

PERSPECTIVE

RESEARCHERS AT ISEAS – YUSOF ISHAK INSTITUTE ANALYSE CURRENT EVENTS

Singapore | 26 July 2021

Climate-induced Disasters and Indonesian Politics

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This picture taken on 5 April 2021 shows damaged homes after a flash flood hit Waiwerang village in East Flores, Indonesia, where at least 157 people have been killed. Picture: Reynold Atagoran, AFP.

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EXECUTIVE SUMMARY

- Natural disasters in Indonesia have multiplied significantly over the past decade, with tropical storms, landslides and flooding being the top three events that occurred in 2019-2020.
- Global warming has resulted in heavier rainstorms, increased flooding in low-lying coastal areas and more forest fires.
- Human activities have contributed to an increased frequency and intensity of these natural disasters, despite policies introduced to address Indonesia's vulnerability to climate-induced crises.
- Mismatched priorities between the local and central government in climate governance, the exploitation of natural resources in disaster prone-areas, as well as political corruption, have led to increased environmental degradation and deterioration of climate resilience in the country.
- Indonesian political leaders, both at the local and national levels, therefore need to manage environmental issues and climate-induced disasters with a sustainable, long-term policy framework, focusing more on transition to green energy and increasing public participation.

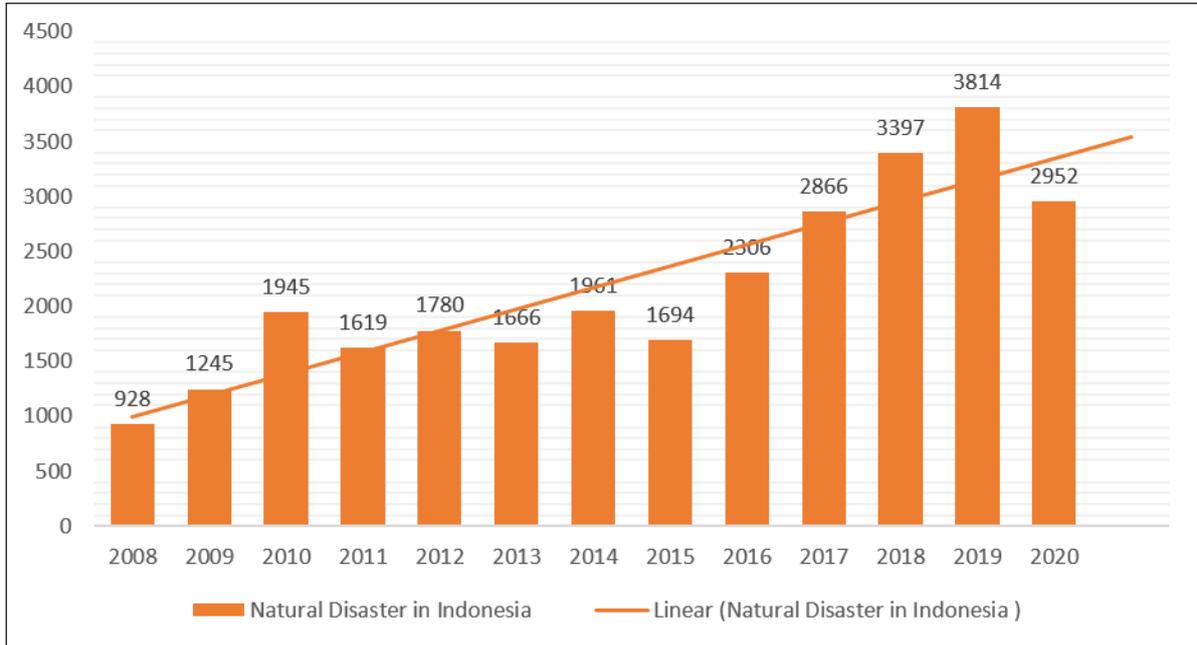
INTRODUCTION

Indonesia, an archipelago of more than 17,000 islands and the fourth most populous nation in the world, has been identified by the World Bank as one of the top 35 countries with the highest risk for natural disasters. Between January and March 1, 2021, the country recorded at least 650 natural disasters that cost 270 lives and socially displaced at least 3 million people.¹ In fact, natural disasters in Indonesia have been on an upward trend in the past few decades, with each disaster having a more severe impact compared to a previous occurrence. This led many to question if the severity of these events is result of human activities being prioritised over the protection of the environment. A key challenge for many disaster-prone developing countries like Indonesia is striking the right balance between economic development needs and environmental protection when these goals are at odds. This paper explores the various factors exacerbating the impact of natural disasters and assesses how the government's response to this climate crisis could impede Indonesia's transition to a more sustainable future.

