The Sendai Framework for disaster risk reduction: Insight from Covid-19 in Balikpapan City, Indonesia

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Abstract. The Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) serves as the international standard for disaster risk reduction. The SFDRR places a new emphasis on risk reduction during the post-disaster recovery phase. Additionally, SFDRR encourages tangible and verifiable outcomes for catastrophe loss reduction, such as indicators for tracking progress toward seven global targets. The purpose of this article is to map the current response to the biological disaster (Covid-19) in the City of Balikpapan, Indonesia, for the Sendai Framework, using academic literature and publicly available data from governments and organizations. To provide timely responses to COVID-19 at the municipal level, this study conducted a rapid examination of newly available information from the Balikpapan government and other sources. According to the analysis’s findings, Covid-19 will have ramifications for the Sendai Framework unless the government adopts necessary legislation to keep the Sendai Framework on track. SFDRR was used to detect COVID-19 responses in Balikpapan City, although one target in the SFDRR is unclear or unidentified. Despite the fact that this goal, "Improving Disaster Preparedness for Effective Response and "Building Back Better" in Recovery, Rehabilitation, and Reconstruction," is crucial to the Sendai Framework's success.

1. Introduction

In late December of this year, in Wuhan, Hubei Province, People's Republic of China, the first case of mystery pneumonia was found [1]. Afterward, the virus that caused the pneumonia, which included symptoms such as fever, tiredness, dry cough, and gastrointestinal problems, was discovered to be a novel beta-coronavirus known as the 2019 Novel Corona Virus (2019-nCov) [2]. The illness caused by the virus was designated as COVID-19 disease by the World Health Organization (WHO). On March 11, 2020, the WHO declared COVID19 a worldwide pandemic [3], and the WHO was in charge of preparing and implementing the pandemic's emergency plan. The World Health Organization also recommends that all countries adhere to the emergency protocol.

At the moment, every country on the planet is engaged in a battle to stop the spread and impact of the Covid19 sickness and to manage it. Following the discovery of the first known cases in Wuhan, the virus spreads to several nations throughout the world, resulting in 114 million confirmed illnesses and 2.5 million fatalities in less than 1.5 years (5 March 2021) [4]. Aside from the health repercussions, the...
pandemic had a significant impact on other important areas including as the economy, social security, education, tourism, and the environment [5] as well as national development, particularly in developing countries [6].

The ability to respond to unanticipated tragedies or risks is lacking in many developing countries, particularly in those with susceptible medical systems. Among those countries was Indonesia, which was included in the number three category. Regulation and policies that are unclear make it more difficult to control the pandemic’s impact. People, particularly those who are vulnerable and disadvantaged, may be at greater danger as a result of the tough situation they find themselves in. Because of this, we will require a framework for developing policies that will have the least amount of detrimental influence on the local community.

The Sendai Framework for Disaster Risk Reduction or SFDRR 2015-3030 was established to increase disaster risk coping capacity at the national and local levels. The framework stresses a comprehensive strategy to dealing with numerous risks of varied severity and impact. [6]. This information can be used to create an effective and efficient rule that significantly reduces risk.

The Government of Indonesia (GOI) was declared by the World Health Organization (WHO) to be infected with Ebola. On April 13, 2020, the Government of India proclaimed COVID19 a national non-natural catastrophe and established the COVID19 Response Acceleration Task Force (Satgas Covid19) to oversee pandemic management. [4]. The President of Indonesia appointed the head of the Indonesian National Disaster Management Agency (BNPB) to command Satgas Covid19.

As a result of an unprecedented increase in confirmed cases in specific areas of Indonesia, the Government of Indonesia declared the implementation of emergency community activity restrictions (PPKM Darurat) from July 12, 2021, with Balikpapan City included [7]. The restrictions will be in effect from July 12 to July 20, 2021. The implementation of its emergency legislation will have the industrial, social, and economic sectors effects, with restrictions placed on firm workers (depending on the activity sectors), temporary closures of stores and restaurants, and the relocation of all educational activities to the online environment. According to the most recent information available on the current state of COVID19 in Indonesia, as of July 25, 2021, there were more than 3.1 million confirmed cases and 83,279 deaths [8].

