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Green Industrial Area Infected by Coal Power Plant:

Economic Impacts, Conflicts of Interest,
and Environmental Threats



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Moving forward, it is our hope that this publication will enrich studies and serve as a critical resource for policy evaluations concerning Industrial Zones, both in a general context and specifically within the North Kalimantan Industrial Zone (KIHI), as well as for Coal-Fired Power Plants (CFPPs). This extends particularly to downstream industries and captive coal-fired power plants within industrial zones across Indonesia.

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Executive Summary



The Indonesian Green Industrial Zone (henceforth, it will be referred to as Kawasan Industri Hijau Indonesia or KIH) is projected to become the world's largest zero-waste industrial area, surpassing even similar industrial projects in Europe and America. The development of this zone is intended as a realization of the Indonesian Government's commitment to climate change, aimed at fostering sustainable development. Encompassing a total area of 30,000 hectares, KIH is poised to emerge as a central hub for various industries, leading to downstream processing of diverse mineral resources, including aluminium refining.

During the opening of the Hannover Messe event in Germany on April 16, 2023, President Jokowi indirectly emphasized that the development of KIH signifies Indonesia's commitment to advocating for global climate change¹. Beyond the goal of anticipating global market demands for eco-friendly products, the government's primary

objective in establishing this zone is to enhance the export value of raw mineral resources. This is to be achieved through downstream processing², transforming them into finished and semi-finished goods which creates more value added.

However, within the series of statements regarding the KIH development plans, numerous contradictions arise. Among these are: internal government conflicts of interest, development processes that endanger the environment, and most notably, the construction of coal-fired Power Plants (Pembangkit Listrik Tenaga Uap – PLTU)³, which presents a paradox within the government's low carbon commitments.

Therefore, the purpose of this study is to provide an analysis along with recommendations to evaluate the KIH's development. The aim is to ensure that the KIH project aligns with the Net Zero Emissions 2050 target.

¹ On that occasion, Jokowi indirectly conveyed Indonesia's readiness to accommodate various industrial investments during his speech at the opening of Hannover Messe 2023 on April 16, 2023. The statement can be found in the official release by the Presidential Secretariat for Cabinet Affairs (Humas SetKab) titled "Remarks by President Joko Widodo at the Opening of the Hannover Messe 2023 in Hannover, Germany, 16 April 2023" accessed on April 18. Source: <https://setkab.go.id/pembukaan-hannover-messe-2023-di-hannover-jerman-16-april-2023/>

² Indonesian Ministry of Communication and Information (Kominfo), "Pemerintah akan Stop Ekspor Bahan Mentah Tambang secara Bertahap" 27 Desember, 2021, <https://www.kominfo.go.id/content/detail/39029/pemerintah-akan-stop-ekspor-bahan-mentah-tambang-secara-bertahap/0/berita>, Accessed on 20 April 2023.

³ Although in Presidential Regulation (Perpres) 112/2022, the decision to no longer build coal-fired power plants (CFPP) has been stated, CFPP Captive is not included in it. This allows the construction of CFPP Captive to continue until today.

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Downstream Ambition of Investment Regime



Since 2010, the government has been actively promoting industrial downstreaming programs, as the key to Indonesia's economic progress. This is evident through various policies, including the prohibition of raw mineral exports. In terms of implementation, the government's commitment to industrial downstreaming is underscored by its efforts to collaborate with numerous investors to encourage capital investment in smelting industries.

The development of KIHI (Kalimantan Green Industrial Park) is driven by the goal of enhancing the export value of Indonesia's mineral resources. The government argues that the economic value added from exporting finished or semi-finished goods outweighs that of raw material exports. In this context, the extractive industry sector stands out as a premier sector that receives significant attention in the downstreaming program, supported by a range of fiscal and non-fiscal incentives⁴.

