INVITING DISASTERS

A PRELIMINARY PORTRAIT OF EXTRACTIVE-DIRTY ENERGY INVESTMENTS AND THE PEOPLE'S SAFETY IN DISASTER-PRONE AREAS OF INDONESIA

JATAM
JARINGAN ADVOKASI TAMBANG
MINING ADVOCACY NETWORK

TREND ASIA

#BERSIHKAN INDONESIA

FIRST PART OF A SERIES - APRIL 2021

WRITERS:
Merah Johansyah, Ahmad Saini, Melky Nahar, Ahmad Ashov Birry, Zamzami Arlinus

ACKNOWLEDGMENTS:
We want to extend our gratitude to those that have contributed to this report:
Astri Chairina, Aji Rhesa, Haflah Distincta, Marina Nasution, Hendro Sangkoyo

MAP ILLUSTRATIONS:
Ananta, Ahmad Saini

GRAPHICS DESIGN:
Muhammad Andre

LAYOUT/COVER IMAGES:
Kakiketjil/Adhitya Slotc

Published on 27 April 2021
By JATAM, Trend Asia, and #BersihkanIndonesia

https://www.jatam.org/en/
https://trendasia.org
https://www.bersihkanindonesia.org

JARINGAN ADVOKASI TAMBANG
MINING ADVOCACY NETWORK

TERMINOLOGY USED IN THIS REPORT:

DISASTER:
An event or series of events that threaten and disrupt the lives and livelihoods of the community which is caused, both by natural factors and or non-natural factors as well as human factors, resulting in human casualties, environmental damage, property loss, and psychological impacts (Law No. 24 of 2007 concerning Disaster Management). However, in this report, the writing also takes an anthropocentric point of view in which human activities, in this case extractive projects, have a global influence on the earth's ecosystem.

DISASTER RISK:
The study and determination of the disaster risk index (Indonesian: Indeks Risiko Bencana, IRBI) has been based on calculations on hazard, vulnerabilities, and capacities in each province and district/ city. Hazard components are natural phenomena that can cause disasters such as earthquakes, volcanic eruptions, tsunamis, floods, and others. The components of vulnerability are (1) Physical condition, (2) Sociocultural, (3) Economy, and (4) Environments prone to disaster. This report includes hazard and other vulnerability components, namely the threat and presence of extractive industries such as mining, smelting, and coal-fired power plants which can also impact risk factors for natural and non-natural disasters, as well as environmental changes due to extractive industries which increase vulnerability as well as capacity of citizens in the face of disasters. Extending the previous capacity components that focused on regional resilience elements such as local disaster management institutions.

The components of vulnerability and capacity also include potential loss, damage and loss caused by a disaster in an area and in a certain period of time, which can be in the form of death, injury, illness, threatened lives, loss of security, displacement, damage or loss of property, and disruption of community activities. (Law No. 24 of 2007 concerning Disaster Management).

DISASTER PRONE:
Disaster Prone is a condition or characteristic of geological, biological, hydrological, climatological, geographical, social, cultural, political, economic and technological in an area for a certain period of time which reduces the ability to prevent, mitigate, achieve readiness, and reduce the ability to respond to adverse impacts of certain hazards (Law No. 24 of 2007 on Disaster Management).

METHODOLOGY:
Determination of disaster risk areas or areas to identify mining extractive industry projects, coal, coal-fired power plants, smelters using a gradation map of the risk areas in -orange and red (BNPB, RBI 2018).

Mine and smelter data are sourced from data processing by JATAM. Coal power plant data is sourced from data processing by Trend Asia. Source of maps and disaster risk analysis from BNPB, BMKG. ■

TABLE OF CONTENTS

INTRODUCTION AND KEY FINDINGS

The report is launched one day after Indonesia's disaster preparedness day of 2021, and a few days after a high-level climate summit of 40 heads of states, including Indonesia's. Indonesia, along with various other states are currently facing a multi-sided crisis. The pandemic, socio-economic crises, biodiversity extinction, and moreover the threat of the increasing impact of climate change. But unfortunately, what President Jokowi said at the meeting did not reflect the crisis that Indonesia is currently facing. The various pro-extractive industry, mining and coal policies that has been passed by the Jokowi administration, as well as the findings in this report lead us to a conclusion: Indonesia is not prepared for disasters.

> "The ring of fire encircling Indonesia's territory could present an unprecedented disaster. Almost all regions of Indonesia are disaster prone areas. Earthquakes, volcanic eruptions, landslides, tsunamis, forest fires, and floods. Our development must be sensitive to various risks. Infrastructure must be prepared to support the handling of these disaster risks." President Joko Widodo

Instead of being prepared, the findings in this report show that the Indonesian government preserves and even "invite" disaster. This study found that a number of mining operations and even coal-fired steam power plants are located in risk areas for earthquakes, tsunamis, landslides and floods. **Regarding mining permits, 131 of them are in earthquake risk areas, with an area of 1.6 million hectares, or equivalent to half of Belgium's total area of 3.2 million hectares.**

It was also found that 2,104 mining concessions throughout Indonesia were in high risk areas for flooding, namely 4.5 million hectares or the equivalent of Switzerland, half of which 2.4 million hectares are coal mining concessions.

In addition, **there are 744 mining concessions throughout Indonesia located in high-risk landslide areas covering an area of 6,154,830 hectares**. Of this total, a number of which 611,002 hectares are coal mining concessions.

Meanwhile, **57 coal-fired steam power plants with a total capacity of 8,887 MW are in operational status and 31 other coal-fired steam power plants in various stages of development and with a total capacity of 6,950 MW are located in earthquake risk areas**. In addition, it is found that as many as 41 smelters are currently being planned, in the process of construction; and some of which are already established in high-risk disaster areas. Other mining operations, power plants, and smelters that are located in other disaster risk areas will be described in this report in the section on diagnosis and findings, as well as case studies.

Both the coal-fired steam power plants and smelters, which are entering the stage towards operation, might enjoy various forms of luxurious investment facilities in the guise of accelerating the implementation of the National Strategic Project (PSN). As regulated in Presidential Decree No. 109 of 2020, the Electricity Infrastructure Development Program, and the Smelter Development Program are included in the PSN list.

These facts show that there is a *science-policy gap*, a clear gap between science and policy. Previous **#BersihkanIndonesia** studies (which are also reviewed in this study) provide strong indications that the gap is mainly caused by the conflict between the interests of the extractive oligarchs as agents to the expansion of the global extraction fields, and the interests of natural and human safety in Indonesia's islands and waters.

This report also present several case studies from mineral and coal mining operations, coal-fired steam power plants, and smelters located in disaster-risk areas,

from various locations in Indonesia, including a recent case in the village of Wadas, Purworejo, Central Java, which was exacerbated by violence by the authorities with the arrests of residents and activists.

Finally, this report also calls on the wider public to jointly urge and demand that the government: conduct a broad and comprehensive audit of mineral and coal mining operations, coal-fired steam power plants, smelters, and other extractive projects located in areas at risk of disasters; discontinue extractive projects that are in the early stages of exploration or development and are in disaster risk areas; as well as to gradually yet immediately, and fairly terminate extractive projects that have operated in disaster risk areas, for the sake of people's safety and environmental protection. ■

BOX 1:

HOW ENERGY, EXTRACTIVISM, AND DISASTERS ARE RELATED

The political history behind energy is the story of energy as an instrument used to achieve an ends to the capitalistic obsession to gain maximum control over machines and technology. It is part of the ancient obsession with control over labor or labor-power as the desire of the industrial elite in the 19th century. This shows how thermodynamics helped to break down and separate energies such as heat, mechanics, electromagnetics, and chemistry from their natural and social contexts before combining them into a single, commodified unit. It also includes how the combination of steam and coal enables capital to concentrate its workforce in urban locations or any other location of its choice. Since then, the readiness of energy and electricity infrastructures had become a prerequisite for operating capitalist investments (Lohmann, Hildyard; 2014).

The inherent flaw of the obsession, and the political history behind the capitalistic energy revolution, has at the same time submerged the world into dependence on the commodification of fossil energy, (namely oil and coal) at the global level at least in the last two centuries. This, of course, includes Indonesia until the year 2050.

In Indonesia, the government cannot move away from being caught in a trap, because the mix of oil and coal energy that still dominates the national energy fulfillment plan. Even the office that is considered the most responsible for this addiction to fossil energy, namely the Ministry of Energy and Mineral Resources (ESDM), has explicitly stated that fossil energy is still and will continue to be the main contributor of electricity generation in Indonesia. The contribution of fossil energy from all of Indonesia's power plants reaches 60,485 MW or the equivalent of 85.31 percent of the total national installed capacity.

In first place, there is coal which is the main source of electricity in Indonesia. The total installed power generation capacity of coal-fired steam power plants reaches 35,216 MW, equivalent to 49.67 percent of the total national capacity of 70,900 MW. This peak position is only then followed by other forms of power generation.

After coal-fired steam power plants, the largest portion of generators that contribute to Indonesia's electricity is gas-based energy. Gas-fired steam power plants per May 2020 contributed 20,488 MW, equivalent to 28.90 percent of the national installed capacity. Furthermore, there is a diesel-powered power plant based on diesel with 4,781 MW, equivalent to 6.74 percent of the installed capacity.

The rest of the Renewable Energy (EBT) group has only reached 10,426, equivalent to 14.71 percent of the total installed capacity. In more detail, the contributors to EBT are geothermal power plants (PLTP) totaling 2,131 MW, followed by hydroelectric power plants (PLTA) with 6,095 MW, and the remaining 2,200 MW of the other various forms of EBT.

One of the reasons for the drowning of Indonesia into its dependence on fossil and coal energy is the increasingly strong entanglement of actors and players in the fossil and coal business in the politico-economic landscape of Indonesia.

The **#BersihkanIndonesia** movement continues to track down the individuals behind coal mining and the coal-fired steam power plants (CPP). The result is that a number of wealthy elites or oligarchs

are behind mining and fossil power plants, in addition to the fact that mining and coal-fired steam power plants have destructive power on all social and ecological dimensions ranging from health crises to endless conflicts and violence.

In the years from 2014 to 2020, the extent of mining operations, including coal, reached 1,640,440 hectares, equivalent to three times the area of the island of Bali, all of which were also accompanied by conflicts and the criminalization of mining protesters. During 2014-2020 there were 269 victims of criminalization and assault through the enforcement of 20 articles and 7 laws carried out by the state and corporations through the hands of the security apparatus (Catahu JATAM, 2020).

In various previous reports, there have also been many disclosures of a number of coal mining elites and oligarchs behind the 2019 Presidential and Legislative Election (Pilpres and Pileg, or Pemilu), as a candidate pair and their respective campaign teams consists of 17 mining conglomerates (including coal) in this grand contest. Post-election, the **#BersihkanIndonesia** Movement announced that 15 of the more than 30 ministers were elected in the so called the Cabinet of Advanced Indonesia (Kabinet Indonesia Maju), all of whom had direct or indirect links to the mining businesses including coal. All of this leads to massive sales of mining permits, coal-fired steam power plants to various packages for ease of investment and incentives on coal. At least the latest phenomenon is reflected in the ratification of the revision of the Mineral and Coal Mining (Minerba) Law to the Omnibus Law on the Job Creation (Cipta Kerja) Law. These two laws greatly preserve the lethal energy of coal. (Read Coalruption/2018, Publication of Ijon and Mining Oligarchy in the 2019 Election and Omnibus Law; Book of Oligarchy/2020 Law; under the original title of Coalruption/2018, Publikasi Ijon dan Oligarki Tambang Dalam Pemilu 2019 dan Omnibus Law; Kitab Hukum Oligarki/2020).

Twenty (20) CPP projects from all over Indonesia have been traced, the result is that the 10 richest people in Indonesia are behind the power plant projects. The 12 people behind the plants are also affiliated with companies in tax haven countries. Moreover, 3 active public officials are affiliated with the coal-fired steam power plant projects (ICW / 2019).)

> ”Twenty (20) coal-fired steam power plant projects from all over Indonesia have been traced, the result is that the 10 richest people in Indonesia are behind these power plant projects.”

A number of coal-fired steam power plant projects are also inseparable from corrupt practices. At least two corruption cases related to coal-fired steam power plants have been handled by law enforcement officials. Coal mining and coal-fired steam power plants have become a problem for many elites.

This oligarchic and corrupt energy management also shows the face of an elitist, centralist, top-down energy management, without the people’s participation and the right to veto; all decision-making regarding energy management is monopolized and decided centrally from Jakarta. Calculation and decision making for coal production in an area never takes into account the carrying capacity of the local environment, including not calculating the risks that will affect an area and its residents due to the presence of these energy projects.

A number of mining operations that feed the CPP have even troubled residents that are in high risk areas for earthquakes, tsunamis, and floods, as revealed in this report.

Coupled with the emergence of 45 derivative regulations, the Omnibus Law or also known as the Job Creation Law, one of which is Government Regulation No. 22 of 2021 concerning the Implementation of Environmental Protection and Management. This regulation loosens the regulation regarding coal waste (FABA/Fly Ash Bottom Ash) because it is excluded from the hazardous (B3) waste category, which is predicted to trigger coal entrepreneurs to be more reckless in managing their waste, especially since 82 percent of coal-fired steam power plants are located in coastal ecosystem areas. ■

TRIGGERING DISASTERS, EXPANDING DAMAGE

Based on the cause, there are at least three types of earthquakes. First, starting from volcanic earthquakes associated with the rising of volcanic fluids (gas, steam, and magma) from below to the surface of the crater produces cracks, vibrations that propagate in all directions whose scale is recorded by the seismograph. Second, tectonic earthquakes are caused by tectonic activity in the boundary zone between the plates and faults that cause vibrations that spread in all directions. The strength of a tectonic earthquake can reach 9 on the Richter Scale (SR) as happened in Aceh on December 26, 2004.

Third, the Trigger Earthquake, this term refers to earthquakes other than those caused by the activity of rising volcanic fluids and tectonic activity, including rock collapse in limestone areas, collapsing of mine tunnels and underground landslides. Earthquake events can also result from fluid injection, reservoir filling and nuclear experiments (Hunt, 1984 and Keller and Pinter, 1996)[1], and geothermal extraction operations for power generation[2]. In the case of seismicity which is triggered by geothermal power plants, there can even be reactivation of cracks that were previously inactive.[3] in mining or electricity extraction from geothermal energy using the latest technology such as Enhanced Geothermal System (EGS)[4].

In the last 150 years HiQuake database research on earthquakes caused by other processes or those caused by human activity found mining projects (37%) and water stored behind dams (23%) were the most frequently reported causes of earthquakes, but oil extraction projects and unconventional gases using hydraulic fracturing, are now also starting to be added to the database[5].

Coal mining in Newcastle, Australia played an important role in increasing the damage caused in the 5.3 Richter scale earthquake in June 2012[6]. In 1989, at the heart of another coal mine, namely in the La Trobe Valley, Victoria, there was an earthquake measuring 5.6 on the Richter scale. triggered by human activities. Largest earthquake in Australian history.

The Newcastle earthquake in New South Wales, Australia in 1989 has been linked to underground coal mining in the region. In addition to killing 13 people, more than 160 people were hospitalized, thousands of buildings damaged, and resulting in an economic loss of nearly 5 billion Australian dollars, adjusted for inflation. Total monetary losses reached 3.4 percent of Australia's Gross Domestic Product (GDI) or 80% of the national GDI per capita growth. This illustrates how earthquakes caused by mining can cause extraordinary losses, when the practice of mobilizing mining activities is not balanced with regard to risk[7].

In Indonesia, the hot mudflow disaster contains polycyclic aromatic hydrocarbons (PAH) and even large amounts of methane released into the air by oil and gas mining. Now public and state funds have been drained to cover the costs of compensation and restoration that have not been completed. In contrast to the Newcastle scandal in Australia, company supporters actually made the issue of the earthquake disaster to avoid and remove legal and human rights responsibilities. Unfortunately, even though the geological floors and plates are related to disaster-prone areas, the Indonesian government still tolerates operations and expansion of oil and gas mining is continued and expanded, the risk continues to be ignored.

Early 2021 Flooding in South Kalimantan.
Photograph: WALHI South Kalimantan.

In the case of geothermal mining or extraction, the earthquake/seismic triggers, that is underestimated for being relatively small in scale, is now one of the focus of the public around the world, notably about the investment risks of geothermal extraction for electricity generation. This happened especially after the South Korean lighthouse project which was recently inaugurated, geothermal extraction with EGS technology in Pohang, proved to be the cause of the 5.5 SR. magnitude earthquake in the city on November 17, 2017[8]. At least there were more than 20 cases of triggered earthquakes in the various geothermal extraction projects in various countries other than in the case of the Pohang project[9].

Apart from triggered earthquakes, the risk in geothermal extraction increases as well due to the increased emission of fluids (geothermal gas and/or fluids), an important part of the risk of geothermal extraction projects. A little example from Indonesia, the PT Sorik Marapi Gheotermal Project (SMGP) case on January 25, 2021, which claimed the life of the victim in Sibanggor Julu village, Puncak Sorik Marapi District, Mandailing Natal. Four of the five who died were women - two mothers in their 40s and daughters, aged 5 and 3, and one teenage farmer aged 15, the rest dozens of residents were hospitalized.