CLIMATE-INDUCED DISASTERS ACROSS THE ARCHIPELAGO

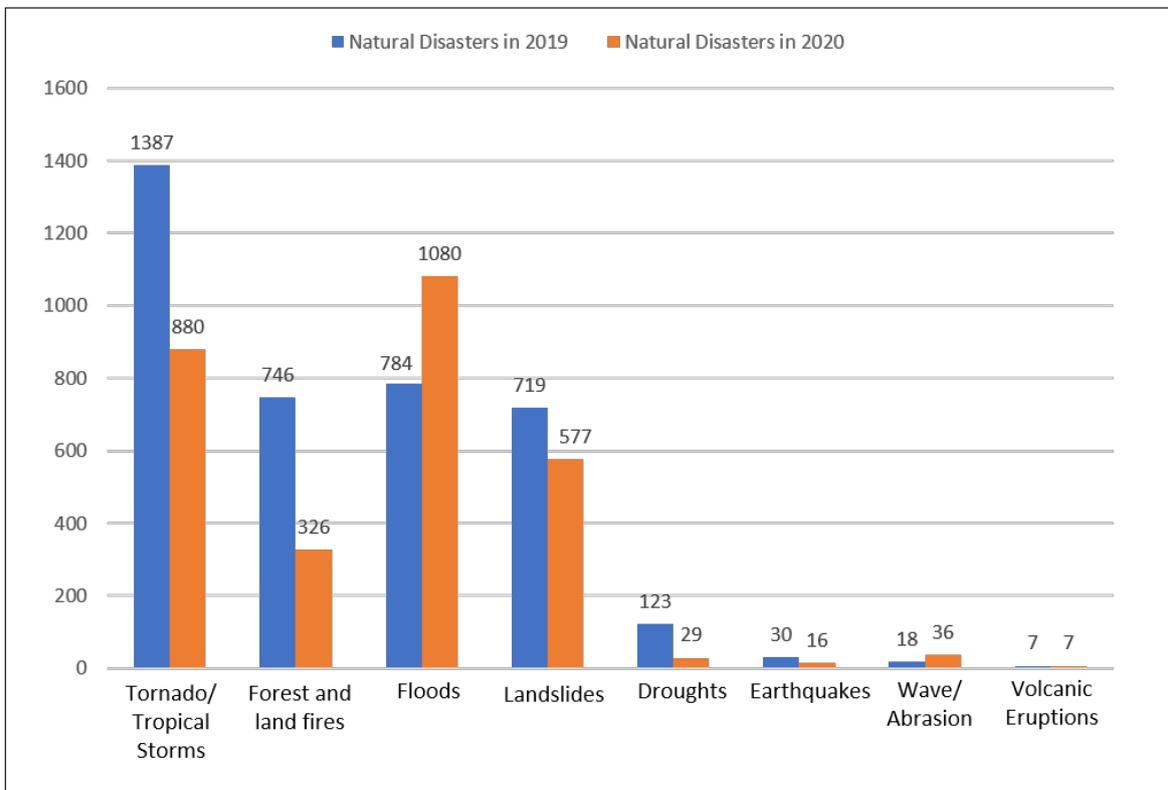
Being located in the vicinity of active tectonic plates² and the Pacific Ocean, Indonesia periodically experiences peaks in natural disasters generated by natural processes. This has been reflected throughout Indonesia's history where geophysical and hydro-meteorological hazards have tended to dominate its disaster profile since the 1900s.³ However, with global climate change, these events have not only increased in frequency and intensity, it has also generated other types of disasters such as landslides, forest fires and flooding. Between 2008 to 2020, the number of disaster occurrences rose from 928 cases in 2008 to 2,954 cases in 2020, with the highest at 3,814 events in 2019 (Figure 1). Breakdowns of the disasters have shown that tropical storms and their subsequent impacts such as landslides and flooding were the top three events that predominantly took place in the last two years (Figure 2). A quick investigation in the first three months of 2021 also reflected similar trends, with key provinces such as West Java and Central Java seeing higher proportions of these disasters taking place (Figure 3).

Figure 1: Natural Disasters occurrence in Indonesia from 2008 to 2020.