The downstreaming policy was initiated by the halt of nickel ore exports in 2020, followed by a ban on bauxite exports in 2023. The government further plans to implement export restrictions on tin, copper, gold, and other raw materials, followed by natural gas. Despite criticisms received from the World Trade Organization (WTO), the government remains steadfast in its stance to prohibit mineral and coal exports.



In terms of trade value, the export ban policy is claimed to have successfully increased state tax revenue. For instance, nickel, after the ban on raw material exports, experienced a revenue increase from Rp17 trillion to Rp450 trillion. Similarly, iron and steel exports saw growth from US\$3.3 billion in 2017 to US\$27.8 billion in 2022. As of October 2022, the export value from the industry reached US\$36.4 billion, marking a 40% increase compared to 2021.

However, the claim of added value from nickel downstreaming is actually exaggerated, as it overlooks the potential tax losses due to tax holidays, tax allowances, the continuing issue of illegal nickel ore export, and the significantly larger negative environmental impacts. Furthermore, a substantial portion of exported nickel does not align with the intended downstreaming objectives. Instead, it consists mostly of semi-finished products like Nickel Pig Iron (NPI) and Ferronickel with minimal added value. The primary beneficiaries of this value addition are largely business interests from China.

Apart from nickel, efforts towards coal downstreaming are also addressed in the Omnibus Law on Job Creation (Omnibus Law Cipta Kerja), which was ratified on December 30, 2022. For instance, the law grants a 0% royalty exemption for coal entrepreneurs engaged in domestic downstreaming⁵. By April 2020, at least 11 companies had committed to coal downstreaming. Among them, three companies have commenced production, even though economically, coal gasification projects are deemed unviable and might require state subsidies.

In one of the CELIOS studies, this 0% royalty policy poses a significant risk of loss to the country, amounting to as much as Rp33.8 trillion annually. Assuming a total coal production of 666.6 million tons per year, the potential royalty loss is estimated at Rp33.8 trillion per year. If this policy continues for the next 20 years, it is projected that the country could incur losses of up to Rp676.4 trillion⁶.

This resulted in the proliferation of mining smelter construction. As Minister of Industry Agus Gumiwang Kartasasmita stated, by February 2023, there were 91 smelters recorded, with 48 of them operating at full capacity. This count includes smelters for nickel, iron and steel, copper, and aluminium⁷. These figures don't even encompass the planned smelter constructions in various industrial zones, including the KIH in North Kalimantan.

The construction of smelters has not been without criticism. According to studies by Young et al.⁸ (2019) and Fraser et al. (2020), there are concerns about the downstreaming of critical minerals, especially for the automotive industry. Companies face challenges in maintaining environmental sustainability standards at the earliest stages of the supply chain. As a result, automotive companies are urged to conduct thorough assessments and evaluations throughout the supply chain to ensure compliance with environmental standards⁹.

⁵ The downstream activities of coal are regulated in the Omnibus Law on Job Creation, specifically in the Energy and Mineral Resources (ESDM) section, stated in Article 39, Paragraph 5, page 220.

⁶ The Celios team estimates a loss of 0% royalty from the Omnibus Law on Job Creation. <https://celios.co.id/2023/kerugian-dari-hilirisasi-batubara-dalam-perpu-cipta-kerja/>, accessed on 20 April 2023

⁷ He detailed that the majority of smelters are located in Central Sulawesi Province, with a total of 25 units. Following that, there are 22 smelters in Maluku Province, 12 units in Southeast Sulawesi, and 10 units in West Kalimantan. Meanwhile, the rest are scattered across various provinces in Indonesia such as Banten, East Java, South Sulawesi, North Sumatra, and West Kalimantan. Source: CNN Indonesia Team, 'Minister of Industry Claims Indonesia Already Has 91 Smelters as of February 1, 2023' [link](<https://www.cnnindonesia.com/ekonomi/20230214184805-92-913040/menperin-klaim-ri-sudah-punya-91-smelter-per-1-februari-2023>), accessed on April 20, 2022.

