

Analysis of Potential Disaster in The New Capital of Indonesia and its Mitigation Efforts: A Qualitative Approach

Hayatul Khairul Rahmat^{1*}, I Dewa Ketut Kerta Widana¹, A Said Hasan Basri² and Zaen Musyirifin²

1. Indonesia Defense University, Indonesia Peace and Security Center Complex, Sentul, Bogor, INDONESIA

2. Universitas Islam Negeri Sunan Kalijaga, Sleman, Yogyakarta, INDONESIA

*hayatul.rahmat@idu.ac.id

Abstract

On August 26, 2019, President Joko Widodo announced that a new capital city of Indonesia would be built in the administrative area of North Penajam Paser Regency and Kutai Kartanegara Regency, East Kalimantan Province. Therefore, it is very important to conduct research that discusses the identification and analysis of potential disasters in the new capital city of Indonesia and mitigation efforts. This research uses a qualitative research method with a descriptive analytical approach. To collect concrete data, researchers conducted data collection techniques, namely interviews and documentation.

The results of the study show that the new capital city of Indonesia has moderate potential disasters, both North Penajam Paser Regency and Kutai Kartanegara Regency are classified as moderate. The potential disasters in the new state capital area are floods, forest and land fires and landslides. For this reason, disaster mitigation efforts need to be done in moving the new capital of the country. In addition, disaster mitigation efforts can be carried out by active and passive mitigation.

Keywords: Disaster, Mitigation, New capital city of Indonesia.

Introduction

Indonesia is in a very strategic geographical position because it is sandwiched between two continents and two oceans^{11,15}. This country with the red and white flag is an archipelago with 17,504 islands with a land area of 1,922,570 km². The Indonesian sea area reaches 5.8 million km² or close to 70% of the total area of Indonesia, with the longest coastline in the world, reaching 81,000. In addition, Indonesia is also located on the Pacific Ring of Fire¹.

Apart from being known to have a diversity of cultural and traditional riches as well as biodiversity and ecosystems, Indonesia is also known to have a diversity of disasters with the lightest to the most severe stratification.

Many disasters have occurred in Indonesia, some disasters have even attracted world sympathy¹⁴, such as the tsunami in Aceh in 2004, the tsunami in Pangandaran in 2006, the

earthquake in Padang in 2009, the earthquake in Lombok in 2018 and the tsunami and liquefaction in Palu and Donggala in 2018^{10,12}.

The shapes of the earth's surface are very diverse, some are high like a bulge, some are low like a basin, some are tilted and so on. In fact, not only on the surface of the earth, but also in the ground it also varies greatly from underground rivers, underground caves to ground fractures. Faults are formed by natural events over a very long time span, there are several faults stretching across Indonesia, ranging from the Semangko Fault, the Opak Fault, the Grindulu Fault, the Lembang Fault, the Palu Fault, the Tarera Audina Fault and the Jakarta Fault^{3,8}. The shifting of land in these faults will have the potential to cause an earthquake, even if it occurs at sea, it will cause a Tsunami and earthquake¹³.

The distribution of the population is very uneven, in Java Island it is recorded that it has reached 57% of the total population of Indonesia. Sumatra Island 21%, Kalimantan Island 5%, Sulawesi Island 7%, Papua and Maluku 3%. Java Island, especially DKI Jakarta are already very crowded. With an area of 661.5 km², the population of DKI Jakarta is recorded to reach 10.5 million people⁵, so with population density there are many problems that arise in Jakarta, ranging from environmental problems, pollution, urban planning, congestion, annual flood disasters and overpopulation.

Problems in Jakarta have been occurring since the country was founded, even discussions on moving the country's capital have existed since the era of President Soekarno to Susilo Bambang Yudhoyono.

According to Daryono in Kurniadi, there are several acceptable reasons for the relocation of the new capital of Indonesia by looking at the risk of small disaster impacts, representation of national identity, being in the middle of the Republic of Indonesia, availability of energy, safe from major disasters etc.⁵

This means that a country is said to be healthy when the country's capital is safe from any threats including the threat of natural disasters. On August 26, 2019, President Joko Widodo announced that a new capital city would be built in the administrative areas of North Penajam Paser Regency and Kutai Kartanegara Regency, East Kalimantan Province. For this reason, it is very necessary to conduct research that

analyses potential disasters in the new capital of Indonesia and its mitigation efforts.