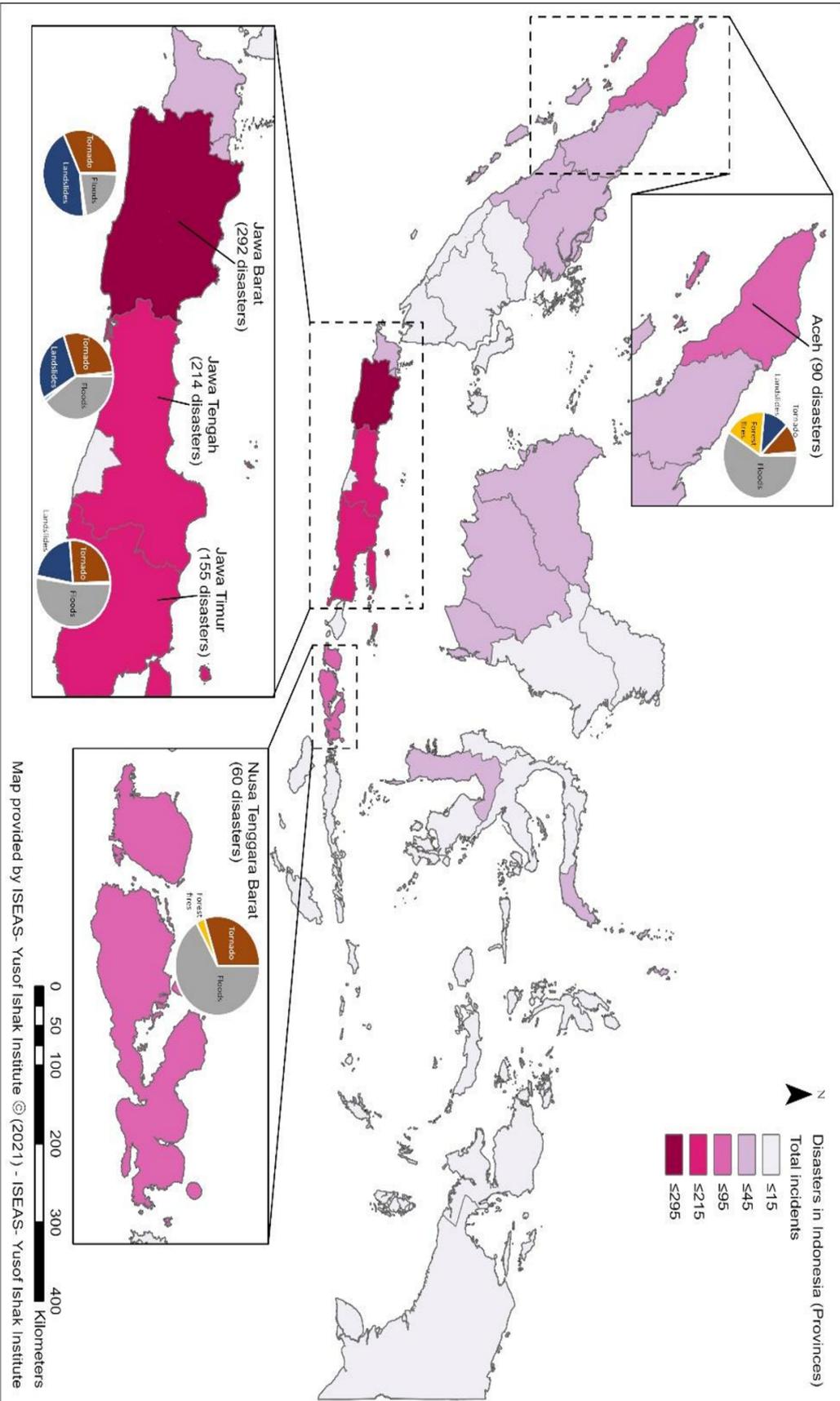


Source: *Geoportal Kebencanaan Indonesia*

Figure 2: Breakdown of Natural Disasters in Indonesia in 2019 and 2020



Source: *Geoportal Kebencanaan Indonesia*



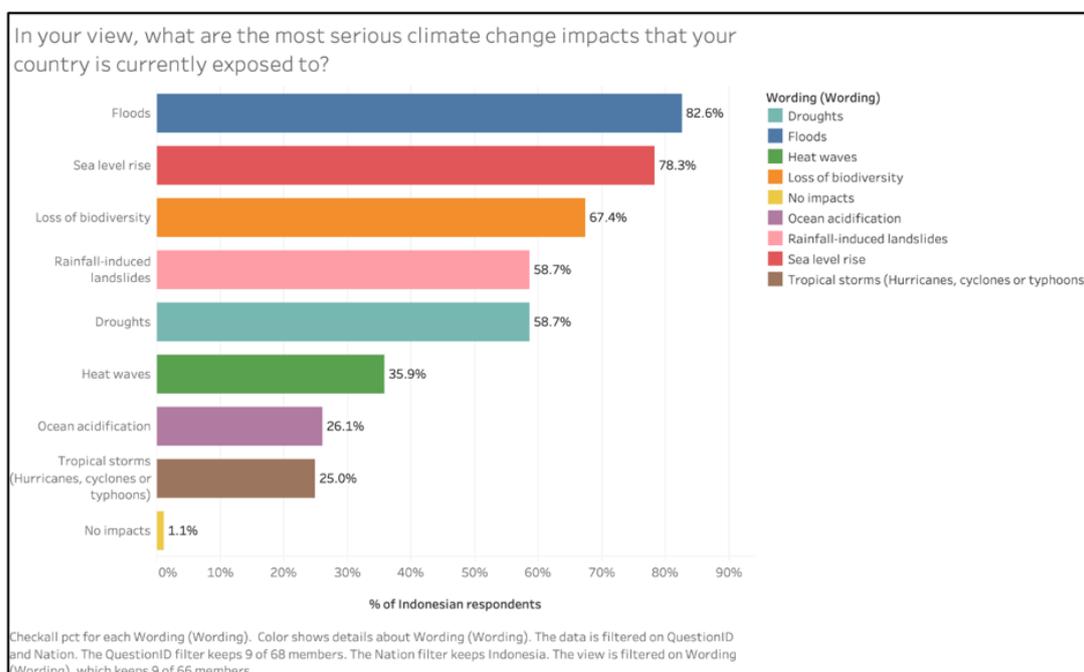
Source: Geoportial Kebencanaan Indonesia

Figure 3: Provinces worst-hit by disasters in Indonesia from December 2020 to March 2021

Hydro-meteorological hazards such as floods have been occurring more frequently over the last decade, with more than 78% of these types of disasters being recorded from 2005 to 2015.⁴ The last two decades, in particular, have seen frequent and devastating floods events in Indonesia, affecting at least 1.5 million people with the majority being the urban poor living in city centre.⁵ On top of that, climate change is also generating heavier torrential downpours. The rise in global temperature has generated an overall warming of the atmosphere which carries more water,⁶ fuelling increased rainfall formation. Moreover, the change in temperature has also generated sea surface temperature (SST) anomalies which give rise to longer rainy seasons,⁷ thus causing major floods and landslides in regions such as Aceh and West Java where SST can be observed. The overflowing of Citarik and Cipeuncit Rivers in West Java last year coincided with this natural phenomenon, leading to inundation of villages and causing 210 families to be displaced from their homes.⁸

Located in West and Central Java are also cities with high population sizes. A higher number of people are thus exposed to both economic and social damages, leading many to believe that floods will become one of the more pressing issues for Indonesia (Figure 4). Thus far, the solutions implemented to address the flooding problem are often focused on hard engineering solutions, which provide immediate respite but do not address longer-term climate adaptation measures. For instance, Central Java Governor Ganjar Pranowo increased the regional budget up to US\$905 million in order to build more road infrastructure and water embankments in the coastal areas.⁹ However, there does not appear to be much emphasis on long-term solutions such as creating green zones in these areas.

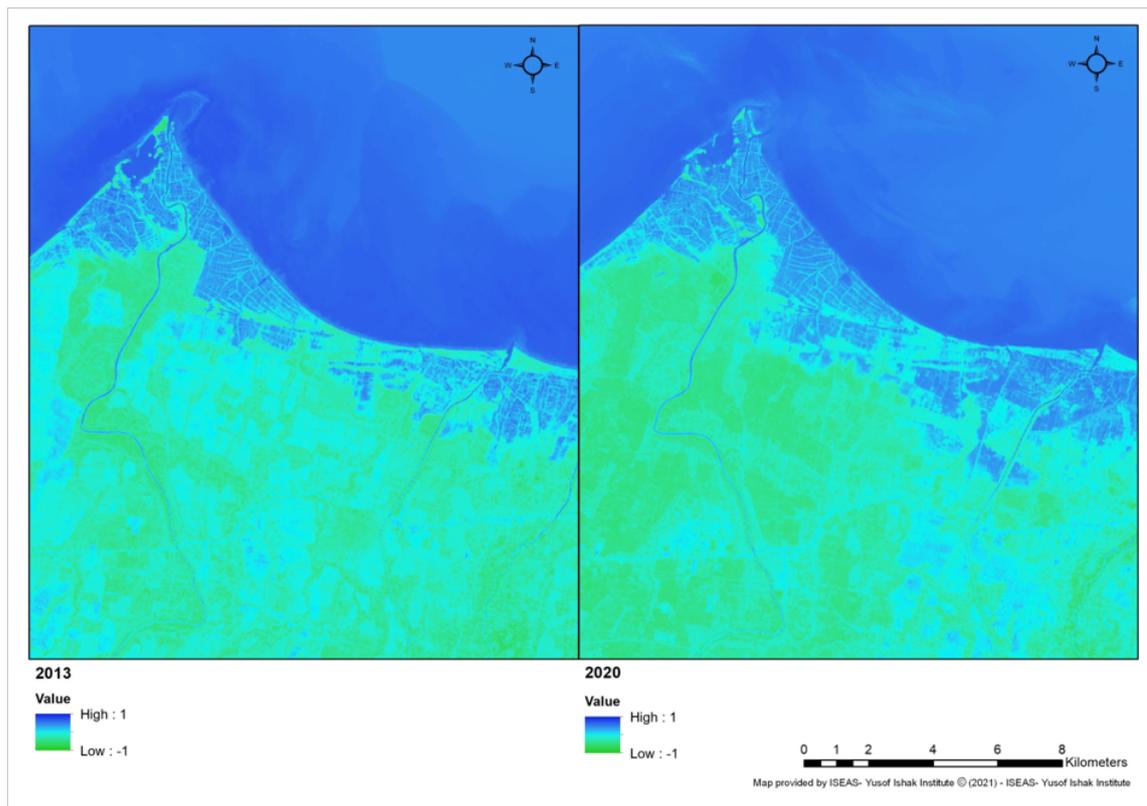
Figure 4: Indonesian respondents' opinion toward climate change impacts in ISEAS Climate outlook survey



Source: ISEAS Outlook Climate Survey 2020.