⁸ Summarized from the study conducted by Young, S. L., Fernandes, S., and Wood, M. (2019) titled "Jumping the Chain: How Downstream Manufacturers Engage With Deep Suppliers Of Conflict Minerals" published in Resources, Volume 1, Issue 8, pages 26.

⁹ Summarized from the research conducted by Fraser, I., Müller, M., and Schwarzkopf, J. (2020) titled "Transparency For Multi-tier Sustainable Supply Chain Management: a Case Study Of A Multi-tier Transparency Approach For SSCM In The Automotive Industry" published in Sustainability, Volume 5, Issue 12, page 1814.

Meanwhile, Hartmann (2021) discovered supply chain management issues within smelting practices or downstreaming that often clash with the environment and local communities. These conflicts sometimes only become known to companies after being exposed by the mass media. However, it's noteworthy that some of these revelations may not necessarily lead to substantial changes in sustainable supply chain practices¹⁰.

The ambition to carry out downstreaming is materializing in various industrial zones, one of which is the primary center of industrial downstreaming in North Kalimantan, included in the National Strategic Projects (Proyek Strategis Nasional or PSN) list. KIIHI has been designated as a National Strategic Project¹¹, signifying its significance in the nation's developmental landscape. This inclusion of KIIHI in the PSN list was facilitated through Presidential Regulation (Perpres) Number 58 of 2017, which amends Presidential Regulation Number 3 of 2016 regarding the Acceleration of National Strategic Projects Implementation. The proposal for KIIHI's inclusion in the PSN list was put forward by the Ministry of Industry through letters numbered 670/M-IND/12/2016 and 678/M-IND/12/2016¹².

With the designation of KIIHI as a National Strategic Project (PSN), various privileges are automatically associated with the project, including spatial planning. In the Regional Regulation of Bulungan Regency Number 4 of 2013 concerning the Spatial Planning Plan for the Years 2012-2032, there is no mention of the KIIHI plans in Tanjung Palas Timur Subdistrict. Moreover, in the same regulation, Tanjung Palas Timur is not identified as part of the National Strategic Area. However, since the area within Tanjung Palas Timur, which is now part of KIIHI, was declared a PSN in 2017, after the issuance of the addendum spatial planning regulation, the Bulungan Regency government must revise the

said regulation accordingly. This underscores the need for alignment between local regulations and overarching national development priorities.

This follows the stipulations of Article 19 Paragraph 2 of Presidential Regulation Number 3 of 2016 regarding the Acceleration of National Strategic Projects Implementation. KIIHI was incorporated into the revised Regional Regulation of Bulungan Regency Number 1 of 2021 concerning the Spatial Planning Plan for the Years 2021-2041. The process of aligning the spatial planning with the National Strategic Plan infrastructure location permit also continued in KIIHI, as an additional plan for an area of 30 hectares was introduced. This dynamic adjustment underscores the intricate interplay between national strategic projects and local spatial planning regulations¹³. Up until this report is being written, there hasn't been any significant development being published regarding the project.

The adjustment of the Regional Spatial Planning (Rencana Tata Ruang Wilayah – RTRW) is just one manifestation of the facilitation and acceleration of National Strategic Projects (PSN) implementation. Among the other privileges of PSNs, there are also expedited processes, simplified permitting procedures, financing assurances including investment and political risks. These guarantees, accelerations, and various forms of facilitation stem from related institutions such as local and provincial governments, ministries, and even the central government, along with law enforcement agencies.

¹⁰ Hartmann, J. (2021). Toward a More Complete Theory Of Sustainable Supply Chain Management: The Role Of Media Attention. *SCM*, 4(26), 532-547.

¹¹ "President Designates KIIHI as a National Strategic Project (PSN), Infrastructure Development Supported by the Center" - sourced from Humas SetKab, available at: <https://rakyatkaltara.prokal.co/read/news/8194-presiden-tetapkan-kipi-jadi-psn-pembangunan-infrastruktur-didukung-pusat.html>, accessed on May 10, 2023.