Research Method

This study uses qualitative research methods in answering research problems in synergy with the collection, processing and analysis of qualitative data. Creswell² states that qualitative research is method for exploring and understanding the meaning of a number of individuals or groups of people who are considered to be from social or humanitarian problems. To collect concrete data, researchers carried out several data collection techniques, namely interviews and documentation. To obtain the truth in the research, researchers used triangulation techniques. The data analysis used was descriptive analysis.

Results and Discussion

Analysis of Potential Disaster in The New Capital City of Indonesia: The locations that are used as a place to move the new capital of Indonesia are: Sepaku District, North Penajam Paser Regency and Samboja District, Kutai Kartanegara Regency. North Penajam Paser Regency and Kutai Kartanegara Regency are strategically located with an average distance to all provinces in Indonesia which is quite short namely 893 km. These two districts are also near developed cities in Kalimantan, namely Balikpapan and Samarinda.

North Penajam Paser Regency and Kutai Kartanegara Regency also have relatively complete infrastructure and 180 hectares of land already under government control are available. In addition, North Penajam Paser Regency and Kutai Kartanegara Regency are located close to two international airports, namely Aji Pangeran Tumenggung Pranoto Airport Samarinda and Sultan Aji Muhammad Sulaiman Airport Sepinggan Balikpapan. Likewise, the appointment of North Penajam Paser Regency and Kutai Kartanegara Regency as candidates for the new capital city was supported by the Semayang Port Balikpapan. Apart from Semayang Port which is a public pier, Pelindo IV also has a container terminal in Kariangau which is about 40 kilometers to the north.

Based on the interview data, it was found that the potential disaster in the new capital of Indonesia's area was moderate, so it was chosen as the location for the relocation of the state capital.

The results showed that the capital of the new state had moderate potential for disaster. It is found that the potential for disasters in the new capital area, especially North Penajam Paser Regency is classified as moderate. The potential disasters include floods, forest and land fires and landslides.

Kurniadi⁵ stated that in moving the national capital from the disaster aspect to East Kalimantan, Central Kalimantan and

South Kalimantan Provinces, one needs to consider the following:

- Peatlands and mineral content that are not much different from the three provinces.
- There is a history of earthquakes.
- There is a risk of flood disaster.
- There is a risk of tsunami on the east coast of two provinces, namely the Provinces of East Kalimantan and South Kalimantan.
- There is a risk of forest and land fires.

In addition, Kurniadi⁵ also states that East Kalimantan Province has several advantages in relocating the country's capital as follows:

- Close to two major airports that have received the title of the best airport in Asia Pacific, namely Balikpapan City and Samarinda City.
- Close to the Balikpapan - Samarinda toll road access.
- Close to Semayang Port in Balikpapan.
- Availability of clean water and energy network infrastructure.
- Heterogeneous demographic structure and mostly traders.
- The ALKI II passes the delineation around the Makassar Strait.
- Not directly adjacent to national borders.
- Has the availability of land with APL status, production forest with HTI concessions and production forest that is concession free.

However, the choice of East Kalimantan as the capital of the new state has weaknesses, namely it is prone to flooding, especially in areas close to the upstream watershed and the availability of low water resources.

Disaster Mitigation Efforts in the New Capital of Indonesia: The new state capital area can be categorized as an area with moderate potential for disaster. There are potential disasters such as floods, forest and land fires and landslides. However, it will be dominated by floods and forest and land fire disasters. In this case, disaster mitigation efforts are needed to reduce the risk of potential disasters.

In disaster mitigation, it is also important to pay attention to the capacity and vulnerability in the nation's capital area later. In North Penajam Paser Utara Regency, efforts have been made to increase capacity and reduce vulnerability to potential disasters there.

Disaster mitigation efforts related to potential disasters in the new capital area will not yet be clear, but it is necessary to prepare personnel as well as the capabilities of each. In addition, structural mitigation is also needed such as development in the new capital city based on disaster mitigation.