Rising sea level is also a concern. There have been instances of storm surges and land subsidence causing much of the coastline to move inland, resulting in dozens of homes being washed away by the sea.¹⁰ A close look at the northern part of the coastline in Central Java from 2013 to 2020 also reflects an increasingly water-logged coastal region, indicative of the extent to which the sea has moved inland over the years (Figure 5). Three key cities in the region, Pekalongan, Semarang, and Demak, have suffered the effects of flooding due to sea level rise. In particular, Pekalongan has seawater encroaching inland by up to 1.5km, effectively flooding infrastructure and displacing many to shelters. While climate change has indeed brought about more extreme rainfall and strong winds which consequently push more water inland, the severity of floods is worsened by the massive land subsidence that is currently occurring in this city.¹¹ Triggered by the excess exploitation of groundwater, the city is currently sinking at a rate of 10cm to 15cm per year, increasing the risk of the city being entirely underwater by 2036 if measures are not put in place to counter these effects. All these evidently suggest two foreboding threats – (1) climate change had worsened weather conditions, causing more extreme disasters (2) human activities have accelerated the disaster occurrences. Nonetheless, despite daily occurrences and serious impacts to livelihoods in coastal areas, Indonesian Law No. 24/2007 does not categorise sea level rise as a natural disaster.¹²

Figure 5: Coastline moving inland in Northern part of Central Java from 2013 to 2020

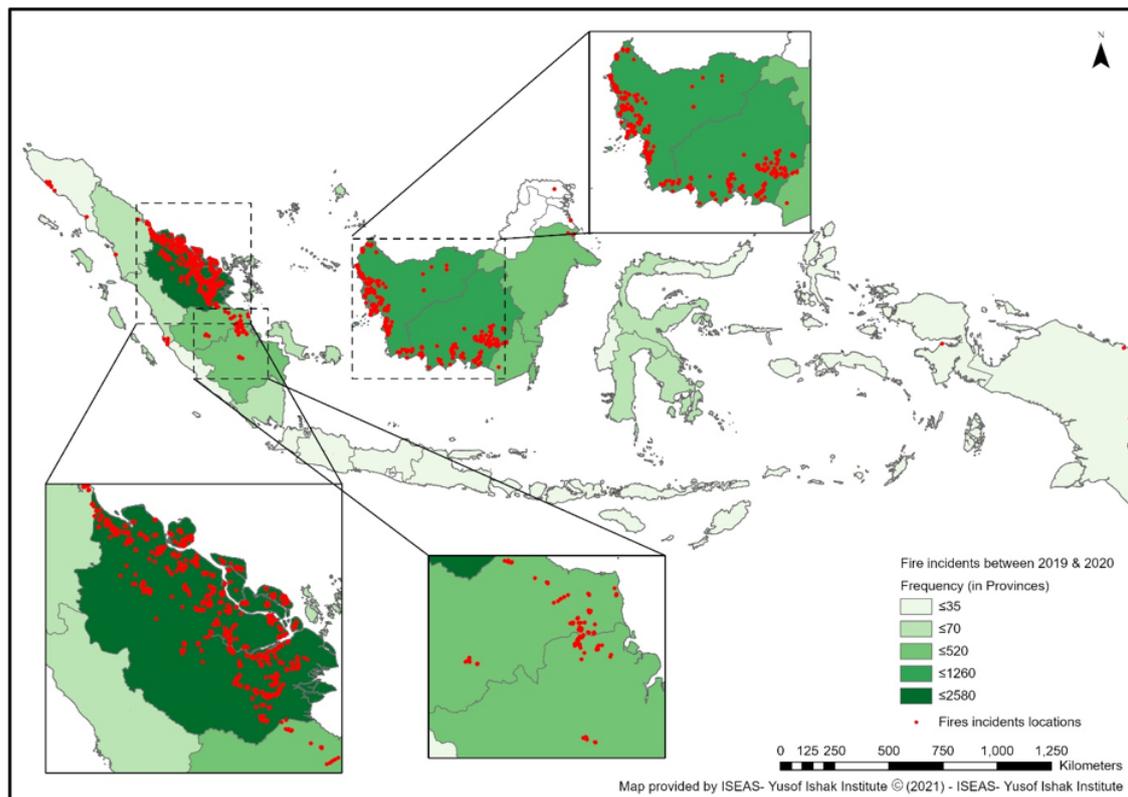


Source: USGS Earth Explorer for Landsat 8 imagery

The rise in global temperature has also led to widespread occurrence of forest fires and loss of biodiversity; both identified to be among the top few climate change impacts Indonesians are concerned about (Figure 4). These have tended to predominate within the primary forests

of Riau and West/Central Kalimantan, with Riau having most forest fires incidents from 2019 to 2020 (Figure 6). More than 2.6 million hectares of forested areas were destroyed during Indonesia's worst forest fires in 2015,¹³ and have also caused more than half a million respiratory infections in Indonesia and greatly affected Indonesia's economy.¹⁴ Forest fires also generated the transnational haze which affected neighbouring countries such as Malaysia and Singapore, both economically and socially.

