actual event. Students can study how to design the process by altering some variables flexibly, such as number of staff, number of passengers, and the probability of confirmed cases at the airport. The students can further apply reinforcement learning to obtain optimal solutions for different scenarios. The model can be easily extended to different online courses which require hands-on exercise or workshops. It can potentially change the way we learn and teach during the pandemic and post-pandemic era.

Keywords: COVID-19, online learning, gamification, reinforcement learning, Unity

Disaster Mitigation: Policies, Practices and Alternatives

Field Survey and Damage Inspection After the 2021 Siklon Seroja in Nusa Tenggara Timur

Abdul Muhari[1], Udrekh[1], Sesa Wiguna[1], Osmar Shalih[1], Fathia Zulfati Shabrina[1], Abdul Hafizh[1], Franta Eveline[1], Muchammad Ibrahim Ulinnuha[1], Nofid Yulianto[1], Ridwan Yunus[1]

[1]National Disaster Management Authority of Republic of Indonesia (BNPB), Indonesia
Corresponding author's email address: sesawiguna@gmail.com

Abstract

Siklon Seroja, a destructive cyclone, has caused severe damage to several areas in East Timor Province. According to an official report, cyclone-induced extreme weather caused death to 86 people (BNPB, 2021). Following the event BNPB along with inline ministries conducted a field survey in three areas namely Adonara, Lembata, and Alor which aimed to: (1) evaluate the damages through aerial observation; (2); collect the field data; (3) understand the nature of the disaster to prevent possible future risk. The field survey reveals that damages mainly caused by the debris flows triggered by heavy rainfall. Volcanic materials were identified as the main source of debris especially in Adonara and Lembata. Some damaged features of the location have been captured using drone and InaRISK personal app. It can be concluded that the cyclone has triggered heavy rainfall hence triggered debris flows which swap number of houses in the three locations. It is also observed that in some locations debris flowed along the semi-permanent streams which were inhabited. This finding calls for an attention for the relocation of inhabitants to as a means of disaster risk reduction.

Keywords: Field survey, cyclone, debris flow, disaster risk reduction

Learning From The History of The Plague in Comparison with COVID-19

Abdurakhman, Boy Subirosa Sabarguna, Syahidah Sumayyah Rahman

Faculty of Humanities, Faculty of Medicine, and Faculty of Humanities
Universitas Indonesia, Indonesia
Corresponding author's email address: abdurakhman.hum@ui.ac.id

Abstract

The COVID-19 outbreak, that has been ongoing since 2019, has affected the whole world, including Indonesia. Indonesia is currently suffering the second wave and must continue to strive to avoid the third wave. Thus, we may take something from the Spanish flu epidemic in the Dutch East Indies in 1910 as a lesson learnt throughout the pandemic. This paper aims to find lessons from the history of the 1910 Spanish flu pandemic in the Dutch East Indies. First, the plague first appeared in Malang and spread throughout the country. Through these events, we can take lessons so that the 2nd wave of COVID-19 can be resolved immediately and can prevent the 3rd wave. This research utilizes the historical method, which consists of four steps, starting with heuristics and proceeding through critique, interpretation, and historiography, with a focus on health history. Based on the research, there are certain lessons that can be drawn, including the necessity for doctors to go above and beyond for their patients, as well as the cause of the sickness. Not just doctors, but the government as well, must intervene to avoid and overcome the harmful consequences of this outbreak. In these restricted conditions, the government, doctors, and public in general must collaborate to fight the pandemic. Special efforts are being made by the government and doctors to deal with patients and the source of the disease. Not only handling patients, but also must join to secure other sectors to prevent the pandemic from spreading further. Food and basic requirements are one example of a sector that demands government intervention. Furthermore, it is important to examine the policy for dealing with the pandemic so that the policies adopted may be more thorough and executed extensively.

Keywords: COVID-19, Spanish Flu, pandemic management, pandemic history

Family Record Management Strategy as an Effort in Disaster Mitigation in Indonesia

Trina Nur Faturohmah[1], Tamara Adriani Salim[2]

[1,2]Department of Library and Information Science, Faculty of Humanities, Universitas Indonesia, Indonesia
Corresponding author's email address:trina.nur@ui.ac.id, tamara_susetyo@yahoo.com

Abstract

The geographical location of Indonesia, which is prone to disasters, has resulted in many casualties and the loss of property, includingdamage and loss of family archives. Family archives are recordings of activities that are created and accepted by the family as a supporter of family life, so it is important to manage it properly as a part of the effort of disaster mitigation in Indonesia. This study uses a qualitative approach with data analysis based on literature review related to family archive management and disaster mitigation as well as other secondary sources to support the analysis of the observed data. The results of the discussion show that the management of archives in the family environment is still not optimum, resulting in high damage and loss of archives after the disaster. This condition is caused by a lack of public knowledge regarding the importance of managing family archives as a disaster mitigation effort. Therefore, there is a need for cooperation between the Government and the community in conducting socialization and training to community related to the management of family records in order to prevent high damage and loss of records due to disasters. The strategy that can be done is to make plans related to special protected storage of family archives t.

Keywords: Records management, family archives, disaster mitigation

Clustering Analysis of Social Vulnerability to Natural Disasters Using Geographically Weighted Principal Components Analysis and Fuzzy Geographically Weighted Clustering: A Case Studies of Districts/Cities in Indonesia in 2019

Sufyan Aziz Prabaswara, Yuliagnis Trasver Wijaya

Abstract

Indonesia is a country with the highest number of natural disasters in Southeast Asia. Existing natural disasters can cause various risk impacts on society. The magnitude of the risk that must be suffered by the community can be seen from the level of social vulnerability to natural disasters in their area. The higher the level of vulnerability of an area, the higher the risk that will be obtained, and vice versa. Indonesia also has a diverse geographical location which causes the social vulnerability of each region in Indonesia to be different. Therefore, it is necessary to conduct research to find out the description of social vulnerability throughout Indonesia. This study examines the distribution of social vulnerabilities in Indonesia using the Geographically Weighted Principal Components Analysis (GWPCA) method and also performs clustering by applying Fuzzy Geographically Weighted Clustering (FGWC) using Particle Swarm Optimization (PSO) optimization. The results obtained from this study are a description of social vulnerabilities that exist throughout Indonesia in high and low vulnerabilities. which these results can be used in determining policies by the government.

Keywords: Natural disasters, social vulnerability, GWPCA, FGWC-PSO

Risk Assessment of Multi-Hazards Area in Spatial Planning of Palu City, Indonesia

Darmawan Listya Cahya[1,2], Dwi Antoro Nugroho[1]

[1]Urban dan Regional Planning, Universitas Esa Unggul, Indonesia
[2]National Technology Assessment and Application
Corresponding author's email address: darmawan@esaunggul.ac.id

Abstract

Palu City is one of the active seismic areas in Indonesia because it is traversed by the Palu-Koro Fault which extends from Palu to the south and southeast. This fault has the potential to generate an earthquake followed by a tsunami and liquefaction. The earthquake, tsunami and liquefaction that occurred in Palu City on September 28, 2018 had brought many casualties. Therefore, to minimize the impact of the disaster, it is necessary to analyze the level of vulnerability which is closely related to risk assessment as a disaster management effort for the spatial planning and development of the Palu City. This study aims to determine the level of multi-hazards vulnerability and provide policy recommendations for disaster risk mitigation according to the vulnerability map. This research uses descriptive quantitative analysis method. Analysis of the weighting data was performed by referring to the guideline of the Disaster Management Agency Regulation No. 2 of 2012 on General Guideline for Disaster Risk Assessment. After getting the weight of each parameter, the results were then mapped with GIS (Geographic Information System) software. From the results of the study, a map of the distribution of the level of multi-hazards vulnerability in Palu City was obtained which was divided into 3 classes, namely low, medium, and high. Based on the results of the spatial analysis of multi-hazards vulnerabilities, development policy recommendations are formulated to anticipate these multi-hazards events from occurring in Palu City.