¹² Ferdiany, Firsta Susan, "KIIHI Tanah Kuning Included in Strategic Projects - Complete Document, Kaltara Only Needs to Fill Out the Form" - sourced from <https://kaltara.antaranews.com/berita/448604/kipi-tanah-kuning-masuk-proyek-strategis-dokumen-lengkap-kaltara-tinggal-isi-formulir>, accessed on April 4, 2023.

¹³ Junisah, "Kawasan Industri Diperluas 30 Ha, Pemkab Bulungan Bakal Revisi Perda RTRW, Syarwani: Arahan Presiden," <https://kaltara.tribunnews.com/2022/08/23/kawasan-industri-diperluas-30-ha-pemkab-bulungan-bakal-revisi-perda-rtrw-syarwani-arahan-presiden> accessed on 12 May 2023

Here is a list of PSN facilitation that can be summarized in terms of relevant regulations:

Forms of Acceleration and Facilitation Obtained ¹⁴	Legal Protection
In Forms of Licensing: <ul style="list-style-type: none"> • Location Permit • Environmental Permit • Forest Area Utilization Permit • Building Permit • Fiscal and Non-Fiscal Facilities 	Law Number 2 of 2012 concerning Land Procurement for Development for Public Interest.
In Forms Non-Licensing: <ul style="list-style-type: none"> • Services • Fiscal Facilities • Data • Information. 	Presidential Regulation (PERPRES) Number 3 of 2016 concerning the Acceleration of National Strategic Project Implementation.
<ul style="list-style-type: none"> • Spatial Planning Adjustment • Detailed Spatial Planning for the Region • Zoning Plan for Coastal and Small Island Areas” 	Presidential Regulation (PERPRES) Number 58 of 2017 concerning Amendments to Presidential Regulation Number 3 of 2016 concerning the Acceleration of National Strategic Project Implementation.
Government Guarantee <ul style="list-style-type: none"> • Financing • Political Risk 	Presidential Regulation (PERPRES) Number 109 of 2020 regarding the Third Amendment to Presidential Regulation Number 3 of 2016 concerning the Acceleration of National Strategic Projects Implementation
Procurement of goods and services	Government Regulation (PP) Number 42 of 2021 concerning the Facilitation of National Strategic Projects
Land Provision	Presidential Regulation (PERPRES) Number 56 of 2017 concerning the Handling of Social and Community Impacts in the Provision of Land for National Strategic Projects”
Deployment of Security Forces	

Apart from spatial changes, there are other privileges attributed to PSNs that are not aligned with Indonesia's climate commitments, simultaneously hindering the country's ability to fulfil its climate targets. Through Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply, Article 3 Paragraph 4, the Indonesian Government still permits the construction of captive coal-fired power plants (CFPPs). The existence of this regulation also allows projects like KIIHI to use coal-fired power plants to meet their electricity needs.



In addition to spatial changes, there are other privileges attributed to PSNs that do not align with Indonesia's climate commitments. These privileges can also hinder the country's ability to fulfil its climate targets. Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply, Article 3 Paragraph 4, still permits the Indonesian Government to authorize the construction of captive CFPP. This regulation's existence allows projects like KIHI to construct coal-fired power plants to fulfil their electricity needs.

This presents a complex situation where national development aspirations, economic considerations, and environmental imperatives intersect. The special privileges granted to PSNs, including energy supply facilitation, raise important questions about their alignment with sustainable and climate-resilient practices. This situation reflects the intricate balance that governments often navigate between immediate economic goals and long-term environmental commitments.