Apart from that, this includes the case of gas explosions and bursts at the Ijen geothermal plant project which also claimed victims, and geothermal fluids in the Rimbo Panti project, which were then flushed directly into the Rimbo Panti nature reserve area, Pasaman, West Sumatra. Five years ago, gas bursts from the GeoDipa borehole in the Dieng geothermal extraction plot also had a direct impact on the lives and livelihoods of the residents' farmers. The next stage of the reckless project continues while the wells of citizens of the country are polluted. In Flores, uncontrolled gas bursts at the Mataloko geothermal extraction project forced the project to halt for years. ■

INDONESIA, A NATION-STATE THAT GREW IN THE EMBRACE OF THE MEGATHRUST

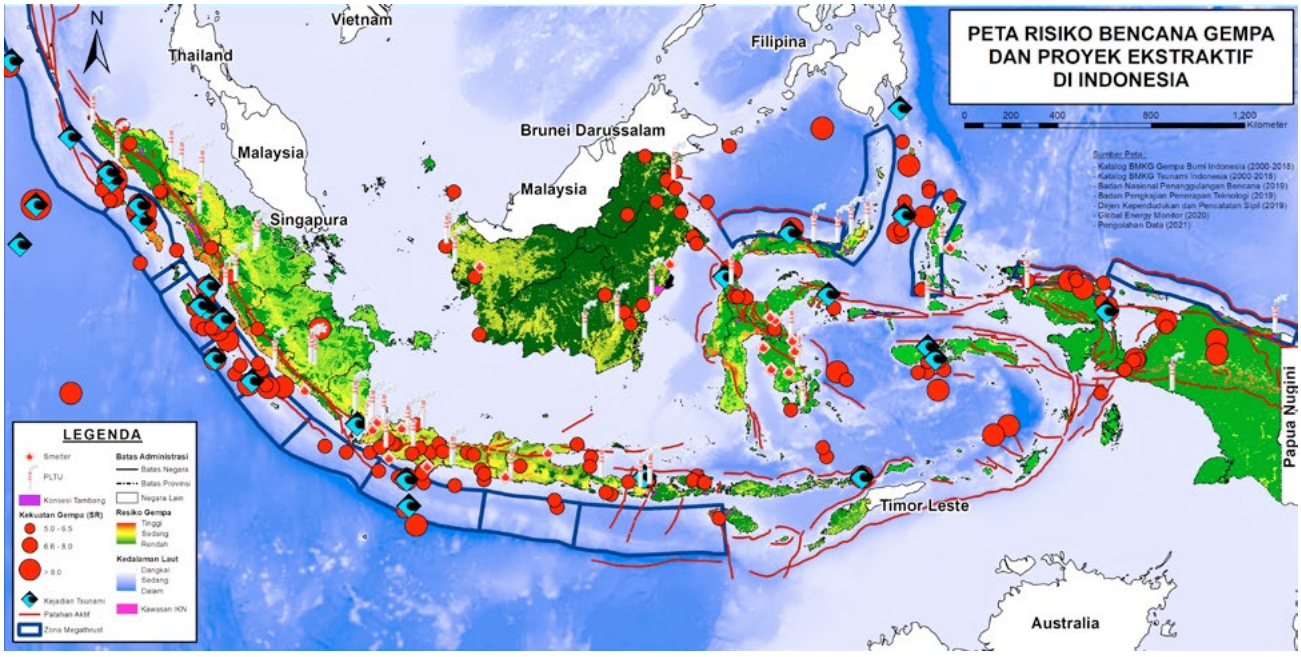
Indonesia is an archipelago located at the junction of four tectonic plates, namely the Asian Continent plate, the Australian Continent plate, the Indian Ocean plate and the Pacific Ocean plate. In the southern and eastern parts of Indonesia there is a volcanic belt (volcanic arc) that extends from the island of Sumatra, then to Java-Nusa Tenggara, and Sulawesi which are all surrounded by volcanic mountains, with their lowlands partly dominated by swamps[10].

This condition causes the potential for disasters such as volcanic eruptions, earthquakes, tsunamis to hydro-meteorological disasters such as floods and landslides to happen in many areas. Data shows that Indonesia is one of the countries with the highest seismicity in the world, more than 10 times the seismic rate of the United States.

Indonesia also cannot be separated from the Pacific Ring of Fire. Indonesia is located between the Ring of Fire or the ring of fire that stretches from Nusa Tenggara, Bali, Java, Sumatra, all the way to the Himalayas, the Mediterranean and ends in the Atlantic Ocean.

The uniqueness of Indonesia, geographically and geologically, as a nation-state that grows and is embraced by this megathrust, apparently does not interrupt the development and investment model that has been practiced by state officials so far. Instead of correcting it, the extractive investment and development model has been continued and expanded. The economy should not be generated only by calculating the natural wealth in, on land and in the sea alone, entirely for the sake of catching up with the growth rate but also taking into account the vulnerability and susceptibility towards disasters.

MAP OF MEGATHRUST EARTHQUAKES AREAS IN INDONESIA



State officials must learn from within; ever since ages ago, the indigenous, local communities who are the forefathers of the Indonesian nation, already had inherent knowledge and historical wisdom regarding disaster mitigation. Some examples include the Baduy community in the Kendeng mountains, Lebak Regency, Banten. Since their ancestors had customary rules or *pikukuh* in building a house. Their building materials consist of flexible materials, such as bamboo, palm fiber, and *kiray* so that the house is not easily damaged.

The base of the Baduy traditional houses also should not be directly touching the ground. This is done so that the house does not collapse easily. In addition, the building columns and joints are not connected using nails, only pegs and fibers may be used. Thus, despite the earthquake, it is recorded that the Baduy community has never experienced major damage[11].

In Mentawai, earthquakes are an inseparable part of the landscape and the history of the people. Therefore, the Mentawai people have their own local wisdom-based mitigation, namely a song called *Teteu Amusiast Loga* (an earthquake will come, squirrels already screaming - as a sig).

Mentawai children often sing the song. The word *'Teteu'* is defined as grandfather or it can also be an earthquake. According to the beliefs of the Mentawai people who are *Arat Sabulungan*, they believe in the spirits of the rulers of the universe. *Teteu* is one of the rulers of the earth. If *Teteu* is angry, then he will shake the earth to issue an earthquake.

Before the earthquake happened, there were signs conveyed by animals. Squirrels will be agitated, domestic chickens will also cackle for no reason. This song functions like an early warning system that is cultural in nature for the people of the Mentawai Islands[12].

Those are some examples of portraits of how the Indonesian archipelago nation-state actually grew together with geological uniqueness, such as earthquakes and megathrusts. However, the wealth of cultural mitigation instruments and early warning systems will disappear if their history and culture which are also attached to the ecosystem are destroyed.

Therefore, the destruction of nature and ecosystems in the territories of indigenous peoples who are the predecessors of the Indonesian nation by extractive investments including mining and coal-fired power plants not only destroy the ecology and the environment, it will also fatally erase the wealth of memories and knowledge of residents about disaster mitigation that has existed since centuries. Therefore, extractive investments such as mining and coal-fired power plants will not only destroy nature and ecosystems in the territories of indigenous peoples as the forerunners of the Indonesian nation, but more fatal than that, will erase the wealth of memories and knowledge of residents about disaster mitigation that has been preserved for centuries.

The Indonesian government must evaluate all mining permits and coal-fired power plant projects that do not take into account Indonesia's position as a unique region because it has social, cultural, ecological, climatic and geological characteristics, among others because of its geological landscape which is closely embraced by the megathrust.

The Indonesian government must end tolerance for a development approach that only uses an investment economic benefit approach without taking into account vulnerabilities and susceptibility. Including the development of an ongoing investment economy sourced from extractivism from mining, smelters and coal-fired power plants, which continues.

Apart from being dirty and deadly, extractivism from mining, smelters and coal-fired power plants will invite continuous disasters and threaten people's safety, making them permanent social-ecological refugees. ■

Aerial photograph of the flooding situation that is getting more frequent in Samarinda, East Kalimantan.
Photograph: JATAM East Kalimantan.

DIAGNOSIS AND FINDINGS

COAL-FIRED STEAM POWER PLANTS, MINERAL AND COAL MINES IN EARTHQUAKE PRONE AREAS

This study found 131 mineral and coal mining concessions across Indonesia, which is in an earthquake-high risk area with an area of 1.6 million hectares or the equivalent of half of Belgium's area of 3.2 million hectares.

In addition, this study also overlayed the locations of coal-fired steam power plants (CPP) throughout Indonesia in high-risk areas for earthquakes. Here is a list of the findings:

- 57 coal-fired steam power plants operating with a total capacity 8.887 MW.
- 9 coal-fired steam power plants in the process of construction with a total capacity of 1.760 MW.
- 3 new coal-fired steam power plants have recently been given construction permits, they total to a capacity of 2.650 MW.
- 3 coal-fired steam power plants which has their construction put on hold with a total capacity of 570 MW.
- 4 coal-fired steam power plants in the process of obtaining their permit with a total capacity of 740 MW.
- 12 coal-fired steam power plants announced to be constructed with a total capacity of 1.230 MW.

COAL-FIRED STEAM POWER PLANTS, MINERAL AND COAL MINES IN FLOODING PRONE AREAS

The coalition found 2,104 mining concessions throughout Indonesia that are in high-risk areas for flooding, namely 4,547,993 hectares, or the size of Switzerland. Meanwhile 2,461,865 hectares are coal mining.

In addition, the Coalition has also overlaid the locations of coal steam power plants (CPP) throughout Indonesia in high-risk areas for flooding. Here's a list of the findings:

79 coal-fired steam power plants operate with a total capacity of 10.108 MW.

15 coal-fired steam power plants are in the process of construction with a total capacity of 2.490 MW.

2 new coal-fired steam power plants have received construction permits with a total capacity of 650 MW.

8 coal-fired steam power plants have their constructions on hold with a total capacity of 2.830 MW.

9 coal-fired steam power plants are in the process of receiving their permits with a total capacity of 1.520 MW.

18 coal-fired steam power plants are announced to be constructed, with a total capacity of 2,530 MW.

COAL-FIRED STEAM POWER PLANTS, MINERAL AND COAL MINES IN LANDSLIDE PRONE AREAS

This study also found 744 mining concessions throughout Indonesia located in high-risk landslide areas covering an area of 6,154,830 hectares. Of the total, 611,002 hectares of which are coal mining concessions, all of which are spread across various islands.

In addition, the Study has also overlaid the locations of coal steam power plants (CPP/PLTU) throughout Indonesia in areas at high risk of landslides. Here's a list of the findings:

29 coal-fired steam power plants operating with a total capacity of 6.155 MW.

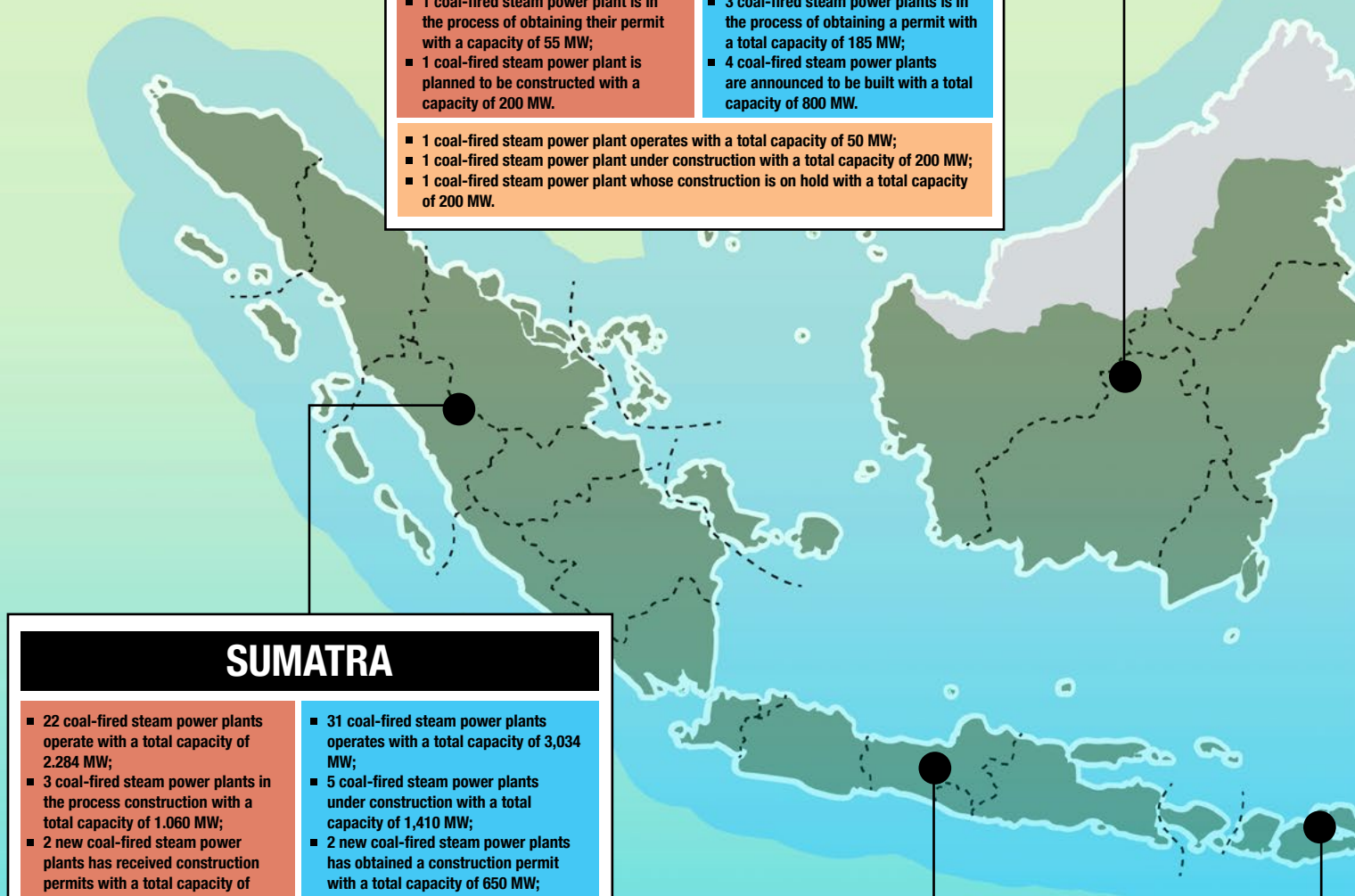
5 coal-fired steam power plants under construction with a total capacity of 950 MW.

2 new coal-fired steam power plants has obtained a construction permit with a total capacity of 2,150 MW.

1 coal-fired steam power plant whose construction is on hold with a total capacity of 200 MW.

5 coal-fired steam power plants announced to be built with a total capacity of 650 MW.

SPREAD OF STEAM POWER PLANTS IN DISASTER RISK AREAS OF INDONESIA



KALIMANTAN

- 4 coal-fired steam power plants operates with a total capacity of 320 MW;
- 1 coal-fired steam power plant in the process of construction with a capacity of 100 MW;
- 1 coal-fired steam power plant which has their constructions postponed with a capacity of 200 MW;
- 1 coal-fired steam power plant is in the process of obtaining their permit with a capacity of 55 MW;
- 1 coal-fired steam power plant is planned to be constructed with a capacity of 200 MW.

- 9 coal-fired steam power plants operating with a total capacity of 680 MW;
- 5 coal-fired steam power plants under construction with a total capacity of 580 MW;
- 3 coal-fired steam power plants whose construction process has been delayed with a total capacity of 550 MW;
- 3 coal-fired steam power plants is in the process of obtaining a permit with a total capacity of 185 MW;
- 4 coal-fired steam power plants are announced to be built with a total capacity of 800 MW.

- 1 coal-fired steam power plant operates with a total capacity of 50 MW;
- 1 coal-fired steam power plant under construction with a total capacity of 200 MW;
- 1 coal-fired steam power plant whose construction is on hold with a total capacity of 200 MW.

SUMATRA

- 22 coal-fired steam power plants operate with a total capacity of 2.284 MW;
- 3 coal-fired steam power plants in the process construction with a total capacity of 1.060 MW;
- 2 new coal-fired steam power plants has received construction permits with a total capacity of 650 MW;
- 1 coal-fired steam power plant which has their constructions postponed with a capacity of 40 MW;
- 1 coal-fired steam power plant is in the process of obtaining their permit with a capacity of 200 MW;
- 1 coal-fired steam power plant is planned to be constructed with a capacity of 300 MW.

- 31 coal-fired steam power plants operates with a total capacity of 3,034 MW;
- 5 coal-fired steam power plants under construction with a total capacity of 1,410 MW;
- 2 new coal-fired steam power plants has obtained a construction permit with a total capacity of 650 MW;
- 4 coal-fired steam power plants whose construction process has been delayed with a total capacity of 1,950 MW;
- 3 coal-fired steam power plants is in the process of obtaining a permit with a total capacity of 550 MW;
- 6 coal-fired steam power plants announced to be built with a total capacity of 1,150 MW.