Keywords: Disaster mitigation, multi-hazards, risk assessment, spatial planning, policy recommendation

Emergency and Crisis Management

Understanding Logistics in the Aftermath of Large-Scale Disasters: Challenges in Mexico's Earthquake

Irais Mora-Ochomogo[1], Mariana Macías-Arregoyta[2], Paulina Arriaga-Gutierrez[2], Fabiola Regis-Hernández[2*]

[1] Tecnologico de Monterrey, School of Engineering and Sciences, Campus Santa Fe, Santa Fe, Mexico
[2] Tecnologico de Monterrey, School of Engineering and Science, San Luis Potosí, Mexico
*Corresponding author's email address: fregisher@tec.mx

Abstract

In the last decade, Mexico has faced approximately 65 natural disasters, including hurricanes, floods, and earthquakes. One of the most devastating in recent years was the earthquake with a magnitude of 7.1 that occurred on September 19, 2017. This disaster caused significant damage to the economic sector and left many deaths and injuries in the central states of Mexico. Considering certain peculiarities in Mexican culture, an earthquake of this magnitude adds logistical challenges to disaster response activities, especially during the installation of collection centers and providing care to affected people. This research focuses on identifying and analyzing these challenges. Information on the earthquake was obtained through interviews, surveys, and databases. The information analysis reflects an impact on the supply chain, mainly in (1) receipt and inventory control, (2) packaging and material handling, and (3) transportation and delivery. Two leading causes of these challenges were identified, i.e., a high percentage of in-kind donations and high citizen participation. Based on the information acquired, it is intended to provide insights for future investigations in humanitarian logistics in Latin America and optimize the supply chain to reduce the associated problems in collection centers in response to a natural disaster.

Keywords: Donations management, disaster relief operations, humanitarian logistics

Social Science
Perspectives in Disaster

Social Analysis of Rural Communities in Disaster Prone Areas: A Case Study of Jeneponto District, Indonesia

Andi Ahmad Yani, Agussalim Burhanuddin, Amril Hans,
Muhammad Adnan Kasogi, Anwar, Adi Maulana

Center of Disaster Studies, Universitas Hasanuddin, Indonesia
Correspondent author: aayani@unhas.ac.id

Abstract

Indonesia is a region prone to natural disasters. Most of the population who live in disaster-prone locations are in rural areas. This study aims to analyze the socio-cultural conditions of the community before and after the disaster in Jeneponto District, Indonesia. This study used a qualitative method by conducting interviews and observations in three villages that were worst affected by the floods in January 2019. Researchers analyzed the data using an interpretive method. This study indicates that some of the affected villagers have experienced trauma, especially children. In addition, the function of social institutions is dysfunctional and communities affected by disasters tend to have low public trust in government. Some of the residents affected by the disaster were also apathetic towards life. Post-disaster government assistance mostly took the form of infrastructure reconstruction. Meanwhile, the psychosocial conditions of the affected residents also need assistance to revive the spirit of life and the function of social institutions.

Keywords: Social analysis, disaster prone area, Jeneponto district, Indonesia

Assessment on Protection Motivation of Flood Prone Households Living at the Bank of River Jamuna, Bangladesh

Md. Sazzad Ansari[1] and Jeroen Warner[2]

[1] Disaster Risk Management Professional, Bangladesh.
[2] Disaster Studies Group, Sociology of Development and Change,
Wageningen University, Netherlands.
Corresponding author's email address: sazzad.ans@gmail.com

Abstract

Due to deltaic setting and floodplains of the Ganges, Brahmaputra/Jamuna, Meghna and several other rivers, flooding is the most frequent disaster event in Bangladesh and flood history demonstrated the aggression of restless rivers flowing in Bangladesh. The present study conducted to assess how flood prone people evaluate risk and coping capacities to reduce the damage due to flood at Jamuna river in central Bangladesh. The study findings were framed using the Protection Motivation Theory (PMT) which has two main components i.e. threat appraisal and coping appraisal. A mixed method approach was employed to collect data at the area with hard flood risk reduction measure (i.e. embankment) and without any measure (i.e. outside of embankment) located in Tangail District. The study found higher protection motivation attitude (reflecting on threat and coping appraisal) among the people living outside of embankment compared to people inside the flood protection embankment. The respondents living outside of embankment showed preparedness on storing dry food, seeds for farming, raising plinth of house, informal evacuation discussion before the flood event. These preparedness actions treated as the outcome of experiencing flood disaster utilizing traditional knowledge to survive. People living inside the embankment were found reluctant in taking flood preparedness measures due to not experiencing flood since long and high reliance on embankment. However, respondents did mention about water logging situation in 2017, which was happened due to breach of embankment at several places, that caused damage of crops and shelters. People had to take negative coping strategies including selling off domestic animals for fear that the animals might die. Besides, one third respondents in both areas rejected being prepared for flood as they think flood is a natural event and they do not have anything to do with it.

Keywords: Flood, preparedness, motivation, Bangladesh

Institutional Arrangements and Problems in Handling Floods in Jakarta, Indonesia

Teguh Kurniawan

Public Administration Department, Universitas Indonesia, Indonesia
Corresponding author's email address: teguh.kurniawan@ui.ac.id

Abstract

In disaster management, two critical success factors are effective institutional arrangement and supportive laws and regulations. In the Indonesian context, these two factors are problematic. Disaster management applied in Indonesia is often not supported by policies and programs that are integrated across sectors and between levels of government. The result then is the ineffectiveness of the various efforts made by the government to prevent and cope with disaster. One example that can help in analyzing the situation is flood management in Jakarta. The threat of flooding has always been a cause for concern for the citizens of Jakarta. Floods that happen almost every year have caused a lot of material and non-material loss to not only the citizens of Jakarta but also the national economy. The ineffectiveness of flood management in Jakarta is caused by not integrated and mutually supporting policies and programs created by the central government, provincial government of Jakarta, and other local governments around Jakarta. This paper seeks to describe and explain the various problems encountered in handling the flood in Jakarta, especially related to institutional arrangements and supportive law and regulation issues.