GEDUNG PENGELOLA KAWASAN INDUSTRI
PT KALIMANTAN INDUSTRIAL PARK INDONESIA (KIPI)

Opportunities Upon Green Ambiguities



Along with the growing body of research pointing to the perils of escalating emissions, the urgency to address the surge in global emission levels has become increasingly strong. The establishment of a network of green commitments among developed nations is becoming inevitable.

This journey began with the United Nations Framework Convention on Climate Change (UNFCCC) meeting in Rio de Janeiro, where, for the first time, the world acknowledged the human role in elevating global temperatures through emission outputs. This was subsequently followed by the Kyoto Protocol, which called upon developed nations to commit and take action towards reducing global emissions.

These movements are ushering the world into a new paradigm of business operations. More and more countries are enacting binding policies within their territories, compelling companies to

pay greater attention to their emission outputs and waste. This includes fostering the implementation of ESG (Environment, Social, and Governance) principles and sustainable stock exchange indices across various nations. Market sentiment is shifting towards a 'greener' direction. More consumers, shareholders, and bondholders are becoming attuned to environmental issues. Ultimately, this compels numerous companies and nations, including Indonesia, to undergo transformation and adaptation.

As a significant contributor to global greenhouse gas emissions, Indonesia has begun participating in international commitments. This participation began in 2016 at the Paris Agreement (COP 21) meeting in Paris, France. During this forum, Indonesia pledged to independently reduce its national emissions by 29% and with international support, by 41%¹⁵.

However, to what extent has Indonesia truly upheld its green commitments? Below is a matrix comparing the commitments with their corresponding implementations in the field:

Indonesia's Green Commitment vs the Implementation



Paris Agreement

(COP 21, November 30 - December 12 2015)

Commitment

Committed in the NDC document to reduce greenhouse gas emissions in Indonesia by 29% unconditionally (through domestic efforts) and 41% conditionally (with international support) by the year 2030.

Implementation

- According to the Power Supply Business Plan (RUPTL) owned by PT Perusahaan Listrik Negara (PLN), national greenhouse gas emissions (GHG) were recorded at 259.1 million tons of CO₂ in 2021. This figure is projected to increase by 29.13% to reach 334.6 million tons of CO₂ by 2030.
- Additionally, the realization of the renewable energy mix (EBT) even decreased to 10.4% in the third quarter of 2022 from the previous 11.5% in the third quarter of 2021.



Glasgow Climate Pact

(COP 26, October 31 - November 12 2021)

Commitment

Indonesia has signed the global declaration regarding the transition from coal to clean energy, known as the Global Coal to Clean Power Transition Statement. However, Indonesia has made exceptions in fulfilling the commitment outlined in point 3, which is actually a cornerstone of the declaration.

Implementation

- There are still developments of captive coal-fired power plants or coal power plants in industrial areas.
- Coal gasification receives a 0% royalty incentive in the Job Creation Law.
- The Renewable Energy Bill (RUU EBT) has yet to be passed, and the inclusion of false solutions within it.



Sharm el Sheik Climate Change Conference

(COP 27, November 6 -18 2022)

Commitment

In the updated NDC, Indonesia has increased its emissions reduction target for 2030 from 29% to 31.89% on its own efforts, and from 41% to 43.20% with international support. Indonesia has also launched the Country Platform for Energy Transition Mechanism (ETM).

Implementation

- The implementation of ETM in Indonesia is suspected to be influenced by the interests of parties such as the Asian Development Bank (ADB) along with the owners of CFPP Cirebon 1, which includes Japanese and South Korean companies.
- The extension of the operational life of certain power plants beyond their intended retirement, through methods like co-firing, has raised concerns. Among these practices, CFPP Paton and CFPP Pelabuhan Ratu have garnered attention.

Source: Abstracted from various sources

Despite the results that may not yet be visibly evident, Indonesia's commitment to play a role in combating climate change has caught the attention of numerous countries, particularly those within the G20. During its seventeenth gathering held in Bali, Joe Biden announced that the United States, alongside other countries and financial sectors, is committed to mobilize up to \$20 billion, equivalent to IDR 314 trillion, to support various energy transition projects in Indonesia¹⁶.