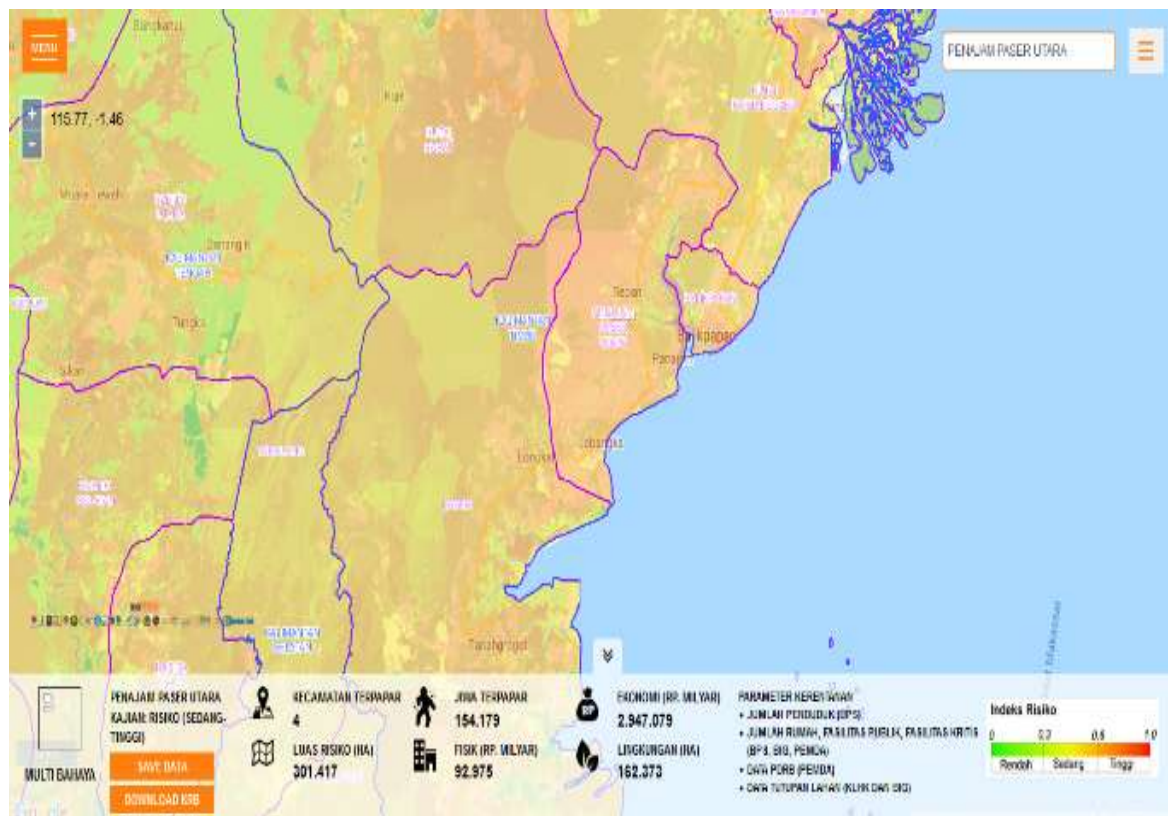


Figure 1: Maps of Disaster Potential in North Penajam Paser Regency¹

In disaster risk reduction efforts, disaster mitigation efforts can be carried out by reducing the level of vulnerability because this will be easier than reducing/ minimizing the danger⁶. Although it cannot completely eliminate disasters, at least there must be efforts to reduce and prevent them from happening. Priambodo⁹ states that disaster prevention and reduction are actions that are inter-related with one another.

In the regulation of the Head of BNPB Number 4 of 2008 concerning Preparation of Disaster Management Plans⁷, mitigation can be divided into two groups namely active mitigation and passive mitigation.

Structural mitigation is very important in this case because it is the key or solution to natural disasters. One thing that can be determined is being able to build earthquake-resistant houses or construct houses using light materials (bamboo-wood) for less fortunate people who live in areas prone to natural disasters. Furthermore, designing infrastructure development must be in accordance with the threat and development must be in accordance with the building code. Infrastructure development must be completed with the correct InaRisk and AMDAL. Institutions and networks still exist that need to be improved by each agency in each sector. Usually each agency has a sub that leads to disaster affairs, so it needs to be integrated.

Next is the problem of monitoring the development of the new capital area. Laws and regulations on supervision already exist, but what is more important is that supervision

starts from the initial planning, implementation to monitoring and evaluation after construction is complete. The nature of good planning must also be implemented properly. It is flexible in nature, that is, it is easy to change and is adapted to field conditions and needs. Avoid pragmatic principles that will derail plans and harm development in the long term.

As far reducing the risk of disasters due to development, risk management activities must be carried out. Disaster risk reduction is carried out to achieve a minimum risk point. Spatial planning and control need clarity and clear consequences so that it will be binding on the parties involved. Development funding must start paying attention to the risk of the area to be built and must certify the occupancy of a building to minimize losses.

Conclusion

The following conclusions can be drawn from the research: (a) The new state capital area has moderate potential for disaster, both North Penajam Paser Regency and Kutai Kartanegara Regency are classified as moderate.