Keywords: Disaster management, institutional arrangement, supportive laws and regulations, integrated policy and programs, flooding, Jakarta

Philippine Disaster Risk Management Framework as an Immortality Project (or Why Death is Denied its Space in DRM)

Maria Emilinda T. Mendoza[1*] and Ron Jay P. Dangcalan[2]

[1] Associate Professor, Department of Social Development Services, College of Human Ecology, University of the Philippines Los Baños, Philippines
[2] Assistant Professor, Department of Social Development Services, College of Human Ecology, University of the Philippines Los Baños, Philippines
*Corresponding author's email address: mtmendoza2@up.edu.ph

Abstract

Death is not just a biological but also a socio-ecological phenomena. This is magnified in the context of extreme events wherein mass death has a profound psychological, economic, and cultural implications, particularly in a country like the Philippines wherein disaster-related deaths was recorded at 12,097 from 2010-19 (PSA, 2020). This paper presents initial efforts in locating death in DRM policy frameworks and analyzes its absence within the frame of Ernst Becker's (1973) contention on the human tendency to deny death in the construction of everyday life. The paper has the following objectives: 1) present findings based on document reviews meant to locate death and dying within the definition of disasters in the Philippine national DRM framework, 2) explain the initial findings using Becker's concept of "immortality projects," and 3) recommend initial steps on how to better incorporate death and dying in the national DRM policies to enhance community resilience without targeting radical policy change.

Keywords: Death, dying, disasters, disaster risk management, immortality project

Motivation for Flood Preparedness:
A Comparative Study in Areas with and without External Assistance

Md. Sazzad Ansari[1], Jeroen Warner[2]

[1] Disaster Risk Management Professional, Bangladesh.
[2] Disaster Studies Group, Sociology of Development and Change,
Wageningen University, Netherlands.
Corresponding author's email address: sazzad.ansari@amcrossbd.org

Abstract

Bangladesh is a flood prone country due to deltaic setting and floodplains of Ganges, Brahmaputra/Jamuna, Meghna and several other rivers. The study conducted to assess how people evaluate risk and coping capacities to reduce the flood damage in North-Central Bangladesh. The study employed a mixed-method approach to collect data from randomly selected 180 respondents at flood-prone locations situated at the bank of riven Jamuna: (1) area with 'soft' DRR measures from NGOs in Jamalpur District, (2) area without any DRR measure in Tangail District. The field findings were framed using the Protection Motivation Theory (PMT) which has two main components i.e. threat appraisal and coping appraisal. The study found a higher protection motivation attitude among respondents living with 'soft' measures compared to people living without any measure. This status demonstrated the capacity of assessing hypothetical future threat of floods, severity, potential damage, and level of preparedness by the people in the study areas. The respondents living in NGO intervention area found more aware of what to do during and after the floods and showed structural preparedness including raised plinth of house, toilet and tubewell. This motivation for preparedness might link to the awareness-raising, skill development and financial assistance for flood resistant houses and livelihood improvement activities implemented under NGO led DRR project. The people living without any measure showed preparedness actions including storing food and seeds for farming, raising plinth of houses and informal evacuation discussion for safety of the families. These capacities might be associated with their previous flood experience and gaining knowledge how to deal it. Around one third of the respondents in all areas rejected making efforts to be prepared for flood as they think flood is a natural event and human do not have anything to do with it.

Keywords: Flood, preparedness, motivation, Bangladesh

Traditional Communities Knowledge as A Key Challenge for DRR: African and Amerindian Epistemologies

Karla Pinhel Ribeiro

University Centre of Curitiba, Brazil
Corresponding author: karlapinhelribeiro@gmail.com

Abstract

This paper aims at contribute to the discussion on DRR from the perspective of the social sciences bringing to the state of art the African and Amerindian epistemologies as a key challenge to improve solutions by traditional communities knowledge. The research is developed by comparison of The Sendai Framework for Disaster Risk Reduction (2015–2030) with experiences and epistemologies from African and Amerindian culture and traditional communities. The investigation is structured as followed: first, I present the main concepts of Sendai Framework for Disaster Risk Reduction (2015–2030); second, I present the contribution of some remarks from African and Amerindian epistemologies as different way of thinking DRR; and third, I present some best practices on DRR from African and Amerindian traditional communities. The conclusion demonstrates examples of solutions for DRR that emerge from these plural and diverse epistemologies.

Keywords : African and Amerindian epistemologies, DRR, traditional communities, Sendai Framework

Importance of *Peraturan Daerah* (Local Regulation) in Preventing and Eradicating Endemics in Indonesia: Administration Law Perspective

Anna Erliyana[1], Djarot Dimas A.A.[2], Atika Rizka F[3]

[1] State Administrative Law, Faculty of Law Universitas Indonesia, Indonesia
[2] Law and Technology (Health Law), Faculty of Law Universitas Indonesia, Indonesia
[3] Law and Technology (Health Law), Faculty of Medicine, Universitas Indonesia, Indonesia

Abstract

Effective policy is a pinnacle in every endemic prevention and eradication efforts. Government struggle to design and implement regulations which in line with the community values. Eugene Ehrlich's living law theory states that living law which consist of social norms may sometimes attract far greater cultural authority which lawyers cannot safely ignore. Thus, aligning governmental regulations with living norm shall boost regulation effectiveness. Despite of that designing a regulation with living norms proven to be a challenge in establishing legal certainty. In multicultural society with local governmental autonomy such as Indonesia. Building local regulation based on living norm will cause legal uncertainty as it will create multiple legal norms, value, and reasoning. A non-uniformity of law will crumble the national legal certainty values and creates disintegration, otherwise it offers greater effectiveness in boosting utility. This paper examines on the importance of local regulation and maintaining a balance between legal certainty and utility to optimise policy implementation in local level.

Keywords: Endemic, legal positivism, living law, local regulation, policy

Statistical and Modelling Tools for Disaster Management

Adoption of Disaster Preparedness Measures and Influence on Loss and Damage Mitigation: Evidence using Big Data from Bangladesh

Azreen Karim*

*Bangladesh Institute of Development Studies, Dhaka, Bangladesh.
Corresponding author's email address: azreen@bids.org.bd; azreenk@gmail.com

Abstract

We examine the possible determinants of household disaster preparedness behavior focusing on knowledge and perception and prior damage and employment channels of disaster experience. We utilize big data of 143,980 households and 12 natural disasters covering 64 disaster-affected districts in Bangladesh. We find climate and disaster knowledge and perception are strong predictors of preparedness adoption explaining around 1.46%-1.51% of formal education and nearly 7.39%-7.68% of female education compared to the mean. This finding strongly rejects potential possibility of endogeneity of income and wages as well. Our evidence strongly suggests that disaster preparedness is almost 76% effective in mitigating per capita net income loss via unemployment channel. However, demand-side interventions are found not so effective in loss mitigation via production emphasizing government's various support package interventions. We strongly argue that integration of development and preparedness policies could further reduce the amount of climate losses implying integrated impacts across various SDG targets.

Keywords: Economic development, disaster preparedness adoption, knowledge perception, big data, index, loss mitigation.