Balikpapan is one of the largest cities in Indonesia located in Kalimantan (Borneo) Island, and it houses various national key items such as petroleum refineries, airport and seaport hubs, military bases, and, most importantly, it will serve as a buffer city for Indonesia’s new capital in the future. As a result, enacting an emergency rule in Balikpapan will inevitably prolong the interruption of people's activities, as well as have an impact on social life and the economy.

Local government of Balikpapan will respond to the pandemic by enforcing the national level rule drafted by Satgas Covid19. These measures will have an impact on and disrupt disaster management programs in Balikpapan, forcing the government to shift from natural disaster plans to biological disaster plans quickly. As a result, we must examine the ongoing COVID19 response efforts as well as their implications for the Sendai Framework.

About comprehending the Sendai Framework, a substantial quantity of literature has been written. The majority of these studies, however, have concentrated on enhancing the Sendai Framework's efficiency rather than connecting and protecting covid-19 as a biological danger. Unlike current research trends, this work attempts to identify the current response to a biological calamity quickly (COVID19 pandemic). We also look at which measures are in keeping with SFDRR's guiding principle and what it means. Several papers have been written to analyze this type of study, with the majority of them focusing on the national level. However, just a handful of them, particularly in Indonesia, debate the issue on a local level. As a result, this research will focus on the local response and will use Balikpapan as a case study location. We also examine the most recent and DRR-specific guidelines for short- and long-term biological catastrophe resistance in this post.
2. Methodology

2.1. Sendai framework concept

The SFDRR or Sendai Framework for Disaster Risk Reduction (2015–2030), which was implemented by member states of the United Nations in 2015, is a document that provides DRR (Disaster Risk Reduction) guidelines [9]. It has been in effect for five years [6]. A new holistic approach to disaster risk management (DRM) resiliency was presented by the SFDRR, which focused on human health and development goals resiliency in addition to disaster risk coping capacity [10]. The SFDRR was designed to improve national and community disaster risk coping capacity.

Adaptation requires an understanding of disaster risk and the improvement of disaster risk governance to manage risks effectively. Investing in disaster risk reduction for resilience, improving disaster preparedness for effective response, and integrating the “build back better” principle into recovery, rehabilitation, and reconstruction are all important components of adaptation and a strategy for dealing with climate change-related loss and damage, according to the United Nations Environment Programme.

![Figure 1. Targets in Sendai Framework (Modified from United Nation, 2015b).](image)

The Sendai Framework Document specifically mentions pandemics and epidemics as biological risk [6], while also prominently reducing disaster risk. The SFDRR addresses both natural and human hazards as well as related environmental, technological, and biological risks, for example the unexplained COVID-19 pandemic [11]. The addition of biological risks to the list of natural risks emphasizes the critical importance of integrating disaster risk management into all aspects of health care delivery, as well as strengthening cooperation among health authorities and other stakeholders involved in order to improve the country's health risk management capacity [9]. The Sendai Framework covers over 30 references to health and a variety of priorities for health and other sectors to enhance the health and well-being of people at risk of emergencies and disasters [12].

2.2. The Influence of Covid-19

COVID-19 pandemics have been causing havoc in worldwide healthcare, cultural, financial, and governmental systems since the first confirmed case in Wuhan, China [13]. It triggered more than just public health problems; it often inverted or worsened economic gains, education, political stability and the overall living standard, particularly in poorly governed countries [14]. The country's government must adapt to the rapid spread of COVID-19 across international borders by rapidly revising various laws and policies. In some cases, the adjustment did not correspond to the objective, and in some cases, it deviated from it, most notably in the areas of national development and risk reduction.