Potential disasters in the capital city of the new state are floods, forest and land fires and landslides; (b) Disaster mitigation efforts that need to be carried out in relocating a new national capital are integrating potential disasters into development in the new capital area so that it can reduce the impact of natural disasters. In addition, disaster mitigation efforts can be carried out by active or passive mitigation.

Table 1
Disaster Mitigation

Active Mitigation	Passive Mitigation
• Preparation and placement of warning signs, prohibition of entering disaster-prone areas. • Supervision of the implementation of various regulations on spatial planning and so on relating to disaster prevention. • Basic disaster training. • Counseling and increasing community awareness. • Provision of evacuation routes. • Construction of structures that function to prevent, secure and reduce the impact of disasters such as embankments, dams and earthquake-resistant buildings, among others.	• Formulation of laws and regulations. • Preparing disaster-prone maps and mapping problems. • Preparation of guidelines/ procedures. • Assessment of disaster characteristics. • Disaster risk analysis. • Establishment of a disaster task force organization. • Strengthening the social unit in the community

Acknowledgement

We would like to thank Regional Disaster Management Agency of East Kalimantan Province, Regional Disaster Management Agency of Balikpapan City and Regional Disaster Management Agency of North Penajam Paser Regency who have provided information.

References

1. Badan Nasional Penanggulangan Bencana, InaRisk, <http://inarisk.bnpb.go.id> (2020)
2. Cresswell J.W., Research Design: Pendekatan Kualitatif, Kuantitatif, dan Mixed, Pustaka Pelajar (2016)
3. Fatma D., 17 Macam Patahan dan Lipatan Beserta Contohnya, <https://ilmugeografi.com/geologi/macam-patahan-dan-lipatan> (2007)
4. Jayani D.H., Jumlah Penduduk Warga DKI Jakarta 2019 Mencapai 10, 5 Juta Jiwa, <https://databoks.katadata.co.id/data/publish/2019/09/10/jumlah-penduduk-dki-jakarta-2019-men-capai-105-juta-jiwa> (2019)
5. Kurniadi A., Pemilihan Ibukota Negara Republik Indonesia Berdasarkan Tingkat Kebencanaan, *Jurnal Manajemen Bencana (JMB)*, **5(2)**, 1–12 (2019)
6. Nurjannah N., Manajemen Bencana, Alfabeta (2013)
7. Peraturan Kepala BNPB Nomor 4 Tahun 2008 tentang Penyusunan Rencana Penanggulangan Bencana (2008)
8. Pratikno H., Rahmat H.K. and Sumantri S.H., Implementasi Cultural Resource Management dalam Mitigasi Bencana pada Cagar Budaya di Indonesia, *NUSANTARA: Jurnal Ilmu Pengetahuan Sosial*, **7(2)**, 427–436 (2020)
9. Priambodo A., Panduan Praktis Menghadapi Bencana, Kanisius (2009)
10. Putra R.R., Kiyono J., Ono Y. and Parajuli H.R., Seismic Hazard Analysis for Indonesia, *Journal of Natural Disaster Science*, **33(2)**, 59–70 (2012)
11. Rahmat H.K. and Alawiyah D., Konseling Traumatik: Sebuah Strategi Guna Mereduksi Dampak Psikologis Korban Bencana Alam, *Jurnal Mimbar: Media Intelektual Muslim dan Bimbingan Rohani*, **6(1)**, 34–44 (2020)
12. Rajindra R., Wekke I.S., Sabara Z., Pushpalal D., Samad M.A., Yani A. and Umam R., Diversity, Resilience and Tragedy: The Disasters in Palu of Indonesia, *International Journal of Innovation, Creativity and Change*, **5(2)**, 1592–1607 (2019)
13. Sarjito A., Crisis Management Policy of Natural Disaster, *Advances in Social Science Research Journal*, **7(9)**, 183–192 (2020)
14. Sattler D.N., Clamita M. and Muskavage B., Natural Disaster in Indonesia: Relationships Among Posttraumatic Stress, Resource Loss, Depression, Social Support and Posttraumatic Growth, *Journal of loss and Trauma*, **23(5)**, 1415–1470 (2018)
15. Sui L., Wang J., Yang W. and Wang Z., Spatial-Temporal Characteristics of Coastline Change in Indonesia from 1990 to 2018, *Sustainability*, **12(3242)**, 1–28 (2020).

(Received 11th November 2020, accepted 03rd February 2021)