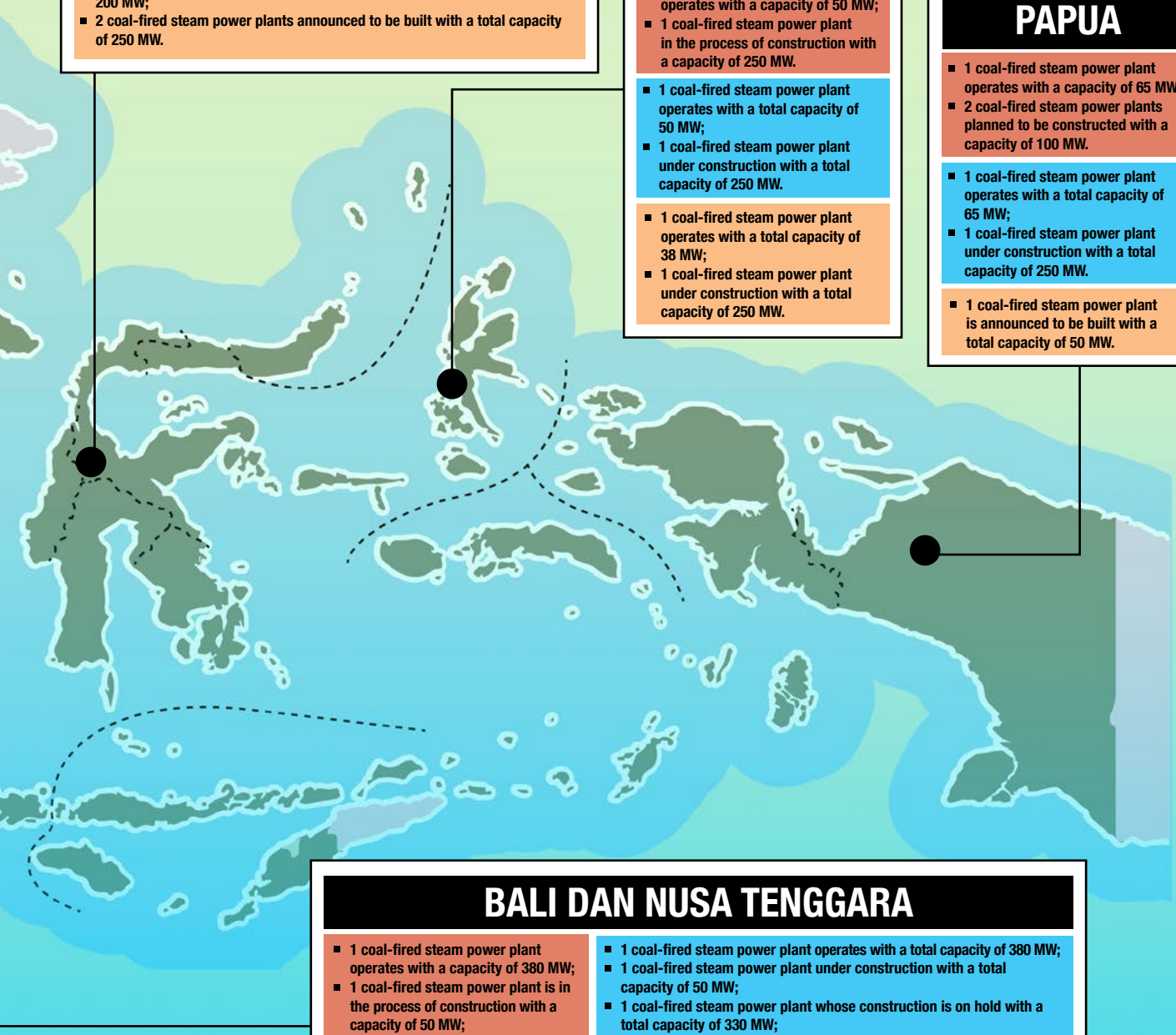
- 11 coal-fired steam power plants operates with a total capacity of 984 MW;
- 2 coal-fired steam power plants under construction with a total capacity of 300 MW;
- 1 coal-fired steam power plant announced to be built with a total capacity of 300 MW.

JAWA

- 16 coal-fired steam power plants operate with a total capacity of 5.328 MW;
- 1 coal-fired steam power plant is in the process of construction with a capacity of 150 MW;
- 1 new coal-fired steam power plant obtained their building permit with a capacity of 2,000 MW.

- 17 coal-fired steam power plants operating with a total capacity of 4,624 MW;
- 1 coal-fired steam power plant is in the process of obtaining a permit with a total capacity of 300 MW.

- 12 coal-fired steam power plants operating with a total capacity of 4,750 MW;
- 1 new coal-fired steam power plant has received a construction permit with a total capacity of 2,000 MW.



N

LEGEND

- Risk of Earthquake
- Risk of Flooding
- Risk of Landslide

SULAWESI

- 13 coal-fired steam power plants operates with a total capacity of 803 MW;
- 2 coal-fired steam power plants in the process of construction with a total capacity of 250 MW;
- 2 coal-fired steam power plants are in the process of obtaining their permits with a total capacity of 485 MW;
- 6 coal-fired steam power plants announced to be constructed with a total capacity of 530 MW.

- 24 coal-fired steam power plants operating with a total capacity of 1,345 MW;
- 3 coal-fired steam power plants under construction with a total capacity of 350 MW;
- 2 coal-fired steam power plants is in the process of obtaining a permit with a total capacity of 485 MW;
- 6 coal-fired steam power plants announced to be built with a total capacity of 580 MW.

- 5 coal-fired steam power plants operates with a total capacity of 383 MW;
- 2 coal-fired steam power plants under construction with a total capacity of 200 MW;
- 2 coal-fired steam power plants announced to be built with a total capacity of 250 MW.

MALUKU

- 1 coal-fired steam power plant operates with a capacity of 50 MW;
- 1 coal-fired steam power plant in the process of construction with a capacity of 250 MW.

- 1 coal-fired steam power plant operates with a total capacity of 50 MW;
- 1 coal-fired steam power plant under construction with a total capacity of 250 MW.

- 1 coal-fired steam power plant operates with a total capacity of 38 MW;
- 1 coal-fired steam power plant under construction with a total capacity of 250 MW.

PAPUA

- 1 coal-fired steam power plant operates with a capacity of 65 MW;
- 2 coal-fired steam power plants planned to be constructed with a capacity of 100 MW.

- 1 coal-fired steam power plant operates with a total capacity of 65 MW;
- 1 coal-fired steam power plant under construction with a total capacity of 250 MW.

- 1 coal-fired steam power plant is announced to be built with a total capacity of 50 MW.

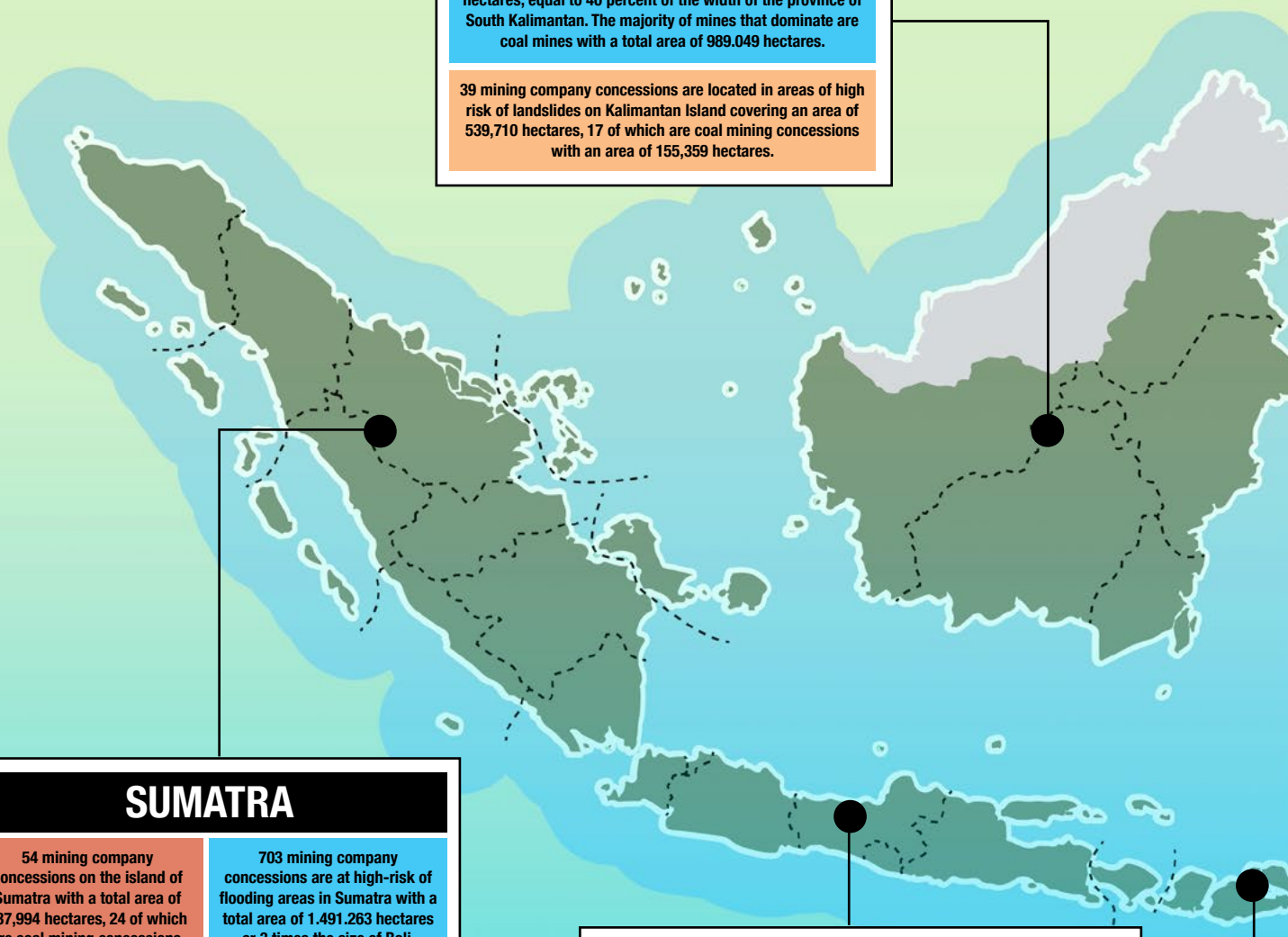
BALI DAN NUSA TENGGARA

- 1 coal-fired steam power plant operates with a capacity of 380 MW;
- 1 coal-fired steam power plant is in the process of construction with a capacity of 50 MW;
- 1 coal-fired steam power plant which has their constructions postponed with a capacity of 330 MW;
- 2 coal-fired steam power plants are planned to be constructed with a capacity of 100 MW.

- 1 coal-fired steam power plant operates with a total capacity of 380 MW;
- 1 coal-fired steam power plant under construction with a total capacity of 50 MW;
- 1 coal-fired steam power plant whose construction is on hold with a total capacity of 330 MW;
- 1 coal-fired steam power plant announced to be built with a total capacity of 50 MW.

- 1 new coal-fired steam power plant has obtained a construction permit with a total capacity of 150 MW;
- 1 coal-fired steam power plant announced to be built with a total capacity of 50 MW.

SPREAD OF MINING AND SMELTER CONCESSIONS IN DISASTER RISK AREAS OF INDONESIA



KALIMANTAN

585 mining company concessions are located in high-risk of flooding areas in Kalimantan with a total area of 1.667.909 hectares, equal to 40 percent of the width of the province of South Kalimantan. The majority of mines that dominate are coal mines with a total area of 989.049 hectares.

39 mining company concessions are located in areas of high risk of landslides on Kalimantan Island covering an area of 539,710 hectares, 17 of which are coal mining concessions with an area of 155,359 hectares.

SUMATRA

54 mining company concessions on the island of Sumatra with a total area of 737,994 hectares, 24 of which are coal mining concessions.

703 mining company concessions are at high-risk of flooding areas in Sumatra with a total area of 1.491.263 hectares or 3 times the size of Bali.

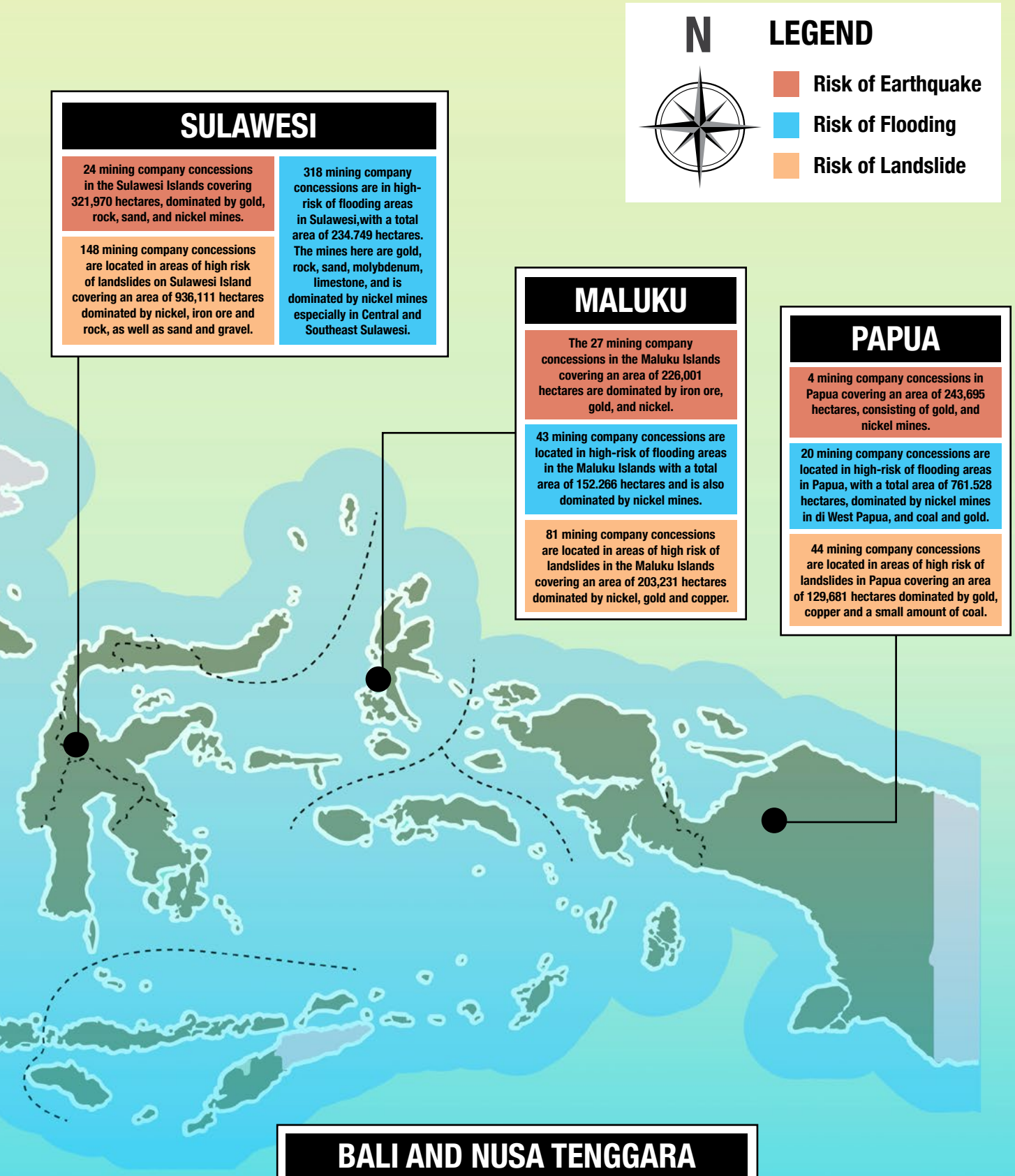
187 mining company concessions are located in areas of high risk of landslides on Sumatra Island covering an area of 886,752 hectares, 50 of which are coal mining with an area of 248,872 hectares.

JAWA

9 mining company concessions in the provinces of West Java, Banten, and DIY covering an area of 45,756 hectares, the remaining 7 mining concessions are located in East Java, which are related to the risk of earthquake and tsunami disasters which are dominated by gold mines.

368 mining company concessions are located in high-risk of flooding areas in Java with a total area of 94.109 hectares which are dominated by andesite, limestone, sand, and iron sand mining.

159 mining company concessions are located in areas of high risk of landslides in Java, covering an area of 129,219 hectares, dominated by rock, andesite and limestone mining.



SULAWESI

24 mining company concessions in the Sulawesi Islands covering 321,970 hectares, dominated by gold, rock, sand, and nickel mines.

318 mining company concessions are in high-risk of flooding areas in Sulawesi,with a total area of 234.749 hectares. The mines here are gold, rock, sand, molybdenum, limestone, and is dominated by nickel mines especially in Central and Southeast Sulawesi.

148 mining company concessions are located in areas of high risk of landslides on Sulawesi Island covering an area of 936,111 hectares dominated by nickel, iron ore and rock, as well as sand and gravel.

MALUKU

The 27 mining company concessions in the Maluku Islands covering an area of 226,001 hectares are dominated by iron ore, gold, and nickel.

43 mining company concessions are located in high-risk of flooding areas in the Maluku Islands with a total area of 152.266 hectares and is also dominated by nickel mines.

81 mining company concessions are located in areas of high risk of landslides in the Maluku Islands covering an area of 203,231 hectares dominated by nickel, gold and copper.

PAPUA

4 mining company concessions in Papua covering an area of 243,695 hectares, consisting of gold, and nickel mines.

20 mining company concessions are located in high-risk of flooding areas in Papua, with a total area of 761.528 hectares, dominated by nickel mines in di West Papua, and coal and gold.

44 mining company concessions are located in areas of high risk of landslides in Papua covering an area of 129,681 hectares dominated by gold, copper and a small amount of coal.

BALI AND NUSA TENGGARA

6 mining company concessions in West Nusa Tenggara & East Nusa Tenggara (Banusrama) covering an area of 143,660 hectares is dominated by mining for sand, iron sand, gold, and iron ore.

67 mining company concessions are located in high-risk of flooding areas in Bali and Nusa Tenggara with a total area of 144.028 hectares, dominated by manganese and limestone mines.

86 mining company concessions are located in areas of high risk of landslides in the Banusrama Islands covering an area of 333,907 hectares dominated by manganese, gold and sand mines.

THE TRACK RECORD OF RECKLESS EXTRACTIVE INDUSTRIES IN DISASTER PRONE AREAS

Since the beginning of 2021, Indonesia has continued to be hit by various disasters. Such as the big floods at the beginning of the year in South Kalimantan, and most recently a combination of floods, landslides and the impact of climate change, through a tropical cyclone in East Nusa Tenggara. Many disasters are directly or indirectly attributed, by the public, to the existence and impact of the extractive industry investment operations on site.

The Indonesian government, in other words President Jokowi, seems to have chosen extreme rainfall as a scapegoat. Instead of acknowledging it as one of the signs of a real climate crisis, such as a vicious circle, it is also caused by carbon emissions from extractive industries such as coal which is also burned domestically.