The JETP (Just Energy Transition Partnership) fund comprises grants and soft loans, aimed at assisting Indonesia in emission reduction, developing renewable energy networks, and facilitating the early retirement of CFPPs. JETP is anchored in Presidential Regulation 112/2022 as the foundation for the "Early Retirement" of CFPPs. It's intriguing that while CFPPs within the PLN power generation framework are retired, there's flexibility to construct new CFPPs in industrial zones (captive power plants). This provides an avenue for coal companies to redirect their supply towards new CFPPs in industrial areas, including within KIIH.

Not only limited to JETP, in November 2022, the Asian Development Bank (ADB) announced assistance of \$250 to \$300 million (equivalent to IDR 3.87 trillion) for Indonesia. This aid is intended for the early retirement of CFPPs, beginning with CFPP Cirebon-1, through the Energy Transition Mechanism (ETM) scheme¹⁷.

Subsequently, the Japan Bank For International Cooperation (JBIC) signed a Memorandum of Understanding (MoU) for collaboration with PLN on November 13, 2021. This collaboration involves data and information exchange, as well as joint consultations related to energy transition investments. It is highly possible that in the future, there will be a growing prevalence of collaboration options in renewable energy projects, along with the potential for financial support, guarantees, and alignment with potential projects, among others¹⁸.

The things to note for these various funding mechanisms are the lack of government transparency in the process, and the existence of regulatory inconsistencies between accelerating early retirement for CFPP and space for building new CFPPs.



¹⁶ US Embassy, United States Supports the Launch of the Just Energy Transition Partnership (JETP) in Indonesia, <https://id.usembassy.gov/united-states-supports-the-launch-of-the-just-energy-transition-partnership-jetp-in-indonesia/>, accessed on July 15, 2023

¹⁷ The financing for the project comes from a mixed sources, including funds from the Asian Development Bank's Private Sector Operations Department and concessionary funding. Concessionary funding, also known as joint investment, involves resources from the ETM ADB partnership fund and allocations from the Climate Investment Fund to accelerate the transition from coal-based energy to renewable energy sources. Source: Megarani Amanda, 'Transisi Energi: PLTU Batubara Cirebon Segera Pensiun' <https://www.forestdigest.com/detail/2090/transisi-energi/en> accessed on April 18, 2023

¹⁸ As quoted directly from President Director of PLN Darmawan Prasodjo, Riantiza, Melnova D, 'Ramai-ramai Mendukung Suntik Mati PLTU, dari ADB hingga Kemitraan JETP', <https://ekonomi.bisnis.com/read/20221115/44/1598310/ramai-ramai-mendukung-suntik-mati-pltu-dari-adb-hingga-kemitraan-jetp/2> accessed on April 25 2023

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Wobbly Steps To Go Green; History of KIHI Management and Funding



On December 21, 2021, President Joko Widodo, conducted the groundbreaking ceremony for the Indonesian Green Industrial Zone (KIHI) in the Tanah Kuning-Mangkupadi region, Bulungan Regency, North Kalimantan. Originally envisioned as a Special Economic Zone (Kawasan Ekonomi Khusus – KEK)¹⁹. This area has been part of the provincial spatial planning since 2011-2012.

Currently, the Indonesian Green Industrial Zone (KIHI) encompasses an area of approximately 16,400 hectares out of the planned total of 30,000 hectares, with an estimated cost of around Rp1.8 trillion. It is projected to provide employment opportunities for no fewer than 60,000 workers, not only within the operational zones of industrial facilities but also across various supporting infrastructures within the area.

This zone is set to host a diverse range of factories from various downstream industries, such as nickel and aluminium smelters, nickel battery production, solar panel manufacturing, and

petrochemical processing. Moreover, there will also be several auxiliary facilities including an airport, port, hotels, employee accommodations, and several power plants, including Hydroelectric Power Plants (HPP), Solar Power Plants (SPP), and notably, Coal Power Plant (CFPP).