Spatial Modeling and Statistical Calculation of Flood Affected Areas in East Flores District with Google Earth Engine Cloud Computing Application

Andini Dwi Khairunnisa Daulay[1], Sachi Emelin Carissa[2], Tia Sella Isnaini[3]

[1,2,3] Department of Geography, Faculty of Mathematics and Natural Sciences,
University of Indonesia, Indonesia

Abstract

East Flores District is located between 8°04'– 8°40' South Latitude and 122°38' – 123°57' East Longitude. In April 2021, the Seroja Tropical Cyclone phenomenon caused flooding in the East Flores District area. Modeling flood-affected areas carry out analysis of the flood-affected regions by utilizing Cloud Computing technology through Google Earth Engine (GEE) with the Javascript programming language. Google Earth Engine combines spatial and statistical science methods, such as AI, computing, data mining, and GIS for data extraction. The data used is Synthetic Aperture Radar (SAR) which is applied to create or reconstruct two-dimensional images and three-dimensional objects. Flood analysis in East Flores District uses SAR data in the form of Sentinel-1 imagery and additional data in the form of MODIS Land Cover Type Yearly Global with a resolution of 500 meters and JRC Global Surface Water Mapping Layers version 1.3. Sentinel-1 imagery is used as a medium for detecting and identifying flooded areas by performing statistical calculations on the difference in pixel values of microwave backscatter from objects on the earth's surface. Analysis of the flood-affected regions will be carried out using the overlay method with additional data. The resulting output is estimated flood area information, flood-affected urban land, and the number of populations exposed to flooding. Thus, the statistical calculation of image pixels in modeling flood-affected areas in the East Flores District with Cloud Computing technology can be the basis for flood disaster management in Indonesia.

Keywords: East Flores District, flood, cloud computing, spatial and statistical science, disaster management.

Community Empowerment for DRR

Functionality of Cyclone Early Warning Early Action (EWEA) System in the Refugee Camps Of Cox's Bazar, Bangladesh

Md. Sazzad Ansari[1], Md. Farhan Arafin Karim[1], Ahmadul Haq[2], M. A. Halim[3], Colin Fernandes[1], Achala Navaratne[1], Dilara Zahid[4]

[1]Disaster Risk Management Team, American Red Cross, Bangladesh and Regional Office at Thailand.
[2]Cyclone Preparedness Programme (CPP), Ministry of Disaster Management and Relief, Government of Bangladesh.
[3]Population Movement Operation, Bangladesh Red Crescent Society, Bangladesh.
[4]Institute of Disaster Management and Vulnerability Studies, University of Dhaka, Bangladesh.
Corresponding author's email address: sazzad.ansari@amcrossbd.org

Abstract

Cox's Bazar, located in the south-eastern coastal part of Bangladesh, is prone to hydrometeorological hazards including tropical cyclones and related storm surges. The area earned a global attention due to the influx of nearly one million Rohingya, an ethnic Muslim minority group from Myanmar, in 2017. The largest refugee population has been accommodated in camps with shelters made of bamboo and tarpaulin which are not resistant to cyclone and strong winds. There is a lack of safe places or evacuation options for people in the event of a cyclone. Considering these vulnerabilities and required preparedness, the Cyclone Preparedness Programme (CPP) - a volunteer based joint effort of Bangladesh government and Bangladesh Red Crescent Society, was expanded into the camps to facilitate cyclone Early Warning Early Action (EWEA) in early 2018. The study was undertaken to explore how the EWEA system was established, implemented, and currently functions to facilitate cyclone preparedness in this fragile context. A mixed method approach was employed to collect data from volunteers, relevant organizations and people in randomly selected camps. The study found that the cyclone EWEA system has been expanded in camps and remained functional utilizing CPP protocol, trained refugee volunteers, language specific communication material, early warning, and lifesaving equipment. Analyzing previous cyclonic events (i.e. Fani, Bulbul in 2019, Amphan in 2020), the study found improvement towards functionality of the EWEA system with increased number of hoisted cyclone signal flags, support from camp actors and deployment of camp volunteers for warning message dissemination in all 34 camps. About 41% camp people reported receiving early warning messages from CPP refugee volunteers that helped to prepare for cyclone. The efficiency of CPP protocol, EWEA knowledge of disseminators and communication tools need to be improved for further strengthening the system in camps.

Keywords: Cyclone, preparedness, refugees, camps, Bangladesh

ABSTRACTS OF POSTER PRESENTATIONS

Pandemics and Public Health Issues

Dr. Djasamen Saragih Hospital Pematang Siantar Preparedness for Disasters and Covid-19 Pandemic in 2020

Indah selviana[1], Herlina J. EL- Matury[2]*

[1,2]Deli Husada Health Institute, Indonesia
*Corresponding author's email address e-mail:herlinajelmatury.hjem@gmail.com

Abstract

Indonesia is one of the countries that is prone to disaster events, this is indicated by several disaster events based on BNPB noting that there were 1,205 disasters that occurred such as floods, hurricanes, forest/land fires, earthquakes, tidal waves/abrasion, drought, and landslides during January to May 2021 by causing damage to houses, damage to public facilities, educational facilities, worship facilities, and damage to health services. North Sumatra experienced 372 disaster events based on the BNPB of North Sumatra from January to May 2021, disaster events that occurred included floods, cyclones, landslides, earthquakes, tidal waves and land fires. The purpose of this study was to determine the hospital's preparedness for disasters and the COVID-19 pandemic at dr. Djasamen Saragih Hospital Pematang Siantar in 2020. This research used a mixed method, which is a research method by combining two forms of approaches in research, namely qualitative and quantitative. The assessment uses the WHO Hospital Safety Index and the WHO Checklist for COVID-19. The results indicate the source of danger at the location of RSUD dr. Djasamen Saragih, among others, with a structural safety score of 0.56, a non-structural safety score of 0.61, a functional safety score of 0.36, a safety index at RSUD dr. Djasamen saragih is 0.53 which means it is included in classification B which means that RSUD dr. Djasamen Saragih is still at risk in the event of a disaster. RSUD dr. Djasamen Saragih is expected to make improvements to parts that get low and medium scores as well as regular training to be ready to face the COVID-19 disaster and pandemic.

Keywords: Preparedness, disaster, hospital, COVID-19 pandemic

Analysis of Blood Inventory Management: A Study Case of Indonesian Red Cross Society DKI Jakarta

Azaria Ekaputri[1], R.R Ratih Dyah Kusumastuti[1]

[1]Department of Management, Faculty of Economics and Business, University of Indonesia, Indonesia
E-mail: ekaputriazaria21@gmail.com

Abstract

The focus of this study is simulating the blood management executed by the Indonesian Red Cross (P*alang Merah Indonesia*, PMI) DKI Jakarta to fulfill the demand of blood while minimizing blood wastage. This study is conducted with the objective of simulating the blood supply chain process to analyze its problem and propose solutions to improve the blood management. The simulation model was developed using ARENA software, and the result shows that the number of bloods produced by PMI DKI Jakarta exceeds the number of bloods needed. Therefore, a lot of blood are disposed because it has reached its expiration time. Three alternatives are proposed to tackle the problem, namely reducing blood production, reducing blood donation events using mobile unit, and increasing blood demand. Results of the simulation show that all the alternatives are able to decrease the number of disposed blood while keeping all the demand for blood fulfilled. It is recommended that PMI DKI Jakarta increases the flow of information within the organization to support the proposed solution using integrated information system.