Figure 6: Forest fires incidents in Indonesia from 2019 to 2020



Source: *Global Forest Watch (Indonesia)*

For Indonesia, forest fire events naturally demonstrate peaks according to the El Niño Southern Oscillation (ENSO) which cause drier and hotter weather conditions in Indonesia. This arises mainly due to an increase in sea surface temperature anomalies (SSTA) around Indonesia and a delay in monsoon events.¹⁵ With climate change, this increase is projected to become higher, and may spin off a stronger El Niño effect, causing more forest fires. While rising global temperature can be the catalyst behind forest fires occurrences, much of Indonesia's forest fires are still human-based phenomena where low-cost, traditional methods are frequently used to ignite the fires.¹⁶ Most of the worst forest fires events observed in Indonesia have in fact both natural and anthropogenic factors, with the latter causing more rapid spread of these fires. As such, while we cannot deny that climate change has influenced the natural processes that lead to natural disasters, most of these disasters are exacerbated by anthropogenic factors which in turn accelerated these processes. All these incidences thus reflect the increasing influence of human activities, together with the

associated political ecology, in accelerating the impacts of natural disasters on people's lives.

Recently, Indonesia announced its first Nationally Determined Contribution (NDC) that outlines the country's strategies to move toward a low-carbon and climate-resilient future.¹⁷ Apart from that, the government has also set an ambitious plan to achieve net zero for carbon emission by 2050.¹⁸ Indeed, Indonesia has come a long way in implementing policies to protect and conserve the environment. Data from the Environment and Forestry Ministry also suggest that Indonesia is moving in the right path in its forest protection policies, with deforestation rate decreasing by 75.03% in 2019-2020, the lowest rate ever recorded by the government.¹⁹ While steps have been made to progress Indonesia toward a more sustainable future, there are still factors that have hindered progress in implementing the higher-impact climate policies, such as establishing green power plants and minimising the operation of extractive industries in disaster prone areas.

ECONOMIC AND POLITICAL FACTORS IN CLIMATE-INDUCED DISASTERS

Like many other developing countries, Indonesia faces the challenge of making tough trade-offs between economic priorities and environmental protection. This is often manifested in the misalignment of priorities between the local and central government in climate governance and dilemmas over the operation of extractive industries in disaster prone-areas.

Local-national dynamics in climate governance

Under the administration of President Joko Widodo, the national and local governments in Indonesia have different attitudes toward climate governance. The national government has transferred a relatively high budget to the local governments for climate mitigation and adaptation, especially to 11 selected local governments for a pilot project on climate budget tagging in 2020. This commitment in maintaining the 2018-2020 climate budget is rather significant, considering the impact COVID-19 would have had on budget allocations.²⁰ But at the local level, some local governments may have been tempted to divert the allocated money to other priority projects. In some areas, for example, local government agenda in climate planning and financing have mainly been about overcoming poverty while some local leaders could have demonstrated reluctance in utilising the budget allocation due to complex administrative procedures.²¹ As a result, instead of allocating resources to address longer-term solutions such as establishing infrastructure for renewable energy transitions or enacting early disaster warning systems, local governments have preferred to focus on short-term infrastructural projects, such as building bridges and dams. Misalignment between central and local government is also reflected in the finding of various studies which have assessed that disaster preparedness is often excluded in local development plans while and the overarching national-based disaster preparation plans are often planned without consideration being given to local contexts.²²

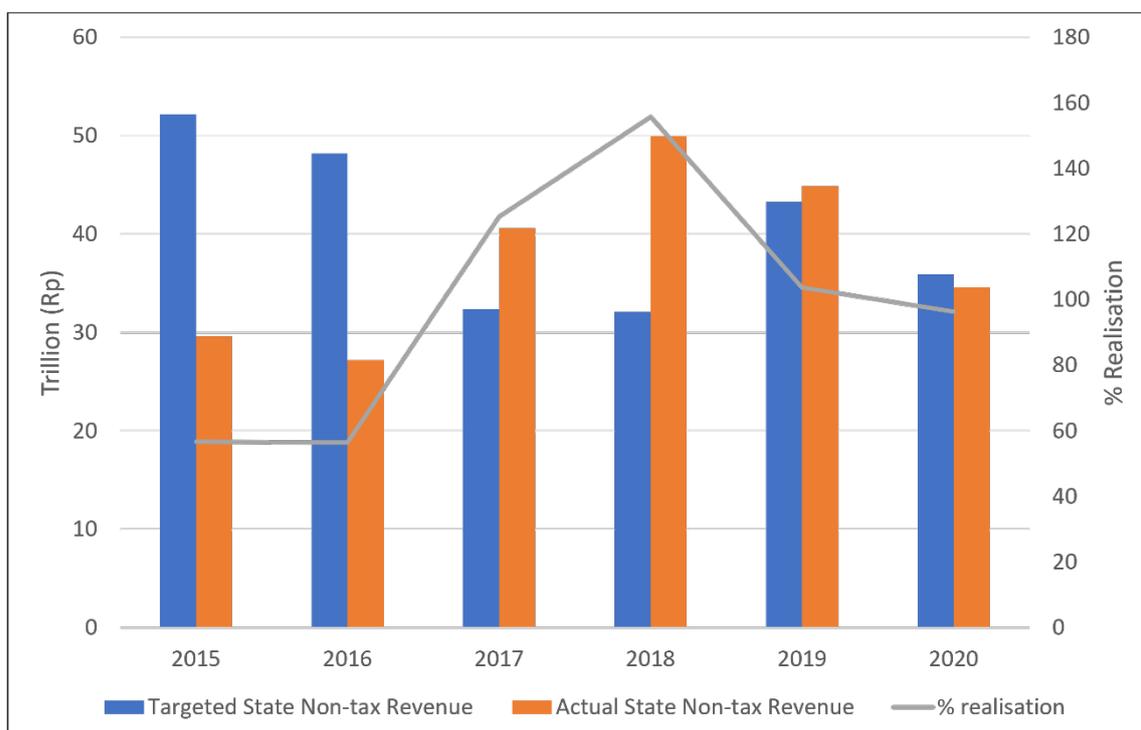
Despite the risks of being located in disaster-prone areas, the national government's ambitious economic plan in pushing for massive infrastructural projects in key strategic areas has sometimes been at odds with local climate disaster mitigation considerations. The establishment of the Special Economic Zone (KEK) Mandalika at West Nusa Tenggara groomed to be the "New Bali", for instance, has been controversial due to known tsunami

risk as well as its impact on the people and the environment.²³ Before it was built as planned, in January and April 2021 respectively, muddy floods from the construction sites had affected people in Central Lombok while Cyclone Saroja, caused by extreme weather, had destroyed cities across the province.²⁴ The current administration is also currently preparing for 14 other special economic zones located in coastal areas. While these projects are expected to bring about massive benefits such as income and job creation, it is a constant dilemma for both the central and local governments to weigh the benefits of such development projects against their risks and impact on the environment and the communities living there.