The history of KIHI dates back to 2015 when the North Kalimantan Provincial Government proposed the Tanah Kuning and Mangkupadi areas to be designated as a Special Economic Zone (Kawasan Ekonomi Khusus – KEK). Integrated within this initiative is an International Port, leading to the project's eventual designation as the Indonesian Industrial and Port Zone (Kawasan Industri dan Pelabuhan Internasional – KIPI). These two areas were suggested as replacements for the initial Tarakan KEK plan, which only covered a mere 30 hectares of ready-to-develop land, whereas the necessary land area for KIPI development was planned to span between 5,000 and 10,000 hectares.

The efforts of the North Kalimantan Provincial Government were not in vain. A year later, precisely in 2016, the Tanah Kuning - Mangkupadi Special Economic Zone (KEK) was approved to be designated as a Special Economic Zone by the Central Government, through a meeting of the Committee for Acceleration of Priority Infrastructure Provision (Komite Percepatan Penyediaan Infrastruktur Prioritas - KPPIP) during discussions on the amendment of Presidential Regulation Number 3 of 2016 concerning the Acceleration of National Strategic Project Implementation (Percepatan Pelaksanaan Proyek Strategis Nasional), recently held in

Jakarta. It is planned that this economic zone will be supported by a Hydropower Plant (PLTA) sourced from the Kayan River.

PT Indonesia Asahan Aluminium Persero (INALUM) is noted as the first interested investor entity, expressing their intention to establish an aluminium smelter in the Tanah Kuning district. This smelter is projected to have the capacity to produce between 500,000 to 700,000 tons of aluminium annually, with an estimated cost of US\$3.5 billion, equivalent to approximately Rp52.5 trillion.

a. Chinese Initiative in Land of Kalimantan

The year 2017 marked a significant turning point as Chinese business entities expressed their initial interest in investing in the Bulungan area. Chinese investors integrated the Indonesian Industrial and Port Zone (KIPI) into the funding scheme of the Global Maritime Fulcrum under the framework of the Belt and Road Initiatives (GMF-BRI), also known as OBOR (One Belt One Road). This investment is estimated to be valued at US\$45.98 billion or approximately Rp613 trillion.

The outcome of this agreement was the establishment of a working group between Indonesia and China, tasked with conducting feasibility studies and refining the delineation of the industrial zone's boundaries. This initiative led to the formulation of a comprehensive master plan for the KIPI project in the Tanah Kuning-Mangkupadi area.

With an investment value of approximately US\$26 billion from China, several development projects within KIPI were agreed upon, including:



- **Industrial Zone Development with a Special Aluminium Industry Cluster (US\$7.0 billion):** The plan includes the establishment of an industrial zone that focuses on alumina production, aiming to enhance the value chain of the aluminium industry.
- **Hydropower Plant Development on the Kayan River in Bulungan Region (US\$17.30 billion):** This initiative aims to harness the potential of the Kayan River to generate sustainable hydropower, contributing to the region's energy needs.
- **International Port in the surrounding area (US\$1.68 billion):** The construction of an international port is envisioned to enhance connectivity and facilitate trade within the region.

An important aspect of the agreement is the proposal to develop an integrated industrial zone, which includes the construction of a CFPP as an energy alternative while awaiting the completion of the Hydropower Plant.

As a result, various investors have shown interest in expanding their industries into this region. Noteworthy participants include:

Investors Interested in Investing in KIHI During the Initial Development Phase (2016 - 2017)



Country of Origin **China**

- Company Name
Tsingshan Holding Group

Investment Target
Stainless Steel

- Company Name
Honghua Group

Investment Target
Oil Refinery



Country of Origin **South Korea**

- Company Name
Hyundai Motor Company

Investment Target
Aluminium Procurement (for EV)

- Company Name
Dragon Land Co. Ltd.