Numerous nations investigated a variety of strategies for combating the outbreak. Several societal interventions were implemented, including school closures (and the conversion to online systems), traffic restrictions, prohibitions on public gatherings, physical separation, and stay-at-home orders. These treatments were used to minimize human contact in order to prevent disease transmission.
Extreme restrictions on people’s activities, such as the lockdown policy, will have a significant impact on the economy. In terms of per capita GDP, more than 90% of the global economy developed, the largest proportion of countries dropping at the same period since the Great Depression of 1930-32 [15]. According to a Bloomberg story, stock prices dropped by as much as -40 percent at the start of the WHO-announced pandemic [16].

![Figure 2. COVID19’s Impact on Stock Markets.](image)

Considering their modest economic scale, micro, small, and medium enterprises (MSMEs) are the strength of many economies around the world, supplying a large number of individuals with money and employment [17], particularly in Indonesia. They will be the most susceptible economic sector, with the COVID19 pandemic having a significant influence. According to research carried out by the Ministry of Finance of Indonesia [18], a considerable decrease in demand has been achieved in the business sector, particularly amongst MSMEs. The government's strategy of forcing individuals to stay home has a significant impact on economic activity, particularly for small and medium-sized enterprises. Cashflows are one of the most valuable non-human benefits of MSME, and the Government must give this matter particular attention [17].

The aviation and tourist industries were severely harmed in other economic areas. Due to international and internal travel limitations, many airlines have reduced or even eliminated their flight schedules. Traveling on business will take longer for recovery and even then, we estimate that by 2024 it will only return to around 80% of pre-pandemic levels. After the outbreak, it is likely that people will take fewer business trips and work from home and other flexible work alternatives will likely persist in some way [19].

COVID19 had a substantial impact on the learning process and experiences in terms of educational impact. Shifting from face-to-face learning to emergency remote learning creates additional challenges for teachers, students, and the administrative process. The epidemic is producing learning impairments and growing inequality, according to emerging statistics from some of the region's wealthiest countries [20]. The learning process will be more difficult in developing countries when internet quality is not consistent in all areas. Due to a lack of personal interaction between students and teachers, the quality of the learning process would suffer, and this condition will result in learning losses, particularly for families with less educated parents.

A journal paper by Boretti, published by COVID 19 in Africa, highlighted another impact of the pandemic. Because of the increased use of water in sanitary and hand washing to avoid viral transmission, the Covid19 pandemic has had a significant effect on water scarcity and poverty [21]. This may happen not just in Africa, but also in other countries where there is a lack of water in certain region of Indonesia.
2.3 Case study of Balikpapan and overview of Sendai Framework in Indonesia
In Indonesia, a case study of Balikpapan is presented, as well as an overview of the Sendai Framework. According to the 2012-2032 RTRW the overall area for Balikpapan City is 81,495 hectares comprising of 50,330.57 hectares of land and 31,164.03 hectares of sea areas. SFDRR is a global agreement reached by 187 countries in Sendai, Miyagi, Japan during the third United Nations Disaster Risk Reduction Conference in 2015. Continuation of Hyogo Action Framework 2005-2015 (HFA). Indonesia is a member of the SFDRR Committee of State Parties (SPC). As for the disaster management process, SFDRR has several indicators: improved disaster risks comprehension, reinforced disaster risk management (disaster risk management) implementation procedures, resilience risk reduction investment (disaster risk management), enhanced disaster preparedness (disaster preparedness) and enhanced reconstruction, rehabilitation and recovery.

[Image: Balikpapan city map]

Figure 3. Balikpapan city map.