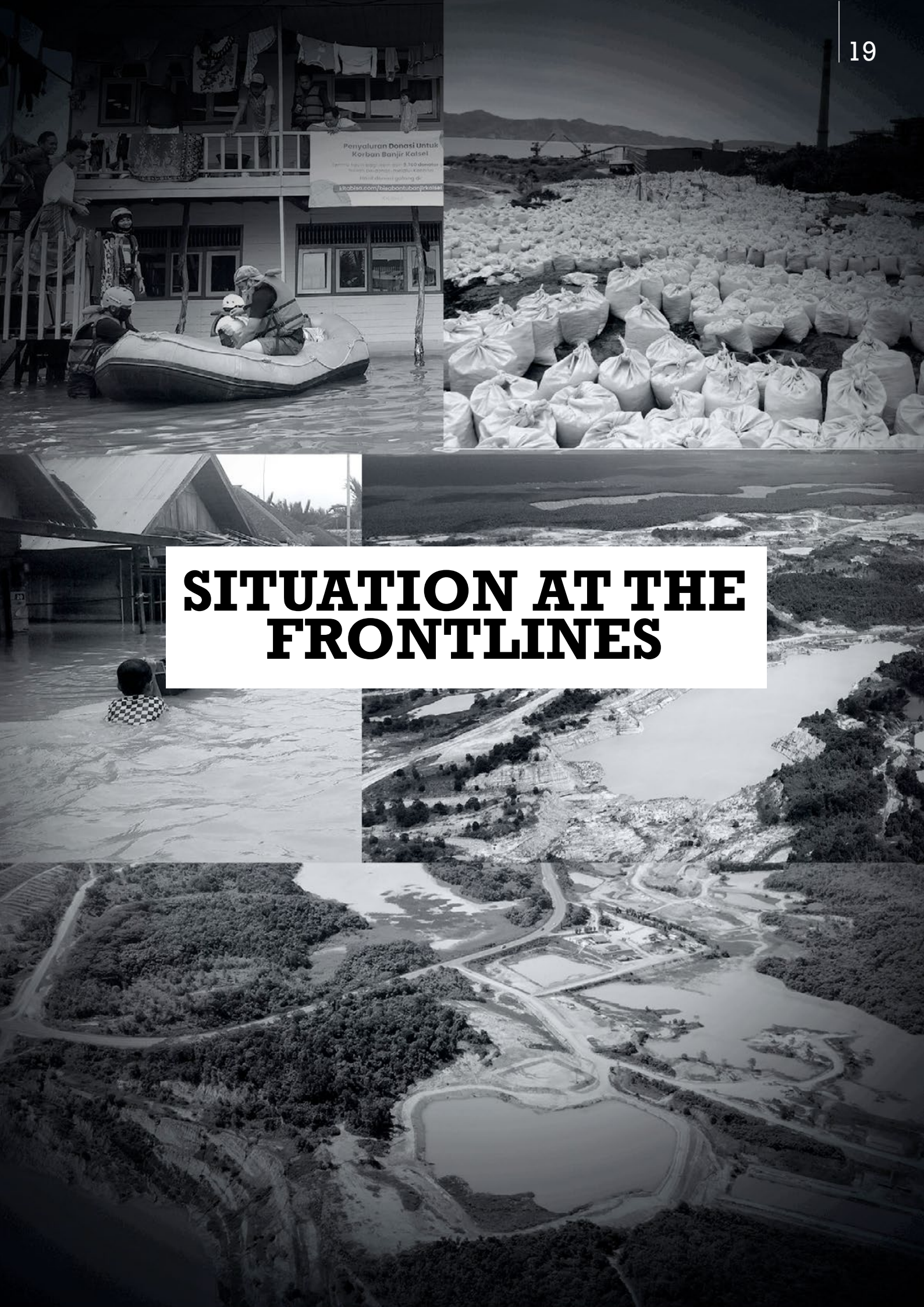
It is also no secret that extractive industry investment operations cause damage to the environment in which they operate. It must be disclosed, there is something that the government and extractive industries are trying to hide regarding the issue of the increasing number of disasters.

The diagnoses and findings of this report provide an indication that there is a clear disconnection between knowledge and practice in the field. Knowledge of the context of the reality of Indonesia, which is located in a disaster risk area, cannot be seen from where the extractive industries are allowed to exist and operate by those who are authorized. In the pre-Omnibus Law era, the Job Creation Law, for example, It is said that the AMDAL (EIA) document does not contain a disaster risk analysis. The Head of the Center for Disaster Studies, Institut Pertanian Bogor, said that apart from the absence of a legal rule requiring disaster risk analysis information to be presented in the EIA document (AMDAL), the document has not yet realized or further analyzed that the impact of a project can also create disaster risk[13]. Moreover, if the site of the extractive, exploitative and destructive project lies in a disaster risk area.

In this regard, **in the midst of the Jokowi administration's super high ambitions for infrastructure development,** disaster risk evaluation has not been included in infrastructure development planning. Even if there is an intention to revise the infrastructure development plan, the level of which is said by the Minister of National Development Planning/Head of the National Development Planning Agency is still limited to "very possible"[14]. Only limited to discourse. Even more sad, the direction of the revision is still limited to technical specifications for infrastructure[15], not environmental protection and people's safety. The government is too confident to think that they can dictate nature. The government claims that the National Strategic Project (PSN) already has an EIA document (AMDAL) and a complete feasibility study, which accommodates disaster mitigation, when choosing a project location[16]. This claim has to be criticized by the public and proven by the government.

Referring to the Disaster Management Law No. 24 of 2007, then negligence in carrying out high-risk development, which is not equipped with a disaster risk analysis can be given a criminal sanction as referred to in Article 40 paragraph (3) which results in a disaster, shall be punished with imprisonment for a minimum of 3 (three) years or a maximum of 6 (six) years and a fine of at least Rp300,000,000.00 (three hundred million rupiah) or a maximum fine of Rp2,000,000,000.00 (two billion rupiah).

In addition to potentially violating the Law on Disaster Management, the existence of permits and operations for the extractive industry, including mining and coal-fired power plants, will also increase the vulnerability of residents in areas prone to disasters. The threat of vulnerability increases due to disturbances in ecological infrastructure which are critical in mitigating disaster risk. Disrupted ecological infrastructure will certainly have an impact on living things that depend on it. Air, water, land become polluted, then next is the productive land as a source of food, if not displaced, it will be polluted. It is not surprising, then, that the next time the residents' health declines, it will affect their social and economic life. It is inconceivable, but yet it is a reality in many places, when a disaster strikes when the residents are already made vulnerable. All because of reckless behavior that invites disaster from the government and the extractive industry investments. ■



SITUATION AT THE FRONTLINES

CPP PROJECTS IN DISASTER RISK AREAS – EARTHQUAKE, TSUNAMI, FLOOD

SEPANG BAY COAL STEAM-POWERED PLANT (CPP), BENGKULU: THE IGNORED WARNING

Bengkulu Province is located along the 525 km west coastline of Sumatra. Facing the Indian Ocean, Bengkulu has great potential in the captured fisheries sector. To optimize this sector, Bengkulu Governor, Rohidin, is now building fish FADs (Fish Aggregating Devices) with the hope that more fish will be caught. However, that fisheries improvement program is contrary to his policy regarding supporting the construction of Sepang Bay Coal Steam-Powered Plant.

In Sepang Bay, this dirty coal power plant site is located right at the one of the most potential fishing points in Bengkulu, called Ujung Karang. In this coral reef area, traditional fringe fishermen catch fish to fulfill their daily needs. With simple fishing equipment, fishermen can produce hundreds of tons of fish with export quality such as white pomfret, largehead hairtail to lobster.

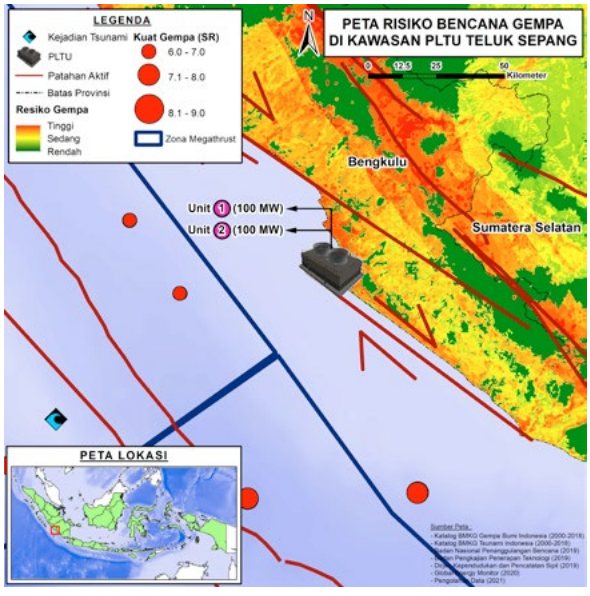
"Especially, around the location of the coal steam-power plant that is currently standing is a coast with a traditional fishing area known as Ujung Karang. If the coal steam-power plant operates in the area, the fish will be certainly disturbed," said Faisal, a traditional fisherman[17].

"We are concerned that the waste water from the coal steam-power plant in Sepang Bay which is dumped into the sea will pollute the waters and the coral reefs will be disturbed and will automatically have an impact on the sustainability of fishery resources." Coordinator of the Bengkulu Traditional Fisherfolk Alliance, Rahmadsyah[18].

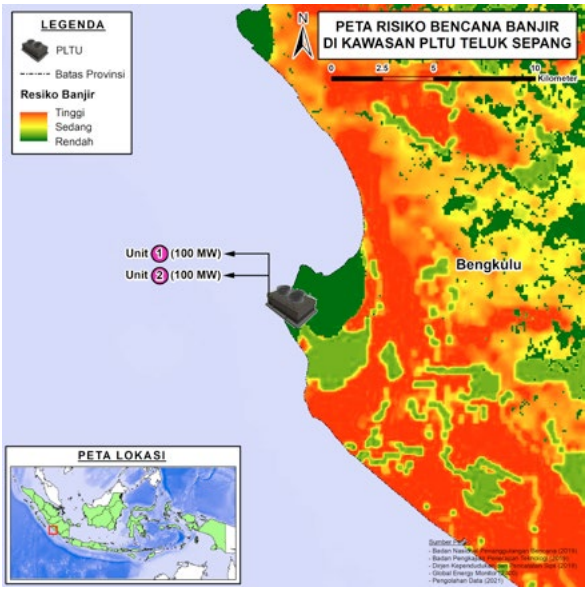
The construction of Sepang Bay Coal Steam-Power Plant began in 2018, and currently, the construction has been completed but still on commissioning status or has not yet fully operated commercially. In an environmental impact analysis[19], the 2x100 MW capacity plant is estimated to require 900,000 to 1 million tonnes of coal per year.

The Sepang Bay Coal Steam-Power Plant conducted trial operations on 16-26 September 2018 and on 8-15 October 2019. However, since then until 18 January 2020, at least 28 dead turtles have been found, not far from the dumping ground for the hot water waste. The two dead turtles that were first discovered by fishermen on November 10, 2019, were only 50 meters away from the

EARTHQUAKE RISK AREA MAP IN TELUK SEPANG STEAM POWER PLANT



FLOODING RISK AREA MAP IN TELUK SEPANG STEAM POWER PLANT



sewerage of the hot waste water. This death should be suspected due to changes in temperature and water conditions on the coast near Sepang Bay coal steam-power plant. The locals themselves witnessed a large amount of brown foam and a strong odor around the sewerage.

The steam coal power plant that the development plan is managed by PT Tenaga Listrik Bengkulu is not in accordance with Regional Regulation (Perda) No. 02 of 2012 concerning the Spatial Plan of Bengkulu Province in 2012-2032 and Perda No. 14 of 2012 concerning the Spatial Plan for the City of Bengkulu in 2012 and 2032. In the regulation, the development of power plants is in Napal Putih, North Bengkulu Regency, not in Baai Island, Sepang Bay Village, Bengkulu City.

The location of the Sepang Bay coal steam-power plant is also in the tsunami and earthquake red zone. Bengkulu is on the megathrust fault. The Bengkulu Regional Disaster Management Agency (BPBD) states that this area is prone to disasters. Moreover, The Sepang Bay Village was designated as a disaster response village by the BPBD and the government has built towers and tsunami early evacuation shelters.

According to BPBD records, Bengkulu experienced a large earthquake on June 4, 2000 with a 7.3 SR which killed 15 people and damaged 67,191 buildings. Not only the threat of earthquake at sea, BPBD also warned the earthquake on land through three active local Sumatra faults in Kepahiang, South Bengkulu and North Bengkulu districts that will increase the risk of damage.

"If you look at the disaster-prone map, the Sepang Bay Village, where the coal steam-power plant is located, is in an earthquake and tsunami hazard area," said the Head of BPBD Bengkulu Province, Soemarno[20].

The magnitude of the earthquake and tsunami vulnerability in Sepang Bay will increase the risk of the sweep of hazardous exposure and toxic waste sweep from coal ash. ■

JAVA COAL STEAM-POWERED PLANT 9 AND 10, SURALAYA BANTEN: EPICENTRUM OF EARTHQUAKE AND TSUNAMI WITH MANY POWER PLANTS.

President Joko Widodo inaugurated the construction of two coal steam-power plant Independent Power Producer (IPP) projects in Banten on October 5, 2017. This coal steam-power plant has a capacity of 4,000 MW, namely Java coal steam-power plant 7 and Java coal steam-power plant 9 and 10. The two projects are included in the 35,000 MW program.

This densely industrial area is included in a high risk area for earthquakes and tsunami. Moreover, based on data and expert information from the Agency for the Assessment of the Application of Technology (BPPT) delivered by Widjo Kongko, there is the potential for an 8.8 magnitude megathrust earthquake in the south of Java Island which could trigger a tsunami as high as 20 meters on land. Widjo Kongko conducted modeling with reference to data from the "Source and Hazard Map of the Indonesian Earthquake 2017", from the National Center for Earthquake Studies, Center for Housing & Settlement Research and Development.

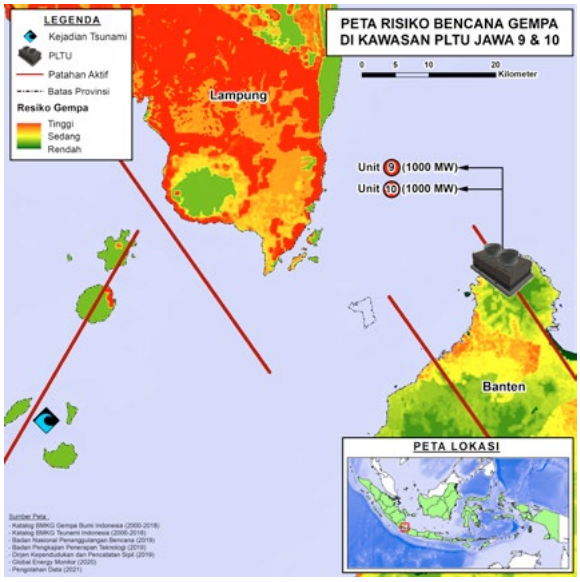
Specifically, for the Cilegon City, Banten Province, not only the earthquake and tsunami that give catastrophic threat to investment and industry. The position of the Child of Krakatoa Volcano is also a serious threat. The big eruption of 1883 should have become a consideration for not providing investment space in disaster risk locations. The avalanche of the Child of Krakatoa Volcano on December 22, 2018 took many victims. The landslide was equivalent to earthquake shocks with a magnitude of 3.4 SR and caused tsunamis in Lampung and Banten.

In the period of 1900-1999, earthquakes with a magnitude greater than 4 SR occurred in the Indian Ocean and the Sunda Strait with a frequency of 6–29 times per year. The concentrations of the epicentrum were in three locations, namely under Krakatoa Volcano, on the graben (down fault) west of the Sunda Strait, and in the south of Sumatra. Some of the mainland earthquake epicentrum generally occurs in South Banten.

"Cilegon City Contingency Plan in Facing the 2010 Earthquake/Tsunami Threat" document[21], it is estimates that it only takes about 20 minutes for the tsunami waves to sweep the coastline of Cilegon City, especially in Ciwandan, Citangkil, Grogol and Pulo Merak Districts.

The subsequent disaster from the impact of the earthquake and tsunami will be a fatal damage to the Cilegon Industrial Estate. **The terrible impact is damage to factories, warehouses, tanks and landfills**

EARTHQUAKE RISK AREA MAP IN SURALAYA STEAM POWER PLANT 9 AND 10



of Hazardous and Toxic Materials waste which will polluting the environmental agencies and community settlements. The threat of this pollution exposure mainly occurs in Pulo Merak District, which is the most densely populated cluster area of dirty coal power plants, including the Java Coal Steam-Power Plant 9 and 10 development plans.

In 2010, Suralaya Coal Steam-Power Plant is estimated to produce coal ash (FABA) of 1 million tonnes per year or the equivalent of 100,000 dump trucks. The amount of ash in this power plant increased in 2017 to 2.7 million tons per year. Thahir (2017) in his study estimates that the amount of ash from Suralaya Coal Steam-Power Plant in 2027 could reach 11.2 million tonnes per year or the equivalent of 1.12 million dump trucks per year.

The Government of Cilegon City and BNPB also said that at least more than 36 thousand people (2010) residents in the high vulnerability zone would become victims of the earthquake and tsunami waves as high as 2 to 7 meters.

Contrary to what was already planned in the contingency plan and disaster mitigation, the Banten Province Coastal and Small Islands Regional Zoning Plan (RZWP3K) document, which was passed in early 2021, allocates space in coastal areas and small islands as the center of the energy industry, mining and national strategic areas.