Environmental risks in extractive industries

Indonesia’s developmental plan still relies on exploiting natural resources, i.e. through extractive mining projects. As transitioning towards renewable energy would require some time to reap its benefits, the vast economic benefits that can be derived from the mining industry would remain attractive for the growing of Indonesia’s economy for some time to come. In 2019 and 2020, the mining industry had contributed a total of Rp44,93 trillion (9% of total state revenue) and Rp34,64 trillion (9,7% of total state revenue) to the country’s total non-tax revenue respectively. Since 2017, the actual revenues obtained have exceeded annual targets of the state’s revenue collection.²⁵ This productivity is also predicted to remain optimal for the next 70 years, making it a highly profitable industry for Indonesia’s economy.

Figure 7: State Non-Tax Revenue Progress on Mineral and Coal Industries from 2015-2020



Source: Directorate General Mineral and Coal Annual Report 2020, Ministry of Energy and Mineral Resources, Indonesia

As such, over 3,000 extractive industry facilities in Indonesia are still located in disaster-prone areas, despite the prohibition of such construction in high-risk areas.²⁶ Consequently, when a natural disaster hits these areas, people in these regions suffer two-fold impact, firstly from the physical effects of the crisis and secondly from economic damages caused by extractive industrial projects.²⁷

Regulating the extent of development for extractive industries within vulnerable land spaces has been challenging for Indonesia, especially in maintaining the fine line between development and protection. For example, the plan to establish a new Indonesian capital at East Kalimantan has generated a land-swap practice between the capital developer and businesspersons in the coal industry. This practice allows the developer to chop down a forest for city establishment in exchange for permits for the extractive industry.²⁸ As such, this could bring about climate related problems such as exacerbating deforestation and water capacity, loss of biodiversity, as well as forest fires during extreme weather conditions at the new capital and its surrounding areas.²⁹ Even now, about 85,000 hectares of forests surrounding the new capital were damaged by extractive industries and the government would need to relinquish the concessions given to these industries as well as repair the forest before the launch of new capital in 2024. This reflects the difficult situation Indonesia is currently facing in achieving both economic development and adopting sustainable practices.

Moreover, dirty practices in such industries have resulted in an increased vulnerability of the environment. In January 2019, South Sulawesi was hit by massive floods and landslides due to sand silting which was a consequence of illegal sand mining at Jeneberang river and land-use change.³⁰ Recently, activists warned that the new government regulation to rename coal waste³¹ seemed to serve primarily the interests of the dirty energy industry, and people are worried about the implementation and monitoring of this regulation at the company level. Undeniably, these industries are still essential in fulfilling domestic demand for electricity, maintaining energy security, as well as boosting Indonesia's state revenues. However, the presence of dirty practices within the industries could further hinder the progression towards sustainable models – models that not only boost the country's development needs but also minimise their impacts to the environment.

Political corruption

Political corruption has clearly contributed to non-compliance with environmental laws. In 2019, high level officials at the National Energy Company (PLN) were accused of bribery and collusion.³² In February 2021, the Governor of South Sulawesi Nurdin Abdullah was arrested by the Anti-Corruption Commission (KPK) for receiving bribes from various infrastructural projects.³³ Activists immediately reacted to these cases and demanded justice concerning this dirty energy practice.³⁴ In the forestry sector, patron-client networks involving businessmen, retired army generals, police personnel, government officials and regional parliamentarians have led to weak law enforcement on forest burning. This has been arguably the major driver of the haze-producing fires in Sumatra and Kalimantan.³⁵ In addition, in the recent Week of Resistance (28 June-5 July), environmental activists have been protesting against the systemic attempt to weaken KPK, the main anti-corruption body in Indonesia. This suggests the possibility of greater corruption among government officials

and the oligarch, especially in deals in the extractive industry and in land acquisition.³⁶ Corruption, therefore, remains one of the key obstacles to tackle in future environmental protection policies.

TOWARDS A CLIMATE-RESILIENT COMMUNITY

Climate resilience is far more than just having adequate responses once disasters hit. A new framework of economic growth that is more inclusive of all classes is needed. Along with that, investment in green energy transition and a carbon tax will generate climate adaptation in the economic sector. Indonesia should break from its dependency on traditional energy resources by investing more in renewable energy sources. At the regional and local level, political leaders need to treat environmental issues and climate-induced disasters with a sustainable, long-term policy framework. Lastly, people participation should be included to increase climate resiliency. Grassroots innovation on crowdsourced data sites like PetaBencana.id, and youth social movements such as Jeda Untuk Iklim, have helped to draw public participation into an accessible and inclusive channel. As such, adopting an approach that generates community empowerment can greatly ensure the cooperation of local, state and business interests.³⁷ In the end, climate action should not be a lonely journey undertaken by just a single party.

¹ Antara News. (2021). Natural disasters bring mitigation, prevention to fore. <https://en.antaranews.com/news/169363/daily-disasters-bring-mitigation-prevention-to-fore> (Accessed 24 March 2021)

² Indonesia is located within active tectonic plates. The tropical cyclones within the region are also fuelled by the Pacific Ocean surrounding the islands. See: Verstappen, H, T. (2010). Indonesian Landforms and Plate Tectonics. *Jurnal Geologi Indonesia*, 5(3), p.197- 207.

³ Djalante, Riyanti & Garschagen, Matthias. (2021). A review of disaster trend and disaster risk governance in Indonesia: 1900 – 2015. In: *Disaster Risk Reduction in Indonesia*. (pp. 21- 56). Switzerland: Springer International Publishing.

⁴ Prasetyo, Yudo & Nabilah, Farras. (2017). Pattern Analysis of El Nino and La Nina Phenomenon Based on Sea Surface Temperature (SST) and Rainfall Intensity using Oceanic Nino Index (ONI) in West Java Area. *The 5th Geoinformation Science Symposium 2017, IOP Conf. Series: Earth and Environmental Science*, 98, pp.1-9.

⁵ Djalante, Riyanti & Garschagen, Matthias. (2021). A review of disaster trend and disaster risk governance in Indonesia: 1900 – 2015. In: *Disaster Risk Reduction in Indonesia*. (pp. 21- 56). Switzerland: Springer International Publishing

⁶ Mudelsee, M., Borngen, M., Tetzlaff, G. & Grunewald, U. (2004). Extreme floods in central Europe over the past 500 years: Role of cyclone pathway “Zugstrasse Vb”. *Journal of Geophysical Research*, 109, p 1-21.