Keywords: Blood management, demand fulfillment, elimination of wastage, blood inventory management

Preparedness of Emergency Management of Abdoel Madjid Batoe Jambi Provincial Hospital for Disaster and COVID-19 Pandemic in 2021

Shintya Handayani[1], Herlina J. EL- Matury[2]*, Selamat Ginting[3]

Deli Husada Health Institute, Indonesia
*Corresponding author's email address: herlinajelmatury.hjem@gmail.com

Abstract

Natural disasters are disasters caused by events or a series of events caused by nature. From January to May 2021 there were 1,185 disasters that occurred in Indonesia such as floods, tornadoes, landslides followed by forest and land fires, earthquakes, tidal waves and droughts. These disasters resulted in damages to houses, public facilities, educational facilities, worship facilities, and health facilities Based on the data released by the Provincial Disaster Management Agency, Jambi Province was hit by 399 disasters in 2021 which included floods, landslides, hurricanes, residential fires and forest and land fires. The purpose of this study was to analyze hospital preparedness in dealing with disasters and the COVID-19 pandemic. This research utilized a mixed method. The hospital preparedness assessment used the WHO Hospital Safety Index. The results showed that the sources of danger at the Haji Abdoel Madjid Batoe Hospital are earthquakes, strong winds, fires, and the COVID-19 pandemic. Hospital disaster management safety scores of Haji Abdoel Madjid Batoe hospital was 0.63, or classified as 'B', indicating that the hospital is still at risk to deal with disaster and pandemic COVID-19. Haji Abdoel Madjid Batoe Hospital is expected to be able to make improvement to parts that still receive moderate score. Annual routine training and training for every change in procedures and facilities are also needed.

Keywords: preparedness, natural disasters, covid pandemic

Spirituality Aspect in Cancer Patients

Rosalina, Dewi Gayatri, Tuti Nuraini, Shanti Farida Rachmi

Corresponding author's email address: rosalinalubis&@gmail.com

Abstract

Cancer is a terminal disease. When diagnosed with cancer, patients will feel helpless and have to face various impacts of the cancer and its treatment. These impacts include physical, psychological, social, and spiritual impacts. Several previous studies have shown that the spiritual aspect in cancer patients can influence their quality of life. The purpose of this study is to describe the spiritual aspect of cancer patients and factors that influence it. This cross-sectional study aims to identify the spirituality of cancer patients. This study involved 158 cancer patients. The instrument used in this study was the Daily Spiritual Experience Scale (DSES) questionnaire.

Keywords: Spiritual aspect, cancer

Relationship between Parenting and Youth Spirituality in Junior High Schools in Cibinong Subdistrict, Indonesia

Maria Regina Tumilaar[1], Dewi Gayatri[2], Tuti Afriani[3], Shanti Farida Rachmi[4]

[1]Universitas Indonesia, Indonesia
[2,3,4]Department of Basic Science and Fundamental of Nursing, Universitas Indonesia
Corresponding author's email address: dewi_g@ui.ac.id

Abstract

Adolescence is the time for someone to know their identity through the development of good spirituality, and of course this requires support from the immediate environment of teenagers, especially the parenting style applied by parents. This study aims to identify the relationship between parenting style and spirituality level of junior high school students in Cibinong District. The sample of this research was a total of 146 junior high school students who were taken through probability sampling technique and bivariate correlation analysis. The results showed that there was no difference in the effect of parenting styles on students' spirituality scoring ($F = 0.893$; $p = 0.412 > 0.05$). The conclusion of this study is that there is no significant relationship between parenting styles and spirituality scoring of junior high school students in Cibinong District.

Keywords: Spirituality, youth, parenting

Relationship between Level of Spirituality and Application of Spiritual Care in Nursing Students in Ners Program in Jakarta

Khairrunnisa, Dewi Gayatri, Tuti Nuraini, Hanny Handiyani

Department of Basic Science and Fundamental of Nursing, Universitas Indonesia
Corresponding author: dewi_g@ui.ac.id

Abstract

Nurses play a role in providing nursing care which include spiritual care. Spiritual care can provide inner peace and bring new hope for patients who need it. Nursing students are the initiators who will later become nurses. This aims of this study is to explore the relationship between level of spirituality and application of spiritual care in nursing students in Ners program. This study used a cross-sectional design with a purposive sampling technique. The sample in this study involved 208 nursing student in Jakarta. The instruments used in this study were the Daily Spiritual Experience Scale (DSES) and the Nursing Spiritual care Therapeutics Scale (NSCTS). The result of this study does not show significant relationship between participants characteristics and application of spiritual care (p>0.05) but there is a significant relationship between level of spirituality and spiritual care (p<0.05). This finding shows level of spirituality and application of spiritual care in nursing students. The study recommends that it is necessary to improve the curriculum by adding spiritual care learning to increase application of spiritual care.

Keywords: Spirituality, spiritual care

Relationship of Family Support and Psychosocial Aspects of Patients with Chronic Kidney Failure During COVID 19 Pandemic

Rizky Rachmatullah[1], Dewi Gayatri[2], Dhea Natashia [3], Wati Jumaiyah[4]

Master of Nursing Study Program, Faculty of Nursing UMJ, Indonesia

Abstract

Chronic kidney failure is a problem that occurs in the kidneys or a condition of decreased kidney function, where the performance is less than 60% which is irreversible and progressive. In Indonesia, the number of chronic kidney failure patients is estimated to be 50 people per one million population, 60% of whom are adults and the elderly. This study aims to analyze the relationship between family support and psychosocial aspects of patients with chronic kidney failure during the COVID-19 pandemic. This study used a cross-sectional design. Sample consisted 153 respondents who were sampled using the Non Probability Sampling with Purposive Sampling technique. Data processing was peformed with Chi Square test for bivariate and multivariate with multiple logistic regression analysis. The results of the analysis show that each variable shows a relationship with P Value <0.05. It was shown that family support is not good with mild psychosocial aspects (55.1%), family support is quite good with high psychosocial aspects (90%) and good family support with high psychosocial aspects (93.3%). **In conclusion,** there is a relationship between family support and psychosocial aspects of patients with chronic kidney failure during COVID-19 pandemic.

Keywords: Chronic kidney failure, family support, psychosocial aspects

Effect of Cognitive Function Impairment on Medication Adherence in Patients With Type 2 Diabetes Mellitus in COVID-19 Pandemic

Indana Ayu Soraya[1], Rani Sauriasari[2], Pukovisa Prawirohardjo[3]

[1]Faculty of Pharmacy, Universitas Indonesia, Indonesia
[2]Faculty of Pharmacy, Universitas Indonesia, Indonesia
[3]Department of Neurology, Faculty of Medicine, Universitas Indonesia, Indonesia
Corresponding author's email address: rani@farmasi.ui.ac.id

Patients with Type 2 Diabetes Mellitus (T2DM) experience a decrease in cognitive function compared to people who do not suffer from diabetes. Though cognitive abilities are very important for a person's independence including the ability to take medication properly. In addition, the condition of the COVID-19 pandemic is suspected to have affected the patient's cognitive function. This makes medication adherence more difficult to achieve. This study sought to understand whether exposure to COVID-19 contributed to cognitive function impairment in T2DM patients and whether this cognitive function impairment had an effect on medication adherence. Electronic data search was conducted through PubMed, Science direct, and Google Schoolar with the keywords "cognitive impairment", "adherence", "diabetes mellitus type 2", "covid-19". Important data and information obtained from the literature review will be analyzed so as to provide answers for research purposes. It was demonstrated that **e**xposure to covid-19 is one of the risk factors that affect medication adherence in T2DM patients. Patients exposed to COVID-19 tend to suffer depression and cognitive function imparment. In conclusion, assessment of cognitive function impairment is important in T2DM patients, especially in the Covid-19 pandemic because cognitive function impairment can affect medication adherence and increase disease worsening.