Before being passed, the RZWP3K Draft Regulation has been protested by many parties, highlighting its negative impact on environmental resilience. Evenmore, since the initial draft of this Draft Regulation, there has been no allocation of space for traditional fisherfolks' settlements. Even though the number of fisherfolk in Banten Province reached 9,235, of which around 8,676 families catches fish and more than 559 families harvest fish farms.[22] ■

PANAU COAL STEAM-POWER PLANT, CENTRAL SULAWESI: THE BLUNT LAW AND THE BLACK LIQUID IN THE LOCAL'S LUNG

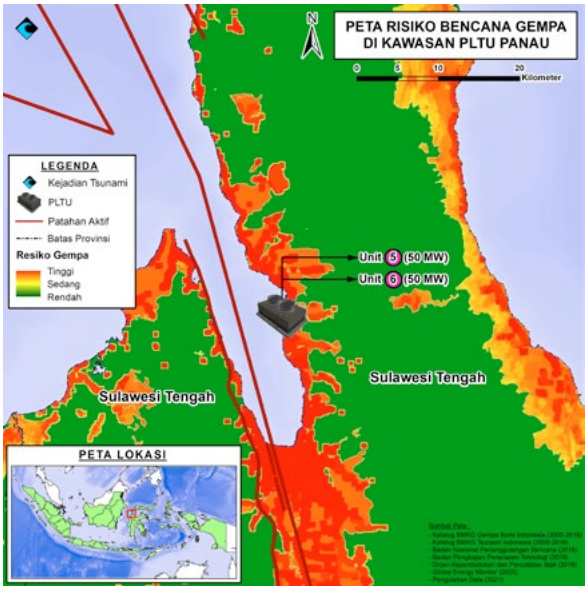
Panau Coal Steam-Power Plant began operating in 2007 in Panau Village, Palu City, Central Sulawesi. The capacity of this power plant is 2x15 MW and operated by PT Pusaka Jaya Palu Power (PT PJPP).The amount of ash per day that the power plant produced is estimated to be 17-33 tonnes of coal ash.

In 2014, the Ministry of Environment and Forestry estimated the weight of the waste pile to reach 72,000 tons, while WALHI of Central Sulawesi estimated that 107,341.72 tons of coal ash were piled up until 2015. The disposal of coal ash at Panau Coal Steam-Power Plant was disposed in an open area of 0.5 hectares on the banks of the Tawaeli River and only a 50 meters away from residential areas. That ash dump area has no technical safeguards and permits.

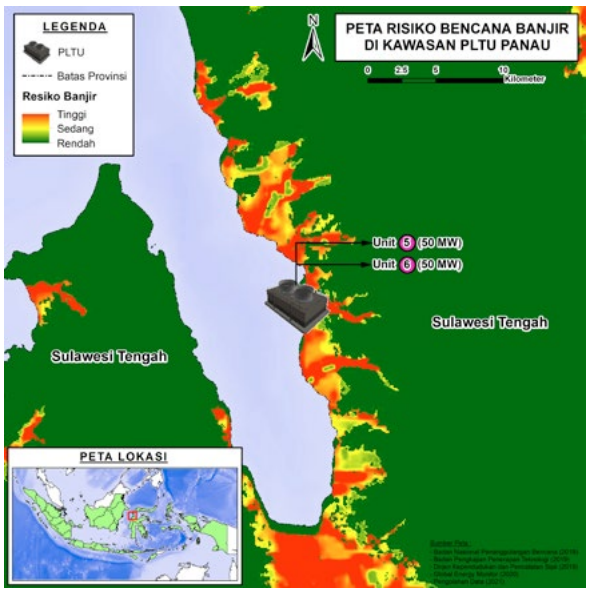
Panau Coal Steam-Power plant has a long, red report card in the management of its coal ash. Even the Ministry of Environment and Forestry gave black PROPER (the lowest mark in the performance scoring system related to Corporate environmental management) to the managers and has imposed a number of sanctions. Evenmore, the Supreme Court's decision[23] determined that the defendants from the Panau Coal Steam-Power Plant manager were legally and convincingly proven guilty of committing a criminal act of dumping waste into the environment.

Panau residents are starting to notice an increase in cases of cancer or lung-related diseases in the settlements. So, they documented they're suffering and released a fact sheet in 2018. **There are 23 respondents interviewed in video form, and all of them complained about feeling short of breath and some of them even had acute respiratory infections (ARI) and lymph cancer**. For 2 years (2016-2018), there have been victims who suddenly became seriously ill due to lung disease and cancer. There are even victims whose fluid in their lungs had to

EARTHQUAKE RISK AREA MAP IN PANAU STEAM POWER PLANT



FLOODING RISK AREA MAP IN PANAU STEAM POWER PLANT



be sucked out. The lung emits a thick black liquid resembling coffee.

"The operation of Panau Coal Steam-Power Plant before the tsunami resulted in bottom ash waste without a TPS (Temporary Waste Containment Area), let alone a TPA (Final Waste Containment Area) , that piled up improperly, and when it rained it pour to the ground and rivers. Based on data from the Primary Health Clinics (Puskesmas), 60 percent of residents suffer from ARI, lymph cancer and more than 20 people have died, "said Arzad H Hasan, a resident of Panau.

"If the coal ash is not cleaned, we can cough and get itchy while sleeping," said Aib, a resident of Talise Village, Panau, North Palu[24]."

In September 2018, there was a tsunami, and the Panau Coal Steam-Power Plant was heavily damaged. The tsunami swept the toxic ash heap and is estimated to have spread the exposure of large amounts of ash to land areas.

The locals and civilians have requested environmental audits regarding how the environmental impact after the tsunami swept away and spread FABA ash. However, this has never been done until now. In fact, the Government of Palu City is supporting the rebuilding of Panau Coal Steam-Power Plant.

"As the government, we are ready to support the recovery of the Coal Steam-Power Plant, and in this case, the reconstruction process will be held together with the PJPP so that electricity conditions in Palu will be more reliable,"[25] Hidayat said after a meeting with PT PJPP on Monday (16/9/2019) or a year after the tsunami.

The island of Sulawesi is in the subduction zone of three of world's main tectonic plates: Indo-Australia, Eurasia and the Pacific. So, the surrounding area has a high seismic activity record. In Palu City, there is the Palu-Koro Fault which divides the city. This fault has triggered a series of earthquakesin Palu City and its surroundings (Hamilton, 1979)[26].

This seismic activity in the active Palu-Koro fault puts Palu City quite at risk. The seismicity condition of the stress release of the earth's layer by this active fault activity indicates that Palu and its surrounding areas are prone areas and are at risk of earthquakes and tsunamis. Moreover, the existing seismicity and tectonic conditions support the occurrence of strong earthquakes with shallow depths that can generate tsunamis(Daryono, 2011).

BMKG (Meteorology Climatology Geophysical Agency) data and disaster reports from the Center for Earth Research and Natural Disaster Mitigation at the Tadulako University Research Institute (UNTAD) in Palu recorded several major earthquakes in the last 100 years in this area. The earthquake on December 1, 1927 at 13:37 WITA, measuring 6.5 SR, damaged hundreds of houses and government office buildings. This earthquake originated from the tectonic activity of Watusampu which is centered in Palu Bay. Massive damage occurred in Palu City, Donggala City and Biromaru District and 14 people were said to have

died and 50 others were injured. This earthquake also triggered a tsunami as high as 10-15 meters in Palu Bay which damaged Talise Pier.

The earthquake and tsunami as well as liquefaction hit life again in Palu on September 28, 2018. The National Disaster Management Agency noted that at least 23 days after the disaster 2,256 people died in four areas, namely Palu City, Donggala Regency, Sigi, and Parigi Moutong.

A total of 1,309 people were declared missing, 4,612 people were injured, and 223,751 people were displaced at 122 points due to the disaster in Central Sulawesi. Damages to buildings include 68,451 housing units, 327 houses of worship, 265 school units, 78 offices, 362 shops, 168 road cracks, 7 bridges, and so on. “Many buildings and infrastructure were destroyed due to the disaster,” said the National Disaster Management Agency[27].

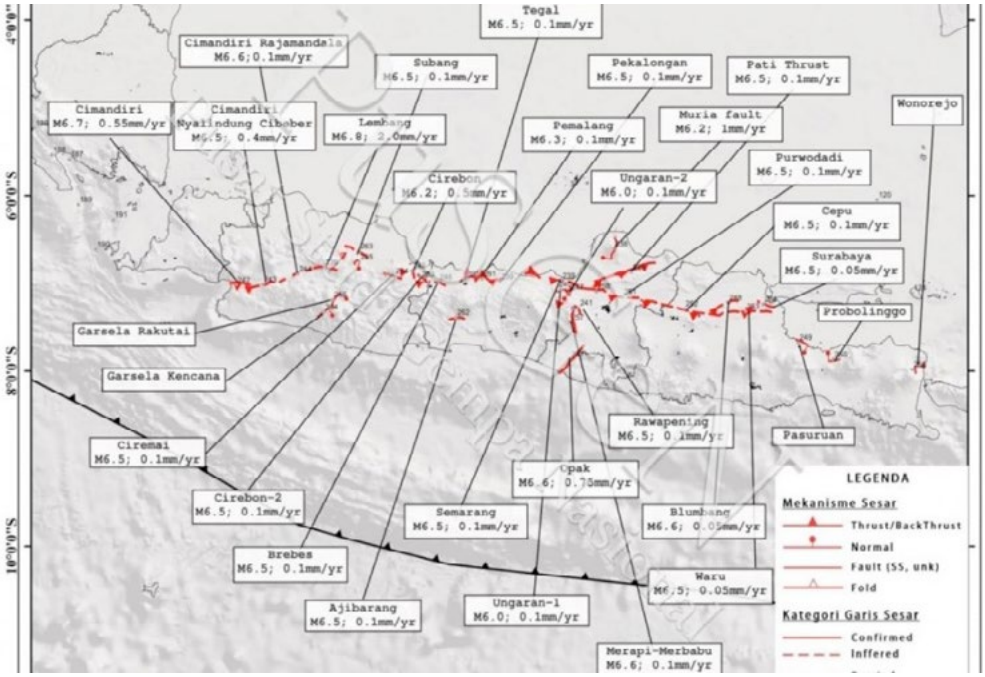
Records of earthquakes and tsunamis at fault points such as in Palu have not wary the government from planning the development. In fact, a polluting dirty energy plant such as Panau Coal Steam-Power Plant testifies to the impact of the fragility of spatial planning, and for the addition, the neglection of the risk of industrial pollution after a disaster is unthinkable. Since the tsunami destroyed the power plant’s chimney and spread the FABA ash heap to a further area, pollution has not been restored. Quite the opposite, instead of restoring the polluted conditions, the government plans to rebuild the dirty power plant in the same place. Even a donkey won’t fall twice into the same hole. ■

INDRAMAYU COAL STEAM-POWER PLANT: THE BARIBIS FAULT THAT INCREASINGLY WIDENED

On Saturday, June 23, 2018, a tectonic earthquake hit the Java Sea located north of Indramayu with a magnitude of 5.3 SR. The epicenter of the earthquake was in the Java Sea, 119 km north of Indramayu City, West Java and a depth of 662 km. This so-called “deep focus” earthquake is quite rare. BMKG calls the active “deep focus earthquake” in the Java Sea an indication that the plate subduction process in shallow, medium, and deep subduction zones of Java, especially West Java, is still very active[28].

On August 1, 2020, another disaster tore apart the Indramayu area and its surroundings. BMKG said the earthquake had a magnitude of 4.5 SR with an epicenter on land about 14 km southwest of Indramayu Regency at a depth of 12 km. This shallow earthquake is the result of local fault activity. Another earthquake occurred on December 11, 2020. At least 23 houses were damaged by this tectonic earthquake[30].

MAP OF BARIBIS FAULT



The mainland of Indramayu Regency is crossed by the Baribis Fault, especially Terisi and Gantar Districts. At the beginning of the BMKG's research, it only found that Terisi District was crossed by the Baribis Fault. However, a recent study by the Energy Ministry of Volcanology and Geological Disaster Mitigation found that seismic activity also occurred in Gantar District. The potential for an earthquake with high strength due to this fault activity threatens parts of the eastern part of West Java Province. However, the people of Indramayu do not know much about the existence of active faults under the ground.

"This fault can trigger an earthquake due to the active movement caused by the Baribis Fault. The status in the two sub-districts is in the middle to high level," said Caya from BMKG[31].

In this location prone to earthquake risk, the government continues to build coal dirty power plant projects. Indramayu Coal Steam-Power Plant 1 which is managed by a subsidiary of PT PLN (The State Electricity Company), namely PT Pembangkitan Jawa Bali (PT PJB), has been built since 2010. With a capacity of 3x330 MW, it will require 4,200,000 tons of coal per year.

And then, PLN expanded by building Indramayu Coal Steam-Power Plant 2 with a capacity of 2x1000 MW. The construction of this power plant is planned for 2022 and will operate commercially in 2026. It is currently in a preparatory status[32]. For a capacity of one unit of 1x1000 MW, Coal Steam-Power Plant Indramayu 2 will require as much as 3,752 million tons of coal per year.

Living side by side with Coal Steam-Power Plant is suffering. Coal ash waste not only affects the soil fertility of the people, but also damages their health. As experienced by Sutini, a resident of Sumuradem Village, Sukra District, Indramayu. For these farmers, the black smoke that coming from the power plant's chimney is an everyday sight. Farming in a field near the power plant in this polluted condition is a great suffering from both the smell and the exposure to the flying ash.

"Yesterday, I was sick for three days: Shortness of breath and coughing after planting rice in the rice fields near the power plant," said Sutini at the end of February 2020[33]. ■

CILACAP COAL STEAM-POWER PLANT: MEGATHRUST'S SWEEP LURKING FROM THE DARKNESS

On June 9, 2019, an 5.7 SR earthquake 5.7 shook Cilacap, Central Java and people of Yogyakarta and Bandung, West Java could feel the shakes too. BMKG (Meteorology Climatology Geophysical Agency) informed that the epicenter was 88 kilometers southwest of Cilacap at a depth of 10 kilometers.

The earthquake was caused by the subduction activity of the Indo-Australian Plate which infiltrated the Eurasian Plate. This earthquake is generated by rock deformation with a thrust fault type movement mechanism.

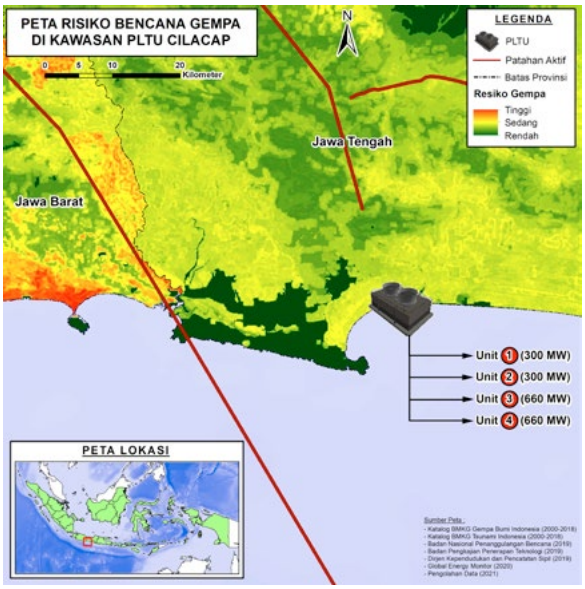
The modeling carried out by tsunami experts from the Agency for the Assessment of Technology Application, and Widjo Kongko illustrates that along the southern coast of Java, there is a potential for an earthquake of 8.8 SR. This is due to the megathrust segments along the south of Java. Even along the coast of Cilacap, Yogyakarta to the East Java have the potential to be swept away by a tsunami up to 20 meters high and surging as far as four kilometers inland.[35]

The megathrust segments stretch along the south of Java to Sumba on the eastern side and south of the Sunda Strait. Tsunami waves will arrive in about 30 minutes after a large earthquake occurs. The record for this large earthquake in southern Java, which was followed by a tsunami, is in Banyuwangi (1994) with a magnitude of 7 SR and in Pangandaran with an earthquake with magnitude of 6.8 SR.

"For the 1994 earthquake, there is no record of a tsunami occurring in Yogyakarta. But in 2006 there was a record of a tsunami in the south of Yogyakarta but its reach did not exceed Gumuk Pasir in Parang Kusumo," said Wijdo.

With the potential threat of megathrust, the government seems to turn a blind eye to the risks that will be borne by the locals due to the damage carried out by the extractive industry projects in this area. Among them are four units of the Cilacap Coal Steam-Power Plant which are managed by PT Sumber Segara Primadaya. With a capacity of 2 x 300 MW of the Units 1 and 2 of Cilacap Coal Steam-Power Plant, the Cilacap Power Plant Expansion 1 with a capacity of 1 x 660 MW, and Cilacap Power Plant Expansion 2 with a capacity of 1 x 1,000 MW.

EARTHQUAKE RISK MAP IN CILACAP STEAM POWER PLANT AREA



This dirty energy project is located in Kesugihan Village, Karang Kandri District. Apart from being at risk of earthquakes and tsunamis, this area is also a water crisis prone zone and has experienced sea water intrusion, drought and tidal flooding. And this project is only 3 km from Adipala Coal Steam-Power Plant 1 x 660 MW.

With poor coal ash waste management, the earthquake and tsunami will likely wiped out a pile of 448,000 tonnes of fly ash and 59 bottom ash that generated annually. This toxic and dangerous ash pile is only about 50 meters away from residential areas with walls 3-4 meters high. Whereas in the regulations, the distance is at least 300 meters from the settlement and it must meet the particular stacking requirements.

In fact, one of the Cilacap Power Plant unit is directly adjacent to the elementary school building.

"Every day, during the dry season, we had to swept the terraces inside and outside the house three times. Please pay attention to us. Don't send us toxic waste and pollution. Near the house there is a school, if the Coal Power Plant operates, the dust is very dangerous for students."

WALHI Central Java even estimates that the impact of FABA is felt by at least 52,985 residents living in 5 nearby villages, namely Slarang Village, Menganti Village, Karangkandri Village, Kuripan Kidul Village, and Kalisabuk Village, Cilacap Regency, Central Java.

Cilacap Environmental Care Network Coordinator, Bagus Ginanjar Mustofa said, as many as 150 Winong residents had been treated in hospitals and Puskesmas because of Acute Respiratory Infections (ARI). ■

Aerial photograph of coal mining concessions in East Kalimantan. Photograph: JATAM East Kalimantan.

MINING IN DISASTER RISK AREAS - EARTHQUAKE, TSUNAMI, FLOOD

TIME BOMB FOR THE PEOPLE OF DAIRI

Zinc Ore Mine and PT Dairi Prima Mineral's Tailings Dam above the Renun Earthquake Risk Fault of North Sumatra.