⁷ Indonesia possesses a tropical monsoon climate that is sensitive to the El Nino Oscillation (ENSO) climate anomaly. These anomalies occur naturally during both the El Nino and La Nina phenomenon which give rise to drought and rainfall. West Java experiences sea surface temperature anomaly more frequently during the La Nina phenomenon (mainly during December to February) which tends to bring in heavier rainfall, causing flooding events to occur during that period. See: Prasetyo, Yudo & Nabilah, Farras. (2017). Pattern Analysis of El Nino and La Nina Phenomenon Based on Sea Surface Temperature (SST) and Rainfall Intensity using Oceanic Nino

Index (ONI) in West Java Area. *The 5th Geoinformation Science Symposium 2017, IOP Conf. Series: Earth and Environmental Science*, 98, pp.1-9.

⁸ The Jakarta Post. (2020). Two killed, hundreds displaced in Sukabumi flash floods, more rain to come. <https://www.thejakartapost.com/news/2020/09/22/two-killed-hundreds-displaced-in-sukabumi-flash-flood-more-rain-to-come.html> (Accessed on 29 March 2021)

⁹ See “Ganjar Soal Banjir di Semarang: Kalau Mau Menyalahkan, Salahkan Saya,” Kompas.com, 25 February 2021, <https://regional.kompas.com/read/2021/02/25/06295631/ganjar-soal-banjir-di-semarang-kalau-mau-menyalahkan-salahkan-saya> (Accessed on 4 June 2021)

¹⁰ Channel News Asia. (2020). This city in Java could disappear in 15 years, due to land subsidence and coastal flooding.

<https://www.channelnewsasia.com/news/climatechange/indonesia-pekalongan-land-sinking-coastal-flooding-disappear-14279658> (Accessed on 29 March 2021).

¹¹ The local government in Pekalongan has been excessively exploiting the use of groundwater for drinking, agriculture, hotel and other industries by constructing boreholes across the city, causing the city to sink due to land subsistence. See

<https://www.channelnewsasia.com/news/climatechange/indonesia-pekalongan-land-sinking-coastal-flooding-disappear-14279658> (Accessed on 30 March 2021).

¹² For a comprehensive analysis on the issue of sea level rise from a legal perspective, see: Laely Nurhidayah. (2020). In Riyanti Djalante, Joni Jupesta, Edvin Aldrian. (2021). *Climate Change Research, Policy and Actions in Indonesia: Science, Adaptation and Mitigation*. Switzerland: Springer Climate. <https://doi.org/10.1007/978-3-030-55536-8>

¹³ The areas affected by Indonesia’s 2015 forest fires was rich in biodiversity and endangered species such as orangutan, tigers, rhino and elephants. See: Edwards, R, B., Naylor, R, L., Higgin, M, M. & Falcon, W, P. (2020). Causes of Indonesia’s forest fires. *World Development*, 127, p 1-13.

¹⁴ An estimated US\$16 billion was projected to be the economic loss suffered by Indonesia during the 2015 forest fire season. See: Edwards, R, B., Naylor, R, L., Higgin, M, M. & Falcon, W, P. (2020). Causes of Indonesia’s forest fires. *World Development*, 127, p 1-13.

¹⁵ A two-degree increase in SSTA in the Central Pacific Ocean was reported to have increased the annual fire hotspot detections by 50% from 2001 to 2015 in Indonesia. See Edwards, R, B., Naylor, R, L., Higgin, M, M. & Falcon, W, P. (2020). Causes of Indonesia’s forest fires. *World Development*, 127, p 1-13.

¹⁶ Edwards, R, B., Naylor, R, L., Higgin, M, M. & Falcon, W, P. (2020). Causes of Indonesia’s forest fires. *World Development*, 127, p 1-13.

¹⁷ Indonesia’s First NDC highlights the steps and processes Indonesia would take to tackle climate change. Some strategies include enhancing the REDD+ programme, embarking on mixed energy policies using renewable energy and developing a nationwide climate vulnerability index and data information system to study regional vulnerability to climate change. For details of the strategies, see: Republic of Indonesia, First Nationally Determined Contribution. (2020).

https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/First%20NDC%20Indonesia_submitted%20to%20UNFCCC%20Set_November%20%202016.pdf (Accessed on 30 March 2021).

¹⁸ Ministry of Environment and Forestry, “Progres Perubahan Iklim Indonesia”, *YouTube*, 19 March 2021, https://www.youtube.com/watch?v=eIF36b_VpCE. (Accessed on 24 March 2021).

¹⁹ Indonesia’s deforestation rate has hit a record low level, illustrating the government’s commitment to halt deforestation and lower carbon emissions. See: “Combating Climate Change: Indonesia’s Deforestation Hits Historic Low,” *Jakarta Globe*, 11 May 2021,

<https://jakartaglobe.id/special-updates/combating-climate-change-indonesias-deforestation-hits-historic-low>. (Accessed on 24 May 2021).

²⁰ Fiscal Policy Agency, Indonesian Ministry of Finance. (2021), *Laporan Anggaran Mitigasi dan Adaptasi Perubahan Iklim Tahun 2018 – 2020*, <https://fiskal.kemenkeu.go.id/publikasi/buku> (Accessed on 21 June 2021)

²¹ For cases where climate financing is used to overcome poverty in East Kalimantan, see: Zahra Zafira Mutiara, Dede Krishnadianty, Budhi Setiawan, Joko Tri Haryanto. (2020). *Climate Budget Tagging: Amplifying Sub-National Government's Role in Climate Planning and Financing in Indonesia*. In Riyanti Djalante, Joni Jupesta, Edvin Aldrian. (2021). For local governments' perception on climate budget, see this old yet good investigative piece by Indra Nugraha & Della Syahni. (2016). "Hadapi Perubahan Iklim, Kesadaran Pemerintah Daerah Terbilang Minim," *Mongabay*, <https://www.mongabay.co.id/2016/11/25/hadapi-perubahan-iklim-kesadaran-pemerintah-daerah-terbilang-minim/>. (Accessed on 21 June 2021)

²² Under the Regional Autonomy Law No. 23/2014 on decentralisation, the local government at the city/regency level has a capacity to prevent, mitigate and recover from natural disaster crisis, while regional leaders at the provincial level manage the bureaucratic flow of these actions within their geographical area of authority. The 2007 Disaster Mitigation Law also mandated the appointment of National Disaster Agency (BNPB) across the localities (BPBD), though their remit is limited to disaster preparedness instead of disaster mitigation. The research conducted by CSIS Indonesia in 2019 found some flaws on disaster governance in the country, including unsystematic format of relations between national and local disaster authorities and ignorance towards disaster-risk spatial planning in disaster-prone regions. See: <https://csis.or.id/project/disaster-management-research-unit> (Accessed on 25 March 2021).