Keywords: Cognitive function impairment, medication adherence, type 2 diabetes mellitus, COVID-19

Pattern of Drug Provision at Universitas Indonesia Hospital during the COVID-19 Pandemic Era in 2020

Sarah Aminah Kherid*, Anita Ayu Dwi Ajie Saputri** Retnosari Andrajati*-**

*Faculty Of Pharmacy, University of Indonesia, Indonesia
** University Of Indonesia Hospital, Indonesia

Abstract

The COVID-19 pandemic has caused a change in the pattern of drug use. Therapeutic guidelines for COVID-19 were issued only after the pandemic occurred. The drugs used for therapy are still in the research stage so their availability can be a problem. Universitas Indonesia Hospital (RSUI) is one of the hospitals that treat COVID-19 patients. This study aims to evaluate changes in the pattern of drug procurement in RSUI which was carried out descriptively and observationally with a cross-sectional design. Data were taken retrospectively from drug availability data at the RSUI pharmacy warehouse. Drug analysis using ABC-VEN and MMSL of 1207 drugs available every quarter in 2020. Changes in drug items in accordance with the COVID-19 therapy guidelines, it began to be seen in the second quarter of 2020. In the first quarter the 5 most widely available drugs were vitamin D3, vitamin C, paracetamol, omeprazole, and vitamin D3. Meanwhile, in the next quarter, the 5 most widely used drugs were acetylcysteine, paracetamol, lansoprazole, vitamin C, and omeprazole. Then in the third quarter the 5 most drugs were acetylcysteine, lansoprazole, paracetamol, zinc, vitamin C, and vitamin D3. Finally, in the fourth quarter, the 5 most drugs were acetylcysteine, vitamin C, paracetamol, lansoprazole, and zinc. The unavailability of COVID-19 drug items at drug distributors can also affect the availability of drugs at RSUI. It can be concluded that the Covid-19 pandemic has changed the pattern of drug supply at RSUI.

Keywords: Drug management, drug inventory control, ABC-VEN matrix analysis, COVID-19, MMSL, RSUI

The Relationship between Dietary Diversity Score (DDS) and Macronutrient Adequacy Intake With Thinness of Students at SDN 1 Karangmulyan Lebak District in 2020: A Secondary Data Analysis)

Agnia N Hikmah[1], Ratu AD Sartika[2]

[1,2] Public Health Faculty, Universitas Indonesia, Indonesia
Corresponding author's email address: agniahikmah@gmail.com

Abstract

Lack of nutrients in Indonesia is still a problem in various age groups, including school-age children. Thinness in school-age children occurs due to lack of food diversity and macronutrients intake. Thinness can lead to a cyclical effect of malnutrition in the further life. Lebak District is the district with the second highest number of severe underweight cases in Banten Province in 2016, and Banten is the province with the highest thinness cases in Java Island in 2018. This study aims to determine the relationship of thinness based on the Dietary Diversity Score (DDS), macronutrient adequacy intake, child characteristics (age, gender), maternal characteristics (gestational age, maternal age at pregnancy), sociodemographic characteristics (parental income, father's education, mother's education), history of infectious disease and exclusive breastfeeding. This study uses secondary data and a cross-sectional study design with 137 sample of students taken using the purposive sampling method. The study is conducted through quantitative analysis with univariate, bivariate with chi-square test, and multivariate with logistic regression. The result shows that 20.5% of students are thinness. There is a significant relationship between dietary diversity score OR 2,582 (95%CI: 1,082-6,163) and adequacy of fat intake OR 3,638 (95%CI: 1,010-13,10) with thinness. Adequacy of fat intake is the dominant factor in thinness.

Keywords: Dietary Diversity Score (DDS), adequacy of fat intake, students, thinness, Lebak District

Disaster Mitigation: Policies, Practices and Alternatives

Arsip Emas (Community Electronic Archives) as Disaster Mitigation for Residents of Central Java, Indonesia

Asma Rakha' Dinazzah[1], Tamara Adriani Salim[2]

[1,2] Library and Information Science Department, Faculty of Cultural Science, Universitas Indonesia, Indonesia
Corresponding author's email address: asma.rakhadinazzah@ui.ac.id, tamara_susetyo@yahoo.com

Abstract

Based on the awarness of the importance of saving archives physically and digitally, Arsip Emas (Arsip Elektronik Masyarakat) was developed as a family archive storage application by the Archives and Library Office of Central Java Province. This application aims to facilitate the storage of family archives such as ID cards, family cards, birth certificates, diplomas, important papers and others. Vital archives require special treatment, both in terms of security and protection, as disaster mitigation in case something unexpected happens. This article aims to provide input for the development of the Golden Archive application in an effort to save archives from disasters. The research method used is qualitative with literature-review, namely analyzing literature and documents related to saving vital archives from disasters and other secondary sources. The results of the discussion show that not all residents of Central Java are aware of this application that can be used to store or back up their personal archives. Then the improvement in the archive application so that later there will be integration of the Arsip Emas with other mobile technology applications that can link with hospitals, banking, ticketing, DMV, and others as a mitigation for nature and human-made disasters. Arsip emas can also assist people in making sure that they will always have backups of their important documents in trusted applications. This application is very easy to use, so that people can independently digitize the data they want to store, then upload it into the application, just like uploading photo into social media platforms.

Keywords: Electronic archives, Arsip Emas, disaster mitigation

Systematic Review on Earthquake Disaster Mitigation Planning for Archives

Anindya Ambar Wati, Tamara Adriani Salim

Universitas Indonesia
Corresponding author's email address: anindya.ambar@ui.ac.id

Abstract

Based on its geographical location, Indonesia is an area that often experiences natural disasters in the form of earthquakes because it is located at the confluence of three major tectonic plates, namely the Pacific, Indo-Australian and Eurasian plates. This is a concern for archival institutions in dealing with earthquake disasters that can occur instantly. Disaster mitigation planning and risk management are forms of archival institutions' preparedness in dealing with earthquake disasters. This study aims to determine the efforts of archival institutions in dealing with and overcoming the impacts caused by the earthquake disaster in Indonesia. The method chosen was based on a systematic literature review through a qualitative approach. The data collection stage consists of planning, implementation, and reporting stages. The results of this study are expected to provide recommendations related to methods, strategies, and challenges in earthquake disaster management for the protection and preservation of archives in Indonesia.

Keywords: Earthquake, disaster mitigation planning, static archives.