In terms of the results of the second world conference on disaster prevention and mitigation, Indonesia was one of the accepters of the 2015 Hyogo Action Framework (HFA) replacement of the SFDRR, which remained valid until 2030. Indonesian regulations have since been having an impact on the HFA, as it serves as a general guide for developing, regulating and implementing disaster management policies in the country. Since HFA and SFDRR were adopted, disaster management efforts in Indonesia, as proved by the implementation of Law no. 24 of 2007 on Disaster Management and Government Regulations of the Republic of Indonesia n°21 of 2008, have been developed and implemented. These efforts culminated in creating a strong and comprehensive legal framework.

2.4 Method and data collection
The research technique is quick analysis and case-based research that focuses on the COVID-19 policy narrative in Balikpapan. The data used are secondary data from journal research studies and news in the chronology. Narrative may come from public sources, data journals, media stories and other sources for example transcripts, speeches, or digital media. Balikpapan's response to COVID-19 may be analyzed on four SDFRR priorities, as it delivers for a robust and inclusive reduction of the risk of disasters.
3. Results and discussion

3.1 Current Covid-19 responses in Balikpapan City

Travel controls between regions, as well as the purpose of PCR trials if compelled to do so, are all part of the Covid-19 response at the local level (Balikpapan), which is consistent with the Indonesian Central Government response (Indonesian Minister of Transportation). On June 18, 2021, the Mayor of Balikpapan issued Circular Number 300/2382, which addressed the prevention and control of a pandemic in the city of Balikpapan in connection with corona virus diseases in 2019. The circular was issued in response to the corona virus diseases in 2019. The following points can be found in the regulation that was issued:

- Enhance the mobility and discipline of company health programs
- The end result of the antigen/GeNose C19/RT-PCR test at the Satgas Covid Balikpapan or Balikpapan City Covid-19 task force must be shown in the arrivals from outside the area.
- All Balikpapan City citizens returning from abroad will be subject to the status of Covid-19 Monitoring People, although Covid-19 has been proven negative. You also have to isolate at home under the supervision of the Covid-19 Task Force for five days.
- The terms of the company's worker shall be notified online via http://bit.ly/LaporCovidBpp to the Covid-19 Task Force every two weeks. Furthermore, the employer must ensure that employees in household work do not leave Balikpapan City.

The above-mentioned rule exclusively highlights employees in the city of Balikpapan. Moreover, numerous policies have been implemented by the city government of Balikpapan, namely:

- Creates and disseminates information on a website of the Balikpapan Task Force (http://covid19.balikpapan.go.id).
- Stop the main street and shopping centers
- Provision of goods to impacted residents such as food and other
- Health care workers who contribute 19 jobs Intensive
- Free clean water for three months for residence
- Delay in taxation for businesses impacted by covid
- Free vaccinations will be distributed to inhabitants of Balikpapan City.

3.2 Using Sendai framework targets to analyze covid-19 responses

The SFDRR or Sendai Disaster Risk Reduction Framework (2015-2030) provides disaster risk reduction assistance. In order to examine Indonesia's reaction to the COVID-19 pandemic, the four pillars of the Sendai Framework can be applied, in particular in Balikpapan, because this will be a strong and complete guidance for reducing catastrophe risk. The importance of adding health issues in disaster risk management is demonstrated by COVID-19 and its implications. COVID-19 Direct cost prohibitions, social distance and other reactions are simply one characteristic [6]. While the SFDRR (Sendai
Framework) mainly focuses on hazards, including biological risks and risk management systems, it is scarcely examined in terms of covid-19.

A. Understanding disaster risk

The processes of risk assessment, mitigation, preparedness, and response should all be carried out with an understanding of disaster risk management in mind. This must be based on a thorough understanding of vulnerability, capacity, exposure of people and assets, danger characteristics, and the surrounding environment, among other considerations. It is necessary to disseminate information about disasters that have occurred in Indonesia in order to effectively assess disaster risk. Science and technology can provide us with dangerous knowledge, but it is extremely difficult to comprehend aspects of social vulnerability in a scientific or technological setting. In addition, the Sendai Framework emphasizes the importance of government policies being based on a thorough assessment of catastrophe risk before being implemented.