The government would be planting a ticking time bomb, if they do not immediately cancel the agreement through a work contract that gives PT Dairi Prima Mineral (DPM) 24,676 hectares of zinc ore mining concessions, including rejecting and stopping the discussion of the Environmental Impact Analysis Addendum (Adendem Analisis Dampak Lingkungan, ANDAL) that the company is currently proposing the the Ministry of Environment and Forestry office.

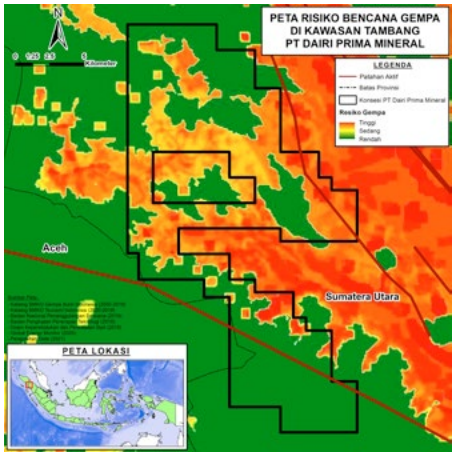
The locals are worried that this mining project will invite disasters for both humans and nature in Dairi, North Sumatra. Among the reasons for the refusal of the mine, is the project plan to build a dam or tailings dam from PT DPM's mine waste in the Sopokomil area.

The locals are gripped by fear, learning from the collapse of the waste dam belonging to the Vale mine in Brazil in 2019, and killed 270 people. The dam did not meet the international standards for its construction, because it only has a carrying capacity for 100 years. Where it should be 1,000 or even 10,000 years.

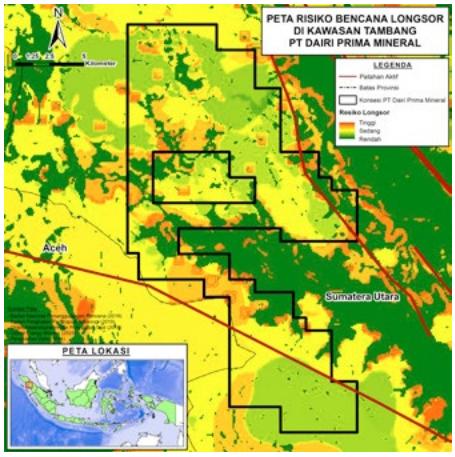
A local of Pandiangan Village, Hotwin Hutasoit, said that Dairi Regency is in an earthquake fault area that has the potential to tear down the waste dam, even part of it is also a flash flood disaster risk area. If that happens, the wave of waste belonging to PT DPM, which is expected to manage as much as 5 million tons per year, will flow to the downstream villages around the project," he said.

A similar concern was conveyed by Rinawati Sinaga, a representative from Bongkaras Village. She admitted that the locals of her village were very worried because the land on which the waste dam was to be built, namely in Sopokomil, was the result of the volcanic eruption of Mount Toba, so the structure was soft.

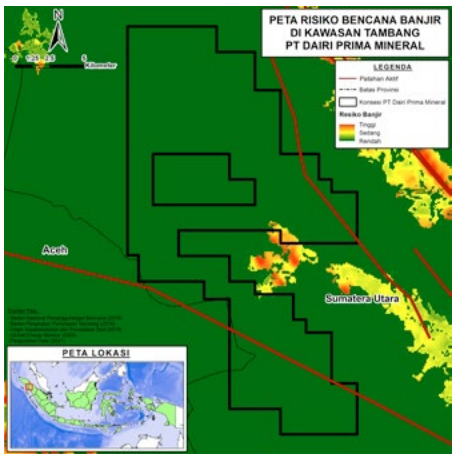
EARTHQUAKE RISK AREA MAP IN PT DAIRI PRIMA MINERAL MINING



LANDSLIDE RISK AREA MAP IN PT DAIRI PRIMA MINERAL MINING



FLOODING RISK AREA MAP IN PT DAIRI PRIMA MINERAL MINING



Villagers of Bongkaras, Pandiangan, Lae Haporas, Sinar Pagi, Bonian, and Lae Ambat from Dairi Regency, North Sumatra, during their demonstration to urge the regent and the Minister of Environment and Forestry to revoke the SKKLH permission and stop the discussions regarding addendum of PT Dairi Prima Mineral (DPM) AMDAL, 29 April 2021. Photograph: Bakumsu and YDPK, Dairi, North Sumatra.

"After all this time, we live and eat with our children not from mining, but from agricultural products. And up until now there has been no information stating that the waste dam construction site is in a safe place," she said.

"70 percent of the waste is returned to the ground. Isn't it harmful for the groundwater and eventually becomes poison that will enter rivers, water sources, irrigation and will be consumed by the locals. Meanwhile, another 25 percent will enter the waste dam and will remain there forever," she said[36].

From various studies published by the civil society coalition advocating for this problem, the waste dam is estimated to be only 1,000 meters away from residential areas, schools, mosques and community agricultural areas. This practice is illegal according to Chinese regulations. "Our question is whether the value of humans in Indonesia is lower than people in China and especially us in Dairi," said Rinawati Sinaga.

Another row of destructive forces that will be caused by this mining plan ranges from the threat of social conflicts, the deprivation of water source that flow to 8 villages and 6,000 residents for the sake of the mining operations and laborers, annexation of protected forests, extinction of biodiversity and local economies that depend on land economies, both agriculture, corn, to Parongil durian and the famous Sidikalang Coffee production, construction of an explosives warehouse that more closer to the settlement and including the risk of air and noise pollution through the transport of trucks containing zinc ore concentrate which will pass from Parongil to Kuala Tanjung every day.

Up to this day, the locals and civil society resistance continues, sending written protests even filing complaints to the International Finance Corporation (IFC), which is the wing of the World Bank because it is suspected that part of their funds flowed to China Non Ferrous Metals Mining., Group Co. Ltd, a Chinese company that now holds a majority stake in PT DPM as much as 51 percent, while the rest is still owned by BUMI Mineral Resources, including the Bakrie family by 17 percent.

From JATAM's investigation with the civil society coalition, this company is expected to ship zinc ore to China, and trade its zinc ore to the Shanghai Future Exchange and London Metals Exchange. This company is also a major supplier of zinc ore to China's Wanxiang Group, from 2012 until now. China's Wanxiang Group is a major supplier of raw materials for spare parts, and one of the top three global suppliers of spare parts for world-renowned brands such as Citroen, Mazda, GM, Suzuki, Toyota, Volkswagen, Daimler, Chrysler and Fiat. ■

MINING THE NATURAL FORTRESS

The mines of PT Bumi Suksesindo (BSI) and PT Damai Suksesindo (DSI) is in the South Coast Earthquake and Tsunami Risk Area of Banyuwangi, East Java.

In 1994 Banyuwangi was hit by a tsunami. At that time, the waves of this disaster claimed 239 residents of Dusun Pancer, Sumberagung Village. These old wounds still make an impression on locals' memories, one of them is Fitriyani (31 years), a local resident. The old wounds of the 1994 tsunami occurred in southern Banyuwangi, Mount Tumpang Pitu. A line of mountain clusters that became an ecological marker and the identity of the locals at that time became a witness to the history.

"At that time, the people in Sumberagung Village ran out from their houses to find shelter, because the tsunami hit the village," said Fitri. Mount Tumpang Pitu itself indirectly became a protector for the locals of Sumberagung at that time, because it was able to ward off the tsunami attack. However, now the mountain is under threat. Gold mining will destroy its existence. This means that the potential and threat of disaster risk will be higher, and the vulnerability of the people will increase as well, and at last, the safety of the people will be even more at stake.

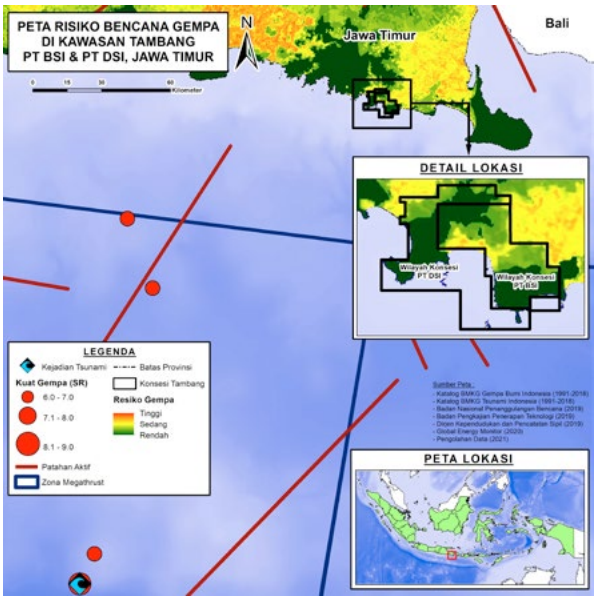
According to Fitri, the Tumpang Pitu mountain range has functioned ecologically as a "natural fortress". In addition to Tumpang Pitu, which has a cave for shelter, Mount Salakan which is next to it, also has the hill of Goa Macan which also became a fortress for the locals when the tsunami hit. "If there is no Mount Tumpang Pitu, of course the number of victims and the number of villages affected by the tsunami will be much greater," added Fitri.

Not only that, for the fishermen, Mount Tumpang Pitu also acts as a shelter from the strong winds of the Indian Ocean, directional landmark and a "natural compass" for fisherfolks when returning from a long trip to fish in the sea.

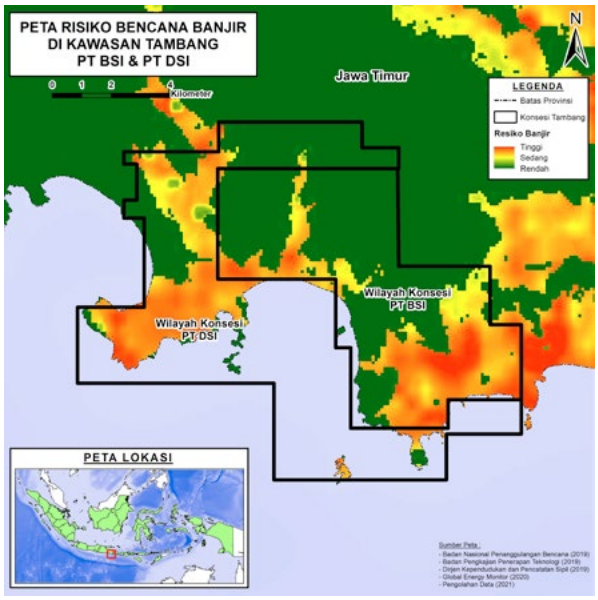
> "If there is no Mount Tumpang Pitu, of course the number of victims and the number of villages affected by the tsunami will be much greater."

But now, Mount Tumpang Pitu has suffered damage due to the gold mining operation that took place there by PT Bumi Suksesindo (BSI) using open pit mining operations as well as underground mining. Significant changes in mountain hue occur at the top of this mountain due to land clearing and land dismantling.

EARTHQUAKE RISK AREA MAP IN PT BSI & PT DSI MINING, EAST JAVA



FLOODING RISK AREA MAP IN PT BSI & PT DSI MINING, EAST JAVA



So is Mount Salakan, a mountain range adjacent to and associated with Tumpang Pitu. The presence of PT Damai Suksesindo (DSI) which is now eyeing Mount Salakan cannot be separated from the role of PT BSI, both of which are subsidiaries of PT Merdeka Copper Gold. PT DSI is the holder of an Exploration Mining Business Permit (IUP) based on the Decree of the Governor of East Java No. P2T/83/15.01/V/2018 dated 17 May, 2018 covering an area of 6,558.46 hectares which includes Mount Salakan and its surrounding villages.

DEFENDING THE NATURAL FORTRESS THROUGH THE TENT OF STRUGGLE

After putting up a stern resistance in 2015, which resulted in the burning of PT BSI's site and led to repression of the state security apparatus. It doesn't stop there, in 2017 four citizens were criminalized, they were slandered for spreading the teachings of communism. However, that did not stop the locals to defend Tumpang Pitu from the mining threats of PT BSI and PT DSI.

It was recorded that on October 31, 2019, locals of Pancer lined up to guard the side of the road. They are worried about the mining research plan by PT Bumi Suksesindo (BSI) mining workers and researchers from Trisakti University, Jakarta on Mount Salakan. After running for several months, the mine researchers were unable to access the area that was planned to be used as an exploitation area for PT DSI. They noted that they tried to do research for three times, but the locals rejected them.

The resistance peaked on January 7, 2020, when Brimob troops from the East Java Regional Police were deployed around the Mount Salakan area in the Pancer Village area. The presence of Brimob is a request from the mine in order to carry out their research with Trisakti. But the presence of Brimob did not discourage the locals. They expelled Brimob from the Pancer area, and then the locals set up the tent of struggle and will take turns on guard. The aim was that none of the mining parties could enter and operate the mine.

The locals from a number of villages around Tumpang Pitu and Mount Salakan, take turns on guard every day. When most of them work, those who do not work are on guard. Some fishermen who do not go to sea bring jobs that could be done in tents, such as repairing nets in preparation for going to sea. Several farmers and traders come to the tent after work. Sometimes it seems they just take a rest in between work. After school, small children run and play around the tent. In this tent, mutual cooperation was built, a number of discussions, documentary film screenings and *istighotsah* prayer which were held to strengthen resistance, so that Mount Salakan would not become the second Tumpang Pitu and so that they would not become victims. ■

COAL THAT SUSTAINS FLOODING

Coal Mining in Samarinda, Widening Flooding Areas and Making the People Victims of an Everlasting Disaster.

Samarinda is a city which is also known as Samarendah, because of its geographical and natural landscapes. This includes its position where the height of its land edge are the same height as the height of the river water. "Sudah jatuh, tertimpa tangga", an Indonesian saying which means a condition that just gets worse and worse, encapsulates the city's condition. Samarinda is faced with the COVID-19 pandemic, and at the same time, it is affected by flooding which always happens every so often. Since 2014 to 2020, the area affected by flooding increased to nearly reaching 100 percent of the city, rising from 1.322 hectares to 2.117 hectares. This is due to the fact that 71 percent of its total area is given to the coal mines[37].

The flooding that happened in May 2020 resulted in 47.281 people falling victim to this disaster[38]. The Regional Disaster Management Agency (BPBD) of Samarinda stated that up to May 29, 2020, 4 people have died because of this disaster; one person because of illness, two people electrocuted, and one person drowned[39]. Of course, this is yet to include the various immaterial and material losses that the people suffer such as health related bills that they must pay, home renovations that they must do, and also their livelihoods which are at stake due to the flooding.

Aerial photograph of the flood situation that is getting more frequent in Samarinda, East Kalimantan. Photograph: JATAM East Kalimantan.

Apart from that, Samarinda is also plagued with many ex-coalmine pits which have also taken lives. From the 39 people that had died, 22 among them died in these pits scattered around Samarinda. Out of 1.735 ex-mine pits that are in East Kalimantan, 349 pits are located in Samarinda.

What makes this atrocity even worse is the fact that during the Regional Elections (Pilkada 2020), there were misleading programs regarding the mitigation of the regular floods. During their campaign, the candidate Andi Harun (now mayor of Samarinda) promised to utilize ex-mine pits as folders or control-pools for the flood water, this is very misleading because there exists a legal obligation for mining companies to bury and restore mining pits. This misleading program hinders Samarinda from being free of disasters.

This dangerous idea will only benefit the mining companies but is harmful for the public. The government's budget used to fund the flood control folders will chip away the money much needed by the public.

From 2011 to 2013, the regional budget to control flooding has reached numbers as high as 605 billion rupiah has been taken from the provincial fundsi[40], that number does not include the budget of Samarinda City which in 2017 reached 375 billion rupiah[41]. In 2021, the flood control budget must contest with the COVID-19 management budget. The East Kalimantan Provincial Government had at one point given up and asked for aid from the central government in Jakarta[42]. We could clearly see how coal mining can cause an everlasting burden which stems from the electoral politics in Samarinda which always needs to be influenced financially by the mining corporations. This results in the risk of disaster always increasing and the people to live in insecurity and danger.

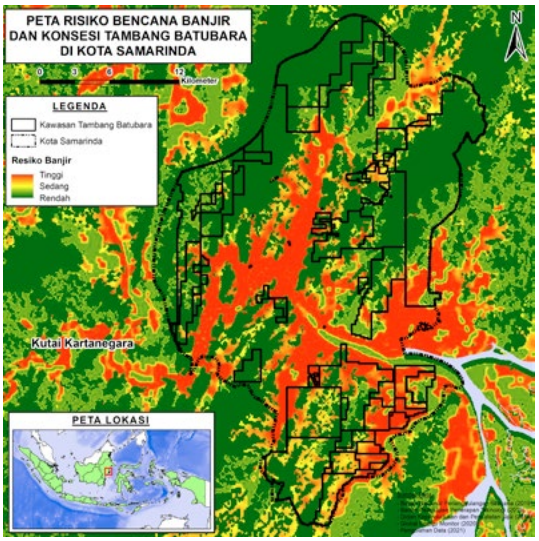
FLOODING, LANDSLIDES, AND COVID BECOME ONE

The insecurity increases because the flooding also targets health facilities like the Wahab Sjahranie regional hospital (RSUD) in Samarinda, which does not only cater to general health issues but is also the location chosen to isolate COVID-19 patients[43]. There, the health workers are not only faced with the patient's illness, but also face the flood.

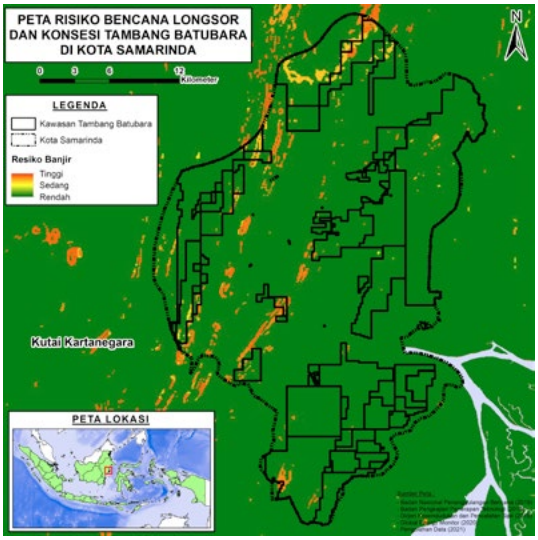
Samarinda does not only face the increasing danger of damage caused by illegal coal mines, since 2018 the city and other surrounding areas are also plagued by illegal coal mines which is not only dangerous but amplifies the risk and insecurity of Samarinda's people.