²³ Recently, UN Special Rapporteurs had denounced that this mega project "trampled on human rights" due to expulsions of local communities and destruction of houses, fields, water sources, cultural and religious sites. <https://news.un.org/en/story/2021/03/1088742> (Accessed on 4 April 2021).

²⁴ In January 2021, 350 families in three villages in Central Lombok, West Nusa Tenggara were affected by muddy floods coming from the hill where the megaproject was located, causing a blackout in the entire areas as well as drowning hundreds of houses. A few months later, in early April, 11 regencies in East Nusa Tenggara province were hit by Cyclone Saroja, the strongest tropical cyclone Indonesia had seen since 2008, causing 177 fatalities and displacing 16.000 people across the provinces. <https://tirto.id/kek-mandalika-ntb-diterjang-banjir-350-keluarga-terdampak-t9NP>. (Accessed on 5 April 2021).

²⁵ Directorate General Mineral and Coal, Ministry of Energy and Mineral Resources, "Laporan Kinerja Tahun 2020" (Annual Report 2020), <https://www.esdm.go.id/assets/media/content/content-laporan-kinerja-ditjen-minerba-2020.pdf> (Accessed 14 July 2021).

²⁶ See complete report issued by #BersihkanIndonesia (Cleaning Indonesia), a civil society coalition promoting clean energy, here: <https://www.jatam.org/obral-investasi-ekstraktif-di-wilayah-risiko-bencana-jokowi-abaikan-tanda-bahaya/>. (Accessed on 5 April 2021).

²⁷ South Kalimantan, for instance, have suffered from flood mismanagement as the patronage politics are arguably prominent factor in exacerbating climate disasters. Moreover, heavy reliance on inadequate technological solutions in flood mitigation. See: Yogi Setya Permana, "Why politics matters: an insight from Indonesia's flood management," *New Mandala*, 21 May 2021, <https://www.newmandala.org/why-politics-matters-an-insight-from-indonesias-flood-management/>. (Accessed on 4 June 2021).

²⁸ Hans Nicholas Jong, "Report identifies tycoons controlling site of new Indonesian capital," *Mongabay*, 6 January 2020, <https://news.mongabay.com/2020/01/indonesia-capital-relocation-borneo-kalimantan-tycoons-coal-mining-pulpwood/>

²⁹ A survey by Litbang Kompas also reflected the public's concerns on the new capital's move, where 71,9% of 509 respondents across the country were worried about its environmental impacts. <https://www.kompas.id/baca/ekonomi/2021/04/05/menanti-di-tengah-pandemi/>. (Accessed on 5 April 2021).

³⁰ The illegal mining industry includes companies whose permits are expired as well as local independent miners. A study had found that from 2002-2016, 49.77% of the forest cover area in Jeneberang river in Gowa regency, South Sulawesi was converted into housing complex, rice field,

gardens, and mining areas. See Rifani, 2017, Master’s thesis, Universitas Gadjah Mada, <http://etd.repository.ugm.ac.id/penelitian/detail/128642>. (Accessed 7 May 2021)

³¹ Indonesian government issued a new regulation that named fly ash and bottom ash from the burning coals in power plants and other industrial facilities as non-hazardous waste, despite these containing heavy metal materials. See Indonesian Law No. 22/2021 on Implementation of Environmental Protection and Management, <https://peraturan.bpk.go.id/Home/Download/154526/PP%20Nomor%202022%20Tahun%202021.pdf> (Accessed 21 May 2021).

³² “Selain Sofyan Basir, Ini Dirut PLN lainnya yang terjerat korupsi. *Tempo.co*, 25 April 2019. <https://bisnis.tempo.co/read/1198886/selain-sofyan-basir-ini-dirut-pln-lainnya-yang-terjerat-korupsi> (accessed 29 May 2021)

³³ KPK found that Nurdin had received around USD\$378,000 in total from several contractors to procure several infrastructural projects in the province, including a tourism site project at Bira, Bulukumba. <https://majalah.tempo.co/read/hukum/162762/modus-korupsi-gubernur-sulawesi-selatan-nurdin-abdullah-suap-dari-pengusaha-dekat> (Accessed on 5 April 2021).

³⁴ Indonesian Corruption Watch released a report on corruption practices within the electricity industry and supply chain, See: <https://antikorupsi.org/sites/default/files/dokumen/Siapa%20di%20Balik%20Pembangkit.pdf>; In the case of Nurdin Abdullah, civil society groups, such as Walhi, JATAM, and Indonesian Corruption Watch, also demanded KPK to investigate Nurdin’s involvement in a national strategic project of Makassar New Port (MNP), whereby he was accused of easily passing an environmental assessment permit for two sand mining companies that had supported him during South Sulawesi regional elections in 2018. <https://nasional.kompas.com/read/2021/03/01/09374541/icw-minta-kpk-dalami-dugaan-keterlibatan-gubernur-sulsel-dalam-proyek?page=all> (Accessed on 7 May 2021).

³⁵ Varkkey, H. (2013). Patronage politics, plantation fires and transboundary haze, *Environmental Hazards*, 12:3-4, 200-217, DOI: 10.1080/17477891.2012.759524

³⁶ A group of civil society organisations named ‘Rebuild Alliance’ protested in front of KPK’s office in Jakarta on 29 June 2021. One of the demands was to #BersihanIndonesia (clean Indonesia), figuratively aiming to clean Indonesia from dirty mining as well as dirty corruption practices. <https://www.instagram.com/p/CQR3zrcBKmf/> (Accessed on 29 June 2021).

³⁷ Douglass, M. (2016). *The Urban Transition of Disaster Governance in Asia*. In: Miller, M, A. & Douglass, M. (2016). *Disaster Governance in Urbanising Asia*. Springer Ptd Ltd. London, United Kingdom.

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