To fully comprehend catastrophic risk management in all domains, including Balikpapan, it is critical to have transparent information available to all parties involved. In contrast, the city of Balikpapan's official information and statistics on disaster management are not well recognized, particularly in the context of a Covid-19 virus epidemic. Indonesia, and particularly the town of Balikpapan, is well aware that Covid-19 represents a major disaster that necessitates immediate action. In this biological crisis, Indonesia has designated the Health Minister as the principal driver to handle this outbreak. In preventing Covid 19 the Health Ministry's aim is to do tracing using different methods ranging from PCR to quick antigen testing. Since 2021, covid 19 prophylaxis can be performed in regions with limited PCR access by fast antigen testing. Another way to control Covid 19 is to provide the public with vaccines. Vaccine injection is conducted as an active immunity attempt in order that when exposed to Covid 19, people don't acquire sick or get mild disease only.

To prevent the spread of the Covid-19 virus, correct information is required to match actions to be taken at local level immediately. In the case of Balikpapan, however, the website of the City of Balikpapan (Satgas Balikpapan), which was supposed to play a key role in the requirement of information, did not have any up-to-date information since 30 October 2020.

Picture 5. Covid-19 Data from the Balikpapan Task Force Website(Source : http://covid19.balikpapan.go.id/).

Pandemics will have an impact on the SFDRR if the government does not assess how the Sendai framework can be maintained in its current form. Comprehensive research, such as multi-sectoral evaluations, is essential in addition to information sharing. It is necessary, in particular, to conduct a comprehensive examination of multi-hazard and multi-sector risk assessment in order to address
biological threats such as codification-19. At the very least, the evaluation considers exposure, vulnerability, and ability, all of which are thoroughly examined and appraised. It is also necessary to consider the consequences of a disaster's cascading effects. Disaster risk maps must be maintained and updated on a regular basis in order to disseminate information to communities that may be affected by disasters. It is also essential to strengthen the initial objectives of the SFDRR through data sharing and the study of Big Data.

B. Strengthening disaster risk governance to manage disaster risk

When it comes to adapt with this pandemic, the Indonesian Ministry of Health is at the head of COVID-19 planning efforts and also decision-making. Decision by the Indonesian Central Government to ensure that the majority of policies adopted by local governments are derived from the central policy is a landmark decision. According to Kalimantan News (2021), all government and commercial institutions in Balikpapan are working together to provide Covid-19 patients with the best possible care.

The participation of government is crucial when cooperating between health emergencies and the city's present legislation on disaster risk management. The examination of specific restrictions on these biological threats could help to identify the repercussions of disaster risk management. In order to broaden the coverage to address biological threats, revisions to disaster risk management legislation should be reviewed at city level. There must also be changes to appropriate policies and tactics. Decision-making based on real-time and scientific data is essential to the early detection of risk of disasters, as it can provide appropriate guidance and address new risks for policymakers. Various stakeholder participation is also required to ensure that various opinions on decision-making are taken.

C. Investing in disaster risk reduction for resilience

Successful DRR (Disaster Risk Reduction) requires investment in the resilience of the community. The investment, which comprises both financial and non-financial resources, has been proved by both structural and non-structural indicators. Investments undertaken both before and during this pandemic are significant in the response to COVID-19, not just in the medical field, but also in other areas such as social welfare. [22]

Budgets for pandemic COVID-19 in Balikpapan City range from Rp136.9 billion to Rp120.42 billion, with Rp120.42 billion expected to be achieved in 2020. To be specific, the budget 2020 allocates Rp61.86 billion for health (of which Rp50.13 billion is generated); handling the economic effect of Rp600 million (achieved in terms of Rp590.9 million); and Social Security Net (JPS) Rp74.5 billion (achieved in terms of Rp69.69 billion); and Rp600 million (achieved in terms of Rp590.9 billion).