The risk that skyrocketed, and also the insecurity due to the COVID-19 related funerals, are also plagues by illegal coal mining operations.

FLOOD RISK AND MINING CONCESSION MAP IN SAMARINDA CITY



LANDSLIDE RISK AND MINING CONCESSION MAP IN SAMARINDA CITY



Chairperson of RT 20 Tanah Merah, Suladi, tells the story of how this chaos started in Serayu Street, Tanah Merah. The illegal coal mining operation is located not far away from the COVID-19 funerary area. Located exactly on the hill slopes of the Chinese cemetery in Tanah Merah.

"This mining location uses the hauling path which crosses through the COVID-19 funerary area. If this pertains, the funerary area will be tarnished, because of the mud which are scattered around on the streets." "Apart from that, there is a lake which exists inside the mining area that could collapse at any time and hit the neighboring populated areas."

Two coal mining activities pass through the COVID-19 funerary area in Serayu. Coal hauling activities had already started even before he became the local neighborhood chairperson.

According to Suladi, the people sometimes see dump trucks pass through the cemeteries. Sometimes, some people are fed up with that happening and stop the trucks from passing, forcing the trucks to find another path. "Three nights ago some trucks tried to pass through our streets. We just had to stop them and asked them to go back," said Suladi.

Suladi acknowledged that the mining activities affected the COVID-19 Work Force activities in the area, "When the weather is hot, dust scatters. If it rains, then the roads become muddy. Yes, it's supposed to be cleaned. But it's not cleaned. Sometimes funeral workers fall because of how slippery the roads can be at night," Suladi says[44].

The environmental damage caused by the mining will increase the risk of disasters such as floods and landslides, plus the facts that the water that seeps into the environment around, the water that came from the mining operations contain acidic mining water and heavy metals. The water also has potential to gush into the roads leading to the COVID-19 cemetery area; nobody could be sure of the effects.

But the struggle continues in Samarinda. In the year 2012, Gerakan Samarinda Menggugat (Movement to Sue Samarinda) filed a law suit in the District Court of Samarinda and conveyed their points of petitum[45]. From 2015 until today, the movement accomplished to push the moratorium of new coal mining permits. Even though they accomplished that feat, the government failed to waive the old permits that continued to desecrate the environment and sustains the flooding. Not stopping there since 2014, in each and every time the regional elections roll out, a number of civil movements (among them JATAM of East Kalimantan and **#BersihkanIndonesia**) have investigated and campaigned about the track records of the candidates and reject candidates that are on the side of the coal mining business in Samarinda[46]. ■

WADAS REJECTS OPPRESSION

Community Resistance Against Andesite Mining in a Landslide Risk Area of Wadas, Purworejo, Central Java.

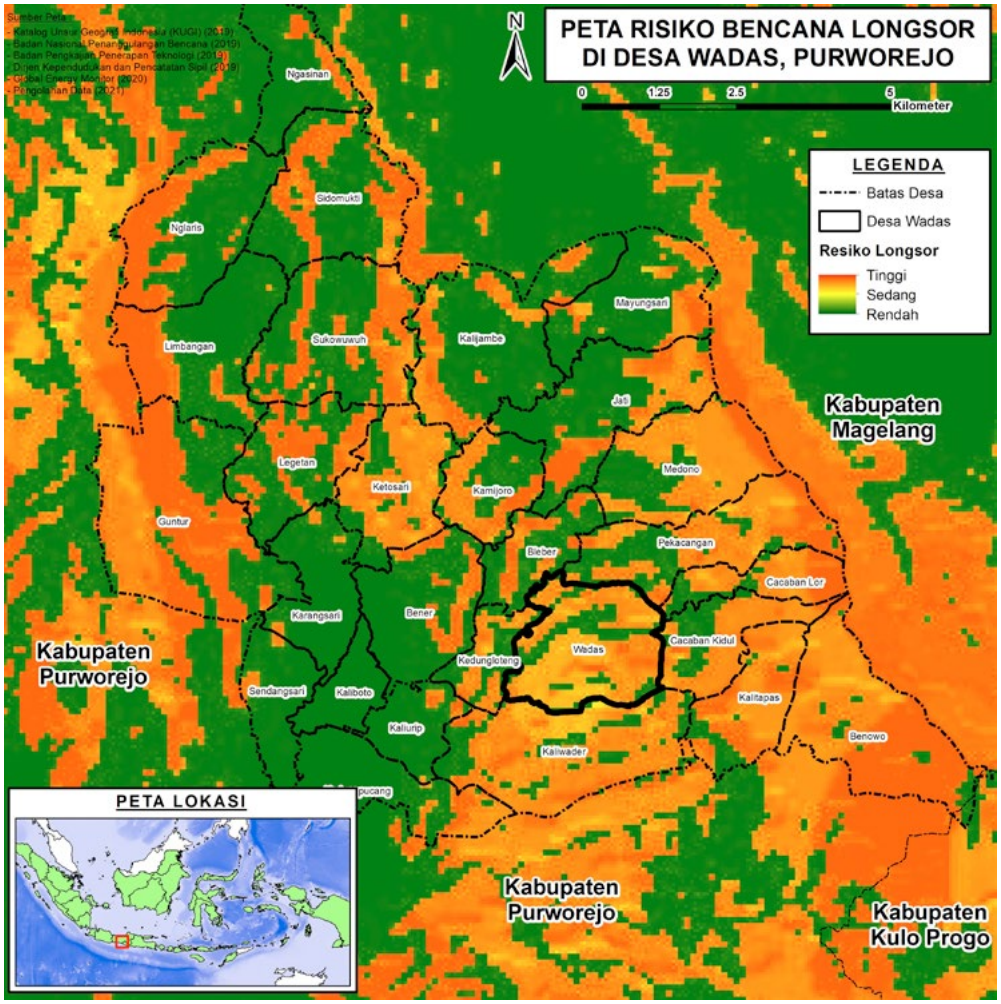
Quarry mining of andesite stones in Wadas Village, Purworejo, Central Java will not only cause the rate of damage to the environment and socio-economic life of residents, but also increase their vulnerability due to being in and taking place in high risk of landslide areas.

Based on the landslide vulnerability map in Bener District, the geographic landscape of the village is in a high place, falling under the yellow category. The Wadas Melawan Coalition (Koalisi Wadas Melawan) and several studies say that if mining is carried out, it will worsen the level of landslide vulnerability in the area[47].

However, a warning from residents to not allow mining in Wadas Village, is replied to in the form of violence by the police and the ignorance of the government. In fact, as in Article 26 of Law No. 24 of 2007 concerning Disaster Management, states that the community (everyone) has the right to social protection and a sense of security, especially vulnerable groups of people. This includes participating in decision-making, especially those related to oneself and the community, even monitoring and making efforts to prevent disasters before they occur.

In fact, Article 27 in the same Law, every citizen has the obligation to maintain a harmonious social life in society, maintain balance, harmony, and preservation of environmental functions. Because, the preservation of environmental functions can reduce risks and reduce the rate of vulnerability of the community's safety itself.

LANDSLIDE RISK AREA MAP IN WADAS VILLAGE, PURWOREJO



The violence by the security forces occurred during the peaceful demonstration of residents who reject the mine, on Friday (23/4, 2021), or the day after the 2021 Earth Day commemoration. The attack perpetrated by the security forces has caused 11 locals, university students, and legal advisors from LBH Yogyakarta to be arrested, and 9 other people are injured due to being beaten up[48]. This is not only a physical attack on each citizen who protest, but also an attack on environmentalists and an attack on environmental vanguards from the threat of disaster, whom are carrying out the constitutional values of the disaster law itself.

NATIONAL STRATEGIC PLAN: INCITING DISASTER

Andesite mining in Wadas Village, Bener District, Purworejo Regency does not exist in a vacuum. It is part of the Bener Dam project. Quoted from the official page of *kppip.go.id*, the total investment reached Rp2,060 trillion. The Bener Dam project later became one of the national strategic projects under the administration of President Joko Widodo.

The construction of this dam has been conveyed by the Ministry of Public Works and Public Housing (PUPR) since February 2017. At that time, the ministry said that this dam was part of a program of 65 dams throughout Indonesia. Because of the topography of its location, the Bener Dam is even called the tallest dam in Indonesia.

The ministry in charge for this project is the Ministry of Public Works and Public Housing. The project's construction began in 2018 and is planned to start operating in 2023. The dam is planned to have a capacity of 100.94 cubic meters. It is targeted that this dam can irrigate 1,940 hectares of land, provide raw water as much as 1,500 liters per second, and a 6 MW Hydro Power Plant (PLTA). Currently, the project is being worked on by a number of state-owned companies. Starting from PT Waskita Karya (Persero) Tbk, PT PP (Persero) Tbk, and PT Brantas Abipraya (Persero)[49].

Other information states that one of the functions of this dam is to meet the water needs of the new airport that is being built in Kulon Progo, New Yogyakarta International Airport (NYIA)[50]. Among the residents' protests were the matter of transporting materials via the new road which would cut the main road of Wadas Village. He is close to the school - also one of the reasons for his objection, Mongabay conducted an interview with the resident[51].

"Later, if we make a road, then there are trucks passing by, is it not disturbing? There is sound dust. It must interfere with the teaching and learning process, as well as the children themselves, "said Uut, a resident of Wadas.

Forests and Wadas Hills also contain durian, sugar palm, and coconuts. The residents also plant plantation crops such as rubber. Haryanto, a resident of Wadas, claims to have 600 rubber trees. Within a month, from rubber he can earn at least IDR 750,000 as a side income. "After last Shawwal, we got two quintals more. One kilogram is valued at Rp6,500, "he said.

Wadas Hill, in addition to many deep-rooted trees and thick leaves, is also a 'home' for fauna. Several birds such as parrots, onion bran, partridge, lathe and arrears are also part of Wadas.

Wadon (woman) Wadas, who is part of the Wadas Village Nature Care Community Movement (GEMPA DEWA), said that the residents rejected andesite mining because women were the first to feel the impact.

When mining takes place, dynamite blasting rocks will interfere with the activities of women and children, unable to study and worship. *"Yen is mined ora iso ngibadah!* (If it is mined, then you can't pray)," said Wadon Wadas as seen in posters of their action on Instagram @wadas_melawan.

Disturbance to water can have an impact on family consumption. Even so from an economic point of view, Wadas women have been very productive. Most of them are farmers, including palm sugar producers. Then, handicrafts such as baskets and trays, which are partially made from natural material, are threatened that they can no longer be produced due to mining disturbances[52] ■

THE INDUSTRIAL COMPLEX AND SMELTERS IN DISASTER RISK AREAS

There are a total of 41 smelters currently planned, is in the process of construction, and is already up and running. The coalition has mapped the smelter projects in high risk of disaster areas, which are:

- 14 smelters in high risk of landslide areas spread across Java, Sumatra, Sulawesi, and Maluku. Dominated by smelters for bauxite and nickel.
- 32 smelters in high risk of flooding areas spread across Sulawesi. Southeast Sulawesi is dominated by nickel smelters, while West Kalimantan is dominated by bauxite smelters.
- 18 smelters are in high risk of earthquake areas and most are nickel smelters in Southeast Sulawesi. Some of the other smelters are iron sand, iron ore, and copper in Java and West Kalimantan.

In August 2020, flooding struck the Indonesia Weda Bay Industrial Park (IWIP) industrial complex in Central Halmahera, North Maluku Province. Apart from weather factors, the location which the industrial complex is built on is also a high risk of flooding area. Due to this, the smelter here is temporarily stopped[53]. ■

Flooding in Indonesia Weda Bay Industrial Park (IWIP) area, Central Halmahera Regency, North Maluku, 2020. Photograph: halmaherapost/Istimewa.

REGULATION THAT INVITES DISASTER

HOW MINERAL AND COAL MINING LAW, AND JOB CREATION LAW WORSENS THE RISK OF DISASTER

In the Plenary Session on Tuesday, May 12, 2020, the government passed the revision of the Mineral and Coal Mining (Minerba) Law. The government is taking advantage of the Covid-19 pandemic to continue making revisions despite strong protests by the public. UU No. 4 of 2009 has now changed to Law No. 3 of 2020.

Likewise on October 5, 2020 when the government officially reinforced the passing of Law No. 11 of 2020 concerning Job Creation or what is known as the Omnibus Law. Currently, the government has issued dozens of government regulations derived from the law, which have also been protested by the wider community.

A number of changes in the Minerba Law and the Job Creation Law and their derivative regulations have an impact on workers, the wider community, and the people in the immediate circle of extractive investments. In the context of disasters, a number of articles and paragraphs in the two regulations also increase risk and vulnerability to living spaces, the local ecosystem and, residents who are the target of investment. Among them are;

- The flexibility of changes in spatial planning for development and economic interests through the ease of use of forest areas as seen from the amendments to Article 18 paragraph 2 of Law Number 41/1999 concerning Forestry in the Job Creation Law. The paragraph which reads 'the extent of forest area that must be maintained as referred to in paragraph (1) is at least 30% of the area of river basins and/or islands with a proportional distribution' has undergone significant changes. The minimum limit of 30 percent of forest area is removed in the Job Creation Law. This is a factor in the expansion of damage and increases the risk of disasters.

One of them intersects with the increased risk of floods. As in the case of floods in South Kalimantan in early 2021. The National Institute of Aeronautics and Space (LAPAN) said that the cause of the biggest flooding in South Kalimantan Province in January 2021 was due to reduced primary and secondary forest cover in the last 10 years[54]. According to LAPAN, there are at least 13 districts and cities affected by the flood, seven of which have a flood inundation area reaching 10,000 to 60,000 hectares.

According to LAPAN's monitoring, Barito Regency has an inundation area of 60,000 hectares, Banjar Regency 40,000 hectares, Tanah Laut Regency about 29,000 hectares, Hulu Sungai Tengah Regency approximately 12,000 hectares, Hulu Sungai Selatan Regency reaches 11,000 hectares, and Tapin Regency 11,000 hectares[55].

Wahana Lingkungan Hidup Indonesia (WALHI) of South Kalimantan, noted that 50 percent of the land and forests in South Kalimantan have been converted into coal mines and palm plantations. Mining covers 33 percent and palm plantations 17 percent. Until 2020, there were 93 units with an area of 56,243 hectares. Of the 93 units, 87 units exist in an area of 55,078 hectares or 5.79 percent of the protected and production forestland areas are mining IPPKH. IPPKH with an area of 56,243 hectares is almost equivalent to the area of DKI Jakarta[56].

From here the vulnerability faced by residents had jumped drastically, this fact is worsened by the disasters that occurred during the COVID-19 pandemic. "In almost all provinces in Indonesia, the daily case average has started to decline, but not in South Kalimantan," said a member of the Banjarmasin Lambung Mangkurat University (ULM) Expert Team to Accelerate the Handling of COVID-19 in South Kalimantan, Dr. dr. Syamsul Arifin, M.Pd.

He said, the increase in Covid-19 cases in South Kalimantan in the months of flooding and post-flooding was the impact of the uncontrolled mobility of residents during the disaster. This is due to the decreased implementation of health protocols and the decrease in immunity due to poor hygiene and sanitation during evacuation[57].

- Through article 169 paragraph (1) in the revision of the Law on Mineral and Coal Mining (MINERBA), giant mining corporations will receive a 2x10 year Automatic Extension Guarantee in the form of a Special Mining Business Permit (IUPK) without starting with the stipulation of a state reserved area (WPN), and the auctioning of the Special Mining Business Permit Area (WIUPK). The implication is that the automatic extension will continue to extend the area without adjusting to Article 62 regarding the area of the WIUPK area which must be reduced to 15,000 hectares, as how it has been implemented in the automatic extension of PT Arutmin, owned by BUMI Resources in South Kalimantan.

  The impact of this automatic extension is that there is no room for evaluation of the status of old concessions that are still in existence and overlap with high-risk disaster areas. Moreover, the guarantee of automatic extension of coal concessions is also followed by a 0 percent royalty incentive for coal companies that building downstream projects.

- The concentration of authority and convenience for national strategic projects in the Job Creation Law has the potential to increase risk and vulnerability.

  One of them is the authority of district and or city governments to carry out regional spatial planning, including national strategic areas that have been transferred to the central government. It can be seen in the amendment to the provisions of Article 8 and 9 pages 18-20 which are written in the Job Creation Law. The regional government is only authorized in regulation, guidance, and supervision of implementation; the implementation of which is purely the right of the central government.

  In addition, the Job Creation Law was made to provide the widest possible convenience for the sustainability of National Strategic Projects and Programs. This is regulated in the Job Creation Law, particularly Article 173 concerning the Ease of National Strategic Projects, which allows the land acquisition process to be carried out by Business Entities, if the government is unable to do so. This opens space for extreme land liberalization, land acquisition is then compulsory for any Indonesian citizen to give up ownership if the location is earmarked for a National Strategic Project[58].

  The deadly combination of PSN and the 2020 Regional Elections (Pilkada) has closed the room for the integration of areas with high disaster risk in the context of mitigating disaster in the region. The reason is that Pilkada has been subverted into merely selecting the operator of the Omnibus Law, and to become a channel for the central government's investment interests in the region. ■

WALHI South Kalimantan fast response team helping flooding victims in South Kalimantan early 2021. Photograph: WALHI South Kalimantan.

DEMANDS

The Indonesian government must evaluate all mining permits, coal steam-power plant projects and smelters that do not take into account Indonesia's position as a unique area because it has social, cultural, ecological, climatic and geological characteristics, and among others because of its geological landscape which is ringed by the megathrust potential.