Meta-ID: 646

Blockchain as a Digital Archive Preservation Effort in Disaster Mitigation

Adista Nurfitria[1], Tamara A. Salim[2]

[1]Master Program Library Science, Faculty of Humanities, Universitas Indonesia, Indonesia
[2]Departement of Library and Information Science, Faculty of Humanities, Universitas Indonesia, Indonesia
Corresponding author's email address:adista.nur@ui.ac.id

Abstract

This research is a literature study on the use of blockchain in an effort to preserve digital archives in disaster mitigation. Blockchain is a newly developed technology in the world of archiving. The advantage of using the blockchain itself is that any data that has been stored in the blockchain cannot be changed or deleted. The purpose of this research is to find out how to apply blockchain in digital archive preservation as a disaster mitigation effort, including; policies, implementation and challenges in using blockchain as a disaster mitigation effort. This research was conducted by collecting scientific literature. The method used is qualitative by describing the results of literature studies related to the preservation of digital archives with blockchain as disaster mitigation. The provisional result of using blockchain as digital archive preservation for disaster mitigation, can facilitate the assessment of the authentication of stored archives. Digital archives stored on the blockchain will have reliable authentication with the presence of smart contracts.

Keywords: Archive preservation, digital archives, blockchain, disaster mitigation.

A Blended Mixture Between "Mapalus" as a Cultural Approach in North Sulawesi and Public Health Measures to Flattening COVID-19 Curve

Budi Wiweko[1], Fatma Lestari[2], Djarot Dimas A.A.[3]

[1]Faculty of Medicine, Universitas Indonesia, Indonesia
[2]Occupational Risk Reduction Center Universitas Indonesia, Indonesia
[3]Faculty of Law, University of Indonesia, Indonesia

Abstract

A blended mixture of cultural and local wisdom in North Sulawesi has been well known in the community engagement or "gotong royong" local wisdom. This study explores the implementation of "Mapalus" a cultural and local wisdom in combination with public health measures in flattening the COVID-19 curve. Methodology used in this study includes literature and legal normative review, in-depth interview and Focus Group Discussion. Data were then analyzed using thematic and content Analysis. Several challenges faced by North Sulawesi have been identified and lessons learned have been explored for future recommendations. Results suggested that a new strategies and approach in disaster risk communication and community engagement including a combination mixture between local and traditional approaches can be implemented for flattening the COVID-19 curve as well as to give policy recommendation for future endemic eradication measure in Indonesia .

Keywords: COVID-19, cultural wisdom, health policy, public health measure

Estimation of Sediment Thickness in Garut City and Its Surrounding: Analysis Using HVSR Method

Thomas Hardy*, Yusuf Hadi Perdana, Supriyanto Rohadi, Angga Setiyo Prayogo, Arif Rachman Hakim, Drajat Ngadmanto, Pupung Susilanto, Rasmid, Bambang Sunardi, Suyanti Pakpahan, Wiko Setyonegoro, Telly Kurniawan, Yusuf Hadi Perdana, Tio Azhar P. Setiadi, Sulastri, Aditya Rahman, Aprilia Nur Vita, Priyobudi

Meteorological, Climatological and Geophysical of Indonesia (BMKG), Indonesia
Corresponding author's email address: thomas.hardy@bmkg.go.id

Abstract

Sediment thickness is one of many factors that could affect the site response. A high sediment deposit could amplify and prolong the earthquake waves, which could make an area more vulnerable to seismic hazards. This study aim to estimate sediment thickness in Garut City and surroundings, using Horizontal to Vertical Spectral Ratio (HVSR) method. The parameter used for sediment thickness calculation are predominant frequency (f0) and shear wave velocity at a depth of 30 meters (Vs30) data value from United States Geological Surveys (USGS). We found that sediment thickness in Garut City and surrounding range from 8.87 m to 264.91 m. The thicker sediment identified in the districts of Kota Garut and Karangpawitan rather than other areas, meaning these areas are more susceptible to amplification in the event of an earthquake.

Keywords: Garut City, sediment thickness, HVSR, predominant frequency, Vs_{30}

Social Science Perspective in Disaster

Topophilia and Topophobia Prospective Capital of the State of Indonesia

Taqyuddin

Department of Geography, Faculty of Mathematics and Natural Sciences, Universitas Indonesia, Indonesia
Email: Taqyuddin, taqygeo@gmail.com

Abstract

North Penajam Pasir District, East Kalimantan province was chosen as a candidate for the State Capital of the Republic of Indonesia. The Sepaku area is planned to become the Central Government Core Area. In 2021 the area has the status of Production Plantation Forest by the Company. State capitals in various countries have one or a combination of the functions of a governance center, an economic center or a cultural center that reflects the identity of the country. Indonesia with the current state capital, namely the Special Capital Region of Jakarta, since independence until now, it has faced various problems becoming a destination for migrants from various regions in Indonesia. The high increase in the migrant population creates a burden for the Jakarta area, unemployment, slum areas, reduced green areas for metropolitan physical development, congestion, flooding and garbage as well as political activities (demonstrations) involving the community. Jakarta has become inefficient in supporting the economic activities of its citizens. This is what underlies the government to plan to relocate the capital city of Indonesia. Sepaku, Penajam Pasir Utara in Kalimantan Province is the destination for relocation with various advantages and disadvantages both on the basis of biogeophysical, economic and socio-cultural. In particular, social and cultural development planning in the location of the prospective capital city has not been widely studied. Because the area is not an empty space, but there has been an order of centuries-old socio-cultural values. Livelihoods that have been dependent on the primary economic sector by the local community include mining, plantations and community forestry with the planning of moving the capital city which is characterized by a sustainable metropolis with a smart city, a world-class forest city (living with nature). This is the locus of this research how conditions prepare local communities for rapid or harmonious adaptation to the vision of moving the country's capital city. The roots of livelihoods such as river fishermen, gatherers, dry land farmers, shifting fields, who highly value water, land and forests and their ancestors are dealing with modernity. How is the concept of partiality to the people so as not to face culture shock. This study on a micro-spatial scale is important so as not to repeat what happened in Jakarta, namely the immigrant community who benefits, while the local community is marginalized. This social phenomenon can also happen the other way around as expressed in the theory of Spatial expression which states a social construction that a new place has the possibility of being a safe space (topophilia) or a danger room (topophobia) for both immigrants and the local community.

Keywords: National capital, displacement, social, topophobia, topophilia, place expression

Community Empowerment for DRR

# Disaster Education in Universities of Bangladesh for Strengthening Disaster Risk Reduction

Masuma Moriom[*], Rifat Ara Chowdhury

Institute of Disaster Management and Vulnerability Studies, University of Dhaka, Bangladesh
Institute of Education and Research, University of Chittagong, Bangladesh
Correspondent author's email address: masumamoriom.du@gmail.com

Abstract

Disaster education is a must for building resilient community and strengthening disaster risk reduction activities. However, the curriculum and system of disaster related education system in universities of Bangladesh are not well designed for the students. This study tries to investigate the university curriculums for disaster education of Bangladesh and analyze the effectiveness in the basis of strengthening disaster risk reduction. For the study, we have used the mixed method, both qualitative and quantitative. For analyzing the curriculums, we have analyzed the contents from each university and also conducted questionnaire survey through semistructure questionnaire to know about student's perspectives. Key Informant interviews have also conducted for better understanding. The study reveals that most of the universities have newly added disaster related subject at their universities but the curriculum are not well planned. Time-worthy and effective courses are introduced to the students and only the basic courses, not advanced level. Most importantly, the practical and field-based knowledge sharing activities are very rare in the curriculums. This study suggests that the education system should be more practice and practical based and the departments should emphasis on redesigning the courses according to the effectiveness and necessity.