The PCR (Polymerase Chain Reaction (PCR) facility, supporting equipment and chemical products (PCR) as well as laboratory experts at the Beriman Hospital, Balikpapan, has been assisted by PT Pamapersada Nusantara (PAMA). This support is used to speed up the testing service for Covid-19 patients in the region. Laboratory infrastructure facilities and PCR machines were given. It is one of the Social Corporate Responsibility (CSR) programs under the COVID-19 pandemic.

The tourism sector also plays an essential part in the growth of this city in Balikpapan, a city which is a trade and service sector. However, nearly every tourist activity has been affected by the epidemic, which has dramatically reduced visits from outside Balikpapan. Investments in enhancing domestic (in-city) travel and tourism are therefore extremely vital to overcome the impact of Covid 19.

Pandemics have a broad social impact, jeopardizing lives and livelihoods. Fiscal reforms are seen as essential to the recovery of the economy, but social measures are equally significant. [9]. The tools and procedures for identifying the most vulnerable groups in the catastrophe should be updated and used to identify priority support groups. In the event of an outbreak, community links, public-private partnerships and business-to-business relationships can contribute to continuity in the supply chain. Balikpapan comprises helpers from small and medium-sized enterprises (SMEs) and informal workers. They are frequently involved in packages for social and economic aid.
D. Enhancing disaster preparedness for effective response and to “build back better” in recovery, rehabilitation, and reconstruction

The Sendai Framework defines disaster as a phase of recovery, rehabilitation, and reconstruction that must be planned for prior to the occurrence of a disaster. To "Build Back Better," it is critical to incorporate catastrophe risk reduction into development strategies from the beginning. As a result, the community will be more prepared to deal with disasters in the future. As a result of the pandemic's impact, it is unclear whether the administration of Balikpapan has begun developing post-pandemic activities, recovery plans, or business continuity plans to address the situation. As a result, there are no strategies in place to improve public health or increase resilience to biological hazards at this time.

While pandemics can span years, it is vital to plan for the long term for the most vulnerable sectors. This policy should be planned in advance or as soon as possible after it is implemented. Protocol changes should take into account lessons learned from earlier disasters, as well as biohazard.

While the bulk of pandemic response focus on mitigation, it is equally critical to identify fundamental roots and improve effect mitigation. In non-emergency decision-making and investment, the reaction process promotes effect risk reduction as well as preventive risk reduction. To develop new institutional plans to alter risk profiles, it is necessary to study lessons learned from previous pandemics and to expand current capacities.

4. Conclusions

The response of Balikpapan City Government to COVID-19 was found to be lacking in the planning of the suitable reaction to resilience, although the reduction of the transmission of the disease in people movement is extremely effective. The Sendai Disaster Reduction Framework shows how the Balikpapan administration has not completed its strategy to COVID-19. In addition, knowing the origin of the impact and its relation to reaction is crucial to the successful containment of the epidemic. As the COVID-19 pandemic continues to spread fast in Balikpapan, more rigorous research is needed urgently to develop more risk-reducing response measures like SDFFR. Based on a fast study, the present responses have been mapped to four Sendai Framework targets and it has already been discovered that there are few resources or policies in the Balikpapan City Government in Objective 4.

For this research, the observations are extrapolated from studies published in journals and various mass media outlets, among other sources. As a result of restricted data and the inability to conduct direct surveys, we have encountered difficulties, especially given that the research are being undertaken during a moment of crisis when the pandemic is in its final stages. After acknowledging our limitations in terms
of being unable to collect a large number of sources for this study, we may draw certain conclusions that are thorough. On the other hand, this empirical study is based on facts in order to detect preparatory statistics for this pandemic disaster in Balikpapan. The author proposes an integrated technological approach to future research on corona outbreaks and its influence on DRM (Disaster Risk Management) or on current program or policies, in order to better understand generalizations of research and its unique nature. This approach will enable researchers to understand the generalization and unique nature of research more effectively.

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