The Indonesian government must end the tolerance towards development that only uses an investment economic benefit approach without taking into account the vulnerabilities attached due to it; this includes investment economic development that comes from mining extractivism, smelters and coal steam-power plants.

Besides from being dirty and deadly, extractivism from mining, smelters and coal steam-power plants will invite continuous series of disasters and threaten people's safety, as well as turn them into permanent social-ecological refugees.

Through the diagnosis, findings and reviews in this report, **#BersihkanIndonesia** wants to amplify the voice and the resistance power of the mother-nature which is getting louder and louder, reminding us that we are a part of her. This report wishes to remind us that we must continue to find ways to live in harmony with the mother-nature, as an integral part of nature, and not to be caught up in false solutions that invoke disaster.

This report focuses on extractive industries that are located in areas that prone to disaster, but at the same time **#BersihkanIndonesia** also wants to emphasize that we must abandon development models that rely on extractive industries such as mining and coal as soon as possible, because that kind of development models clearly pose a threat in the form of disaster risks and increase vulnerability, and finally, to make a just transition from dirty and dangerous energy into a clean and safe energy in a democratic manner.

Reject the false concept of 'new and renewable energy' version that coming from the government which is being hijacked again by extractive industry, fossil and hazardous energy businesses, towards supporting the decentralization of the idea of clean renewable energy that is fully fair and democratic for the people.

#BersihkanIndonesia invites the widest possible of Indonesian public to joint this demand and urge the Government of Indonesia to continue the diagnosis and findings in this report. This can be accomplished through:

1. Conduct the extensive audits and comprehensive inspections of extractive industries that operate or intend to operate in or around areas with disaster risk. The audit must be carried out in a transparent manner, in consultation with the community, especially those in disaster risk areas, and/or who are potentially made vulnerable or affected by the risk of disasters triggered by the extractive industry operations. The results of the audit must be made public to the widest possible extent, available free of charge, easily and accessible at any time by the public. Results of the audit must be followed up with an orientation of environmental protection and people's safety.

2. Put an end to various exploitative extractive projects such as mines, coal, coal steam-power plants, and smelters that are still in the early stages of exploration or development which are located in areas prone to disasters to ensure the safety of the people.

3. Put an end to various exploitative extractive projects that have operated in disaster risk areas as quickly as possible, gradually and fairly.

4. Carry out recovery and legal responsibility for all damage and loss on the site as soon as possible, as well as for the crisis that has been created by extractive industry operations so far.

5. Call off and revise the long-impact planning decisions, particularly those concerning the energy industry. Broadly speaking, Indonesia's economic dependence on coal mining and processing, fossil oil and fossil gas, and monoculture biofuel (agrofuel) is not worthy to be continued and maintained, let alone promoted. Stopping disastrous energy politics and finding new paths in the logic of consuming energy and natural resources is the urgent homework in this particular present day. ■

Aerial photograph of the forest landscape destruction in Kalimantan because of coal mining. Photograph: JATAM South Kalimantan.

FOOTNOTES

1 Catalog of Destructive Earthquakes in Indonesia, 1612-2014, published by the Center for Volcanology and Geological Disaster Mitigation, Ministry of Energy and Mineral Resources, 2014, pp.13.

2 T.D. Rathnaweera, et al., 2020. Summary of recent injection-induced earthquakes in EGS;M. Soltani et al., 2021. Environmental, economic, and social impacts of geothermal energy systems; Mejer, Ernest L. et al., 2007. Induced seismicity associated with Enhanced Geothermal Systems; J. Charléty et al., 2007. Large earthquakes during hydraulic stimulations at the geothermal site of Soultz-sous-Forêts; 2017 T. Diehl et al. The induced earthquake sequence related to the St. Gallen deep geothermal project (Switzerland)–Fault reactivation & fluid interactions imaged by microseismicity.

3 2021 Jin-Han Ree et al., 2021. Fault reactivation and propagation during the 2017 Pohang earthquake sequence.

4 Suing the Geothermal Extraction Industry for Electricity Power Plant in Indonesia, Statements and reports of civil society organizations to the Indonesian people, January 2021, JATAM et al,pp.2

5 https://www.nationalgeographic.com/science/article/human-induced-earthquakes-fracking-mining-video-spd#:~:text=According%20to%20the%20report's%20data,sudden%20collapses%20that%20trigger%20earthquakes.

6 https://theconversation.com/earthquakes-and-mining-how-humans-create-seismic-activity-7778

7 http://www.australiancoalalliance.com/Earthquake.htm#:~:text=The%20magnitude%205.6%20quake%20that,a%20study%20by%20Christian%20D.

8 https://www.nature.com/articles/d41586-019-00959-4

9 Suing the Geothermal Extraction Industry for Electricity Power Plant in Indonesia, Statements and reports of civil society organizations to the Indonesian people, January 2021, JATAM et al,pp.3

10 https://bnpb.go.id/potensi-ancaman-bencana

11 https://kumparan.com/kumparannews/4-mitigasi-gempa-bumi-berbasis-kearifan-lokal-di-indonesia/full

12 Ibid

13 https://www.antaranews.com/berita/921240/dokumen-amdal-seharusnya-sajikan-analisis-risiko-bencana

14 https://ekonomi.bisnis.com/read/20190103/45/875087/siaga-bencana-pemerintah-siapkan-revisi-perencanaan-pembangunan-infrastruktur

15 Ibid

16 Ibid

17 https://sumatra.bisnis.com/read/20190227/533/894276/nelayan-ingin-pembangunan-pltu-di-teluk-sepang-dibatalkan

18 https://www.antaranews.com/berita/803479/nelayan-bengkulu-minta-pemda-batalkan-pltu-teluk-sepang

19 https://www.quitcoal.id/artikel/detail/pltu-bengkulu-bengkulu

20 https://www.antaranews.com/berita/762198/bpbd-pltu-teluk-sepang-berdiri-di-zona-rawan-bencana

21 https://bnpb.go.id/uploads/24/renkon-cilegon-banten.pdf

22 https://www.walhi.or.id/pengesahan-rzwp-3-k-banten-legalisasi-perampasan-ruang-dan-kejahatan-lingkungan-tanpa-transparansi-dan-partisipasi-masyarakat-yang-akan-terdampak

23 Supreme Court Decision No: 1199 K / Pid.Sus / 2016 which annulled the decision of the Palu district court No: 251 / Pid.Sus / 2015 / PN.Pal, dated 17 December 2015, which contained trial for defendants I Wahyuni, SH and Defendant II Albert Wu and Defendant III Soeharti Sutono alias Betty Sutono in the Panau Coal Steam-Power Plant coal ash dumping case.

24 https://majalah.tempo.co/read/hukum/149195/melawan-abu-kiriman-pltu

25 https://pijarsulawesi.com/2019/09/17/setahun-pltu-mpanau-tak-beroperasi-karena-terdampak-tsunami/

26 Mapping of Spatial-Based TsunamiDisaster RiskinPalu, Yutdam Mudin, I WayanJihan Pramana, Sabhan >> Gravitasi Vol. 14 No.2 (July-December 2015)

27 https://www.idntimes.com/news/indonesia/indianamalia/update-dampak-gempa-dan-tsunami-di-palu-2256-orang-meninggal-dunia/2

28 http://bpbd.kotabogor.go.id/detailpost/gempa-langka-deep-focus-terjadi-di-laut-jawa-utara-indramayu

29 https://www.republika.co.id/berita/qef45z483/penyebab-gempa-indramayu-versi-bmkg

30 https://jabar.suara.com/read/2020/12/11/151706/puluhan-rumah-di-indramayu-rusak-diguncang-gempa-bumi?page=all

31 https://bandung.bisnis.com/read/20210314/549/1367299/indramayu-dilintasi-sesar-baribis-bpbd-ingatkan-warga-soal-gempa

32 https://kppip.go.id/en/priority-projects/electricity/pltu-indramayu/

33 https://www.voaindonesia.com/a/pemidanaan-bagi-mereka-yang-menolak-pltu-indramayu-(bagian-1)/5448220.html

34 https://jateng.suara.com/read/2019/06/09/193236/gempa-cilacap-57-sr-terasa-sampai-bandung-dan-yogyakarta

35 https://www.suara.com/news/2019/07/17/164431/pantai-cilacap-sampai-jawa-timur-terancam-kena-tsunami-20-meter

36 https://www.tagar.id/warga-dairi-khawatir-bendungan-limbah-pt-dpm-meniru-tragedi-brasil

37 Pilkada 2020; Immunity Vaccines for Oligarchy, #BersihkanIndonesia movement, pp.12, look it up at https://www.jatam.org/pilkada-2020-vaksin-imunitas-bagi-oligarki/

38 https://regional.kompas.com/read/2020/05/26/19412821/korban-terdampak-banjir-di-samarinda-sudah-mencapai-47281-jiwa

39 https://www.mongabay.co.id/2020/05/30/langganan-banjir-samarinda-harus-serius-perbaiki lingkungan/

40 https://kaltimprov.go.id/berita/bantuan-pemprov-untuk-pananganan-banjir-di-sanarinda-rp605-miliar-

41 https://kaltim.antaranews.com/berita/36484/samarinda-anggarkan-rp375-miliar-tangani-banjir

42 https://regional.kompas.com/read/2020/05/27/07361941/wagub-kaltim-sebut-apbd-tak-mampu-tangani-banjir-samarinda-butuh-bantuan?page=all

43 https://selasar.co/read/2020/08/15/2673/hujan-deras-ruang-isolasi-pasien-covid-19-rsud-aws-terendam-banjir

44 https://sapos.co.id/2021/03/09/pemakaman-covid-19-dikepung-tambang/

45 https://samarinda.prokal.co/read/news/19269-korban-banjir-bisa-kok-gugat-pemkot-begini-caranya.html

46 https://selasar.co/read/2020/12/08/3706/sehari-sebelum-coblosan-spanduk-raksasa-dibentangkan-di-mahkota-ii-ini-isinya

47 https://www.instagram.com/p/CLT3syKHTja/ also readIdentification of Vulnerability and Distribution of Landslide as Disaster Mitigation Measures in Bener District, Purworejo Regency, Muhammad Nursa'ban, FISE, Universitas Negeri Yogyakarta.

48 https://www.kompas.id/baca/nusantara/2021/04/24/ylbhi-usut-dugaan-tindak-kekerasan-aparat-di-desa-wadas/

49 https://bisnis.tempo.co/read/1455812/profil-bendungan-bener-yang-picu-kericuhan-aparat-vs-warga-purworejo?page_num=2

50 https://www.mongabay.co.id/2018/09/25/bendungan-bener-bakal-jadi-pemasok-air-bandara-baru-jogja-bagian-3/

51 Ibid

52 https://www.instagram.com/p/CNT3TtMH0WD/

53 https://www.antaranews.com/video/1690246/kawasan-industri-iwip-terendam-banjir-smelter-berhenti-sementara

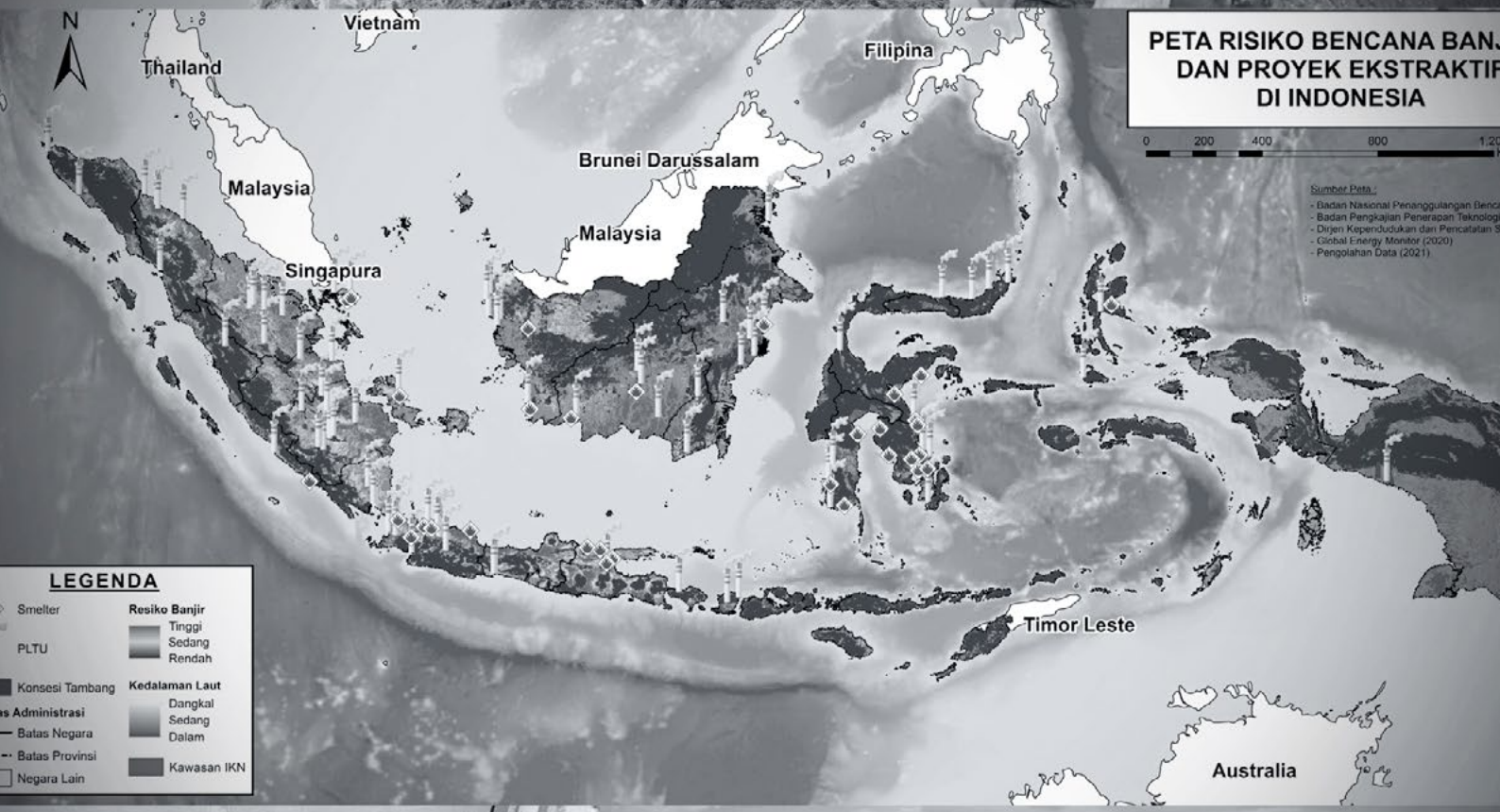
54 https://www.cnnindonesia.com/teknologi/20210119173309-199-595768/lapan-populasi-hutan-turun-10-tahun-terakhir-kalsel-banjir

55 https://www.bbc.com/indonesia/indonesia-55696841

56 https://nasional.tempo.co/read/1426026/jatam-sebut-luas-ippkh-tambang-di-kalsel-hampir-seluas-dki/full&view=ok

57 https://www.antaranews.com/berita/2044766/peningkatan-kasus-covid-19-di-kalsel-dampak-banjir-dan-mobilitas

58 Omnibus law, Book of Law for Oligarchy ; Mining and Dirty Energy Businessmen Behind the Omnibus Law : Roles, Conflicts of Interest and Their Track Records, the #BersihkanIndonesia movement and the Indonesian People's Faction, October 2020, pp.12


N
Vietnam
Thailand
Filipina
Brunei Darussalam
Malaysia
Malaysia
Singapura
Timor Leste
Australia
PETA RISIKO BENCANA BAN
DAN PROYEK EKSTRAKTI
DI INDONESIA
0 200 400 800
Sumber Peta :
- Badan Nasional Penanggulangan Benc
- Badan Pengkajian Penerapan Teknolog
- Dirjen Kependudukan dan Pencatatan S
- Global Energy Monitor (2020)
- Pengolahan Data (2021)
LEGENDA
Smelter
PLTU
Konsesi Tambang
Batas Administrasi
Batas Negara
Batas Provinsi
Negara Lain
Resiko Banjir
Tinggi
Sedang
Rendah
Kedalaman Laut
Dangkal
Sedang
Dalam
Kawasan IKN

This report brought up facts and reality that was extracted from official data and information that is available to the public, about the very contrast difference between the main problem of disasters on one side, and how it is being handled on the other; the reality is very alarming.

Even though it is still in the early stages, the investigation done to publish this report found other, more serious problems. Not just about the lack of institutional capacity or how much of the area is at risk of being exposed to disasters.

In the face of a dramatic change in the atmospheric or climatic process that is rising, this report shows that the severeness of the disasters were triggered by the state administrators' decisions regarding investments. Specifically, investments relating to the extractive industry and natural resources.

This reality unveils the problem with how country administrators deal with disasters. Including, what is considered to be a disaster or "not" a disaster. Electricity powered by coal is increasing, and as one of the main cases in this report, will keep creating heavy casualties, especially for the residents residing near the generator site.

Denial of promotional campaigns to investing in the extractive industry and increasing the power supply triggers disasters that will creep up and become too difficult or even impossible to be handled in the future—the start of one new Coal Power Plant operation was noted as progress, instead of as the start of a disaster.

These days we are not well informed nor provided with explanations about the chaotic social and ecological dynamics that is triggered by the acceleration of coal mine extractions, biofuels, natural, and unnatural energy. The same goes for the forced eviction of residents in order to turn their homes into areas plotted for minerals and other raw material source industries.

This report urges all to start critically questioning the issues of a catastrophe whose scope is still being taken too lightly, while it endangers Indonesia's future.

—— Hendro Sangkoyo (School of Democratic Economics)

INVITING DISASTERS

A preliminary portrait of extractive-dirty energy investments and the people's safety in disaster-prone areas of indonesia

First Part of a Series - April 2021

WEBSITE

https://www.jatam.org/en/
https://trendasia.org
https://www.bersihkanindonesia.org

JATAM
JARINGAN ADVOKASI TAMBANG
MINING ADVOCACY NETWORK

TREND ASIA

#BERSIHKAN INDONESIA