Keywords: Disaster, education, DRR, students, curriculum

Media and
Communication

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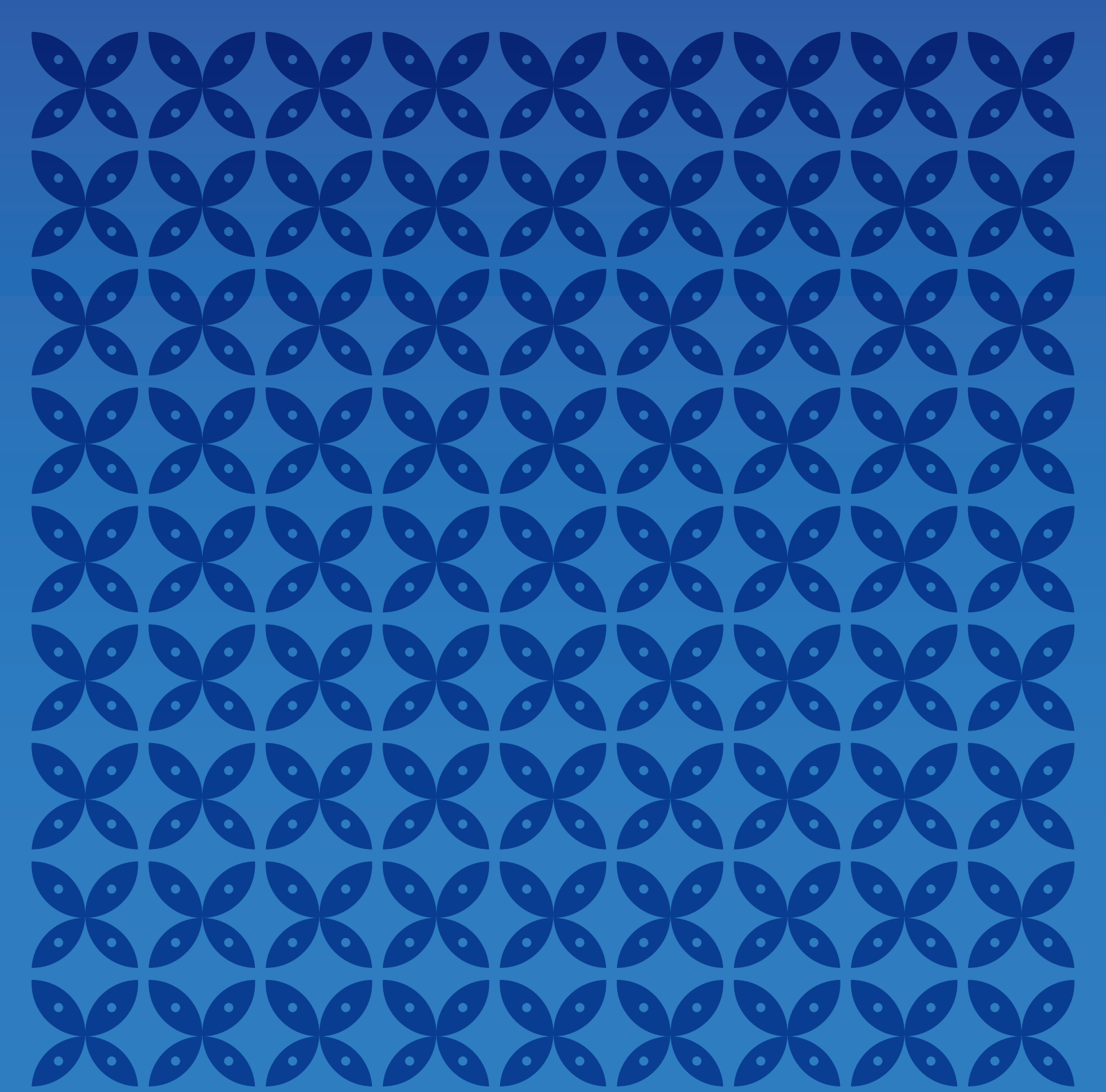
Social Media Marketing Strategy as a Concept of Strengthening Cultural Heritage: A Case of Kepuhsari Wayang Village, Wonogiri, Central Java, Indonesia

Astri Wulandari[1], Catur Nugroho[2]

[1]Communication Science, University of Mercu Buana Yogyakarta, Indonesia
[2]Communication Science, Telkom University, Indonesia
Corresponding author's email address: astri@mercubuana-yogya.ac.id

Abstract

Puppet art is one of the cultural arts in Indonesia that have high artistic value and deserve to be preserved. Kepuhsari "Wayang Village", Wonogiri, Central of Java is one example of the cultural ecosystems that have inherited the traditional Javanese arts. The tourism scope was chosen for this study because tourism is an industrial sector that quickly opens up new opportunities for cultural tourism. The approach used in this research is a cultural tourism marketing strategy through social media where all information activities, even image formation can be done with social media. So far, Wayang Village has not made optimal implementation of the concept of social media marketing. This shows that existing resources should be able to be managed in a structured manner, both at the local government level and authorized community leaders. The analysis was carried out qualitatively with a descriptive study approach. This study seeks and reveals how the social media marketing strategy for cultural tourism based on the traditional arts as a strengthening of the cultural identity of the Kepuhsari Wayang Village, Wonogiri. The results showed that the success variables of social media marketing at Wayang Village, namely content creation, content sharing, connecting and community building do not indicate the readiness of a growing and strong ecosystem.

Keywords: Social media marketing strategy, cultural heritage, *wayang* village, Indonesia

Mobile Clinic for COVID-19 Patient to Regular Control in Village Using Telemedicine

Boy Subirosa Sabarguna

Faculty of Medicine, Universitas Indonesia
Corresponding author's email address: sabargguna08@ui.ac.id

Abstract

Residents of a village, which are affected by the Covid-19 pandemic, should be isolated. However, patients with mild and moderate symptoms can perform self-isolation with a follow-up by health care workers every 3 or 7 days and should get access to a 24-hour medical consultations. A telemedicine-based Mobile Clinic can make this follow up and consultation easier and simpler, as well as lessening the burden of the medical staff. This study aims to develop a Telemedicine-based Mobile Clinic to regularly control patients under self-isolation in a village. A design for system development and system operation was developed. It was identified that this system will need medicines, vehicles, human resources, equipment, and telemedicine information system. A budget for the development has also been developed. In conclusion, this system can be built after a feasibility study and business plan development to get funding and develop the system.

Keywords: Mobile, clinic, telemedicine, COVID-19 patient, proposal

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ILRC Building 2nd Floor
UI Campus, Depok West Java Indonesia 16424
Email: drrc@ui.ac.id | www.drrc.ui.ac.id | Phone: +62 88 9889 0684