Investment Target
**Ports, Power Plants, Airports,
and Integrated Industries**



Country of Origin **Uni Emirat Arab**

- Company Name
**Al-Bassam Petroleum
Equipment Company (APECO)**

Investment Target
Crude Oil Refinery



Country of Origin **Malaysia**

- Company Name
Sarawak Energy

Investment Target
**Mentarang River
Hydropower Plant**


 Country of Origin **Indonesia**

- Company Name
Kayan Hydro Energy

Investment Target
Kayan River Hydropower Plant

- Company Name
PT Indonesia Asahan Aluminium (Inalum)

Investment Target
Aluminium Cluster Development

Source: Abstracted from various sources

In the same year, Tsingshan Holding Group conducted on-site assessments of two strategic locations for their industrial development plans in North Kalimantan. They expressed readiness to establish stainless steel smelter plants, a port, and even a 1,000 MW Phase 1 Coal Power Plant (CFPP).

Within the same year, the Indonesian Industrial and Port Zone (KIPI) was officially recognized as a National Strategic Project

(Proyek Strategis Nasional – PSN). The inclusion of KIPI happened swiftly; it was proposed in May and approved only two months later on June 17, 2017. Additionally, the Tanah Kuning KIPI was designated as a Priority Industrial Zone or Special Economic Zone, in accordance with Presidential Regulation Number 58 /2017.

b. Escalation of Investment and Development in North Kalimantan

The year 2018 marked a further intensification of the investment climate that underpins the development of KIPI. Five managing

companies officially stepped forward to register, namely:



- PT Indonesia Asahan Aluminium Persero (INALUM), Area: 600 Hectares²⁰
- PT Kayan Patria Propertindo, Area: 380 Hectares
- PT Indonesia Strategis Industri, Area: 10.626 Hectares
- PT Adhidaya Suprakencana, Area: 3.000 Hectares
- PT Indonesia Dafeng Heshun Energi Industri, Area: 2.500 Hectares²¹

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Source: Inalum Wbsite, 'Kerja Bersama dari Beranda Negeri: Pemprov Kaltara Siap Fasilitasi Keperluan Tambahan Lahan INALUM di KIPI Tanah Kuning' <https://inalum.id/id/read/kerja-bersama-dari-beranda-negeri-pemprov-kaltara-siap-fasilitasi-keperluan-tambahan-lahan-inalum-di-kipi-tanah-kuning> accessed on May 25, 2023

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Utara Redactional desk, 'RRT akan Hibahkan Rp100 Miliar untuk FS KIPI' <https://infobenua.com/rrt-akan-hibahkan-rp100-miliar-untuk-fs-kipi/> accessed on May 25, 2023

In this year, the Chinese government also donated funds ranging from Rp50 to Rp100 billion for the preparation of the Feasibility Study (FS), masterplan development, and the improvement of boundary delineation by the North Kalimantan Provincial Government for the Tanah Kuning-Mangkupadi Indonesian Industrial and Port Zone (KIPI).

It's not only the KIPI that is gearing up for development, but also the North Kalimantan Provincial Government. Anticipating the establishment of the industrial zone, the provincial government has allocated programs and activities to support the development of supporting infrastructure such as port planning, fresh water planning, area planning, road and bridge construction leading to KIPI. Utilizing the Provincial Budget (APBD) of North Kalimantan amounting to Rp210.5 billion, as well as Special Allocation Funds (DAK) with a total value of Rp33.6 billion.

Simultaneously with the increasing efforts of managing companies in land clearance, the plan for CFPP development is also being vigorously pursued. PT Pesona Khatulistiwa Nusantara (PKN), a subsidiary of PT Energi Nusa Mandiri (ENM), has expressed its readiness to build a CFPP in Bulungan. They are even prepared to supply electricity through a CFPP to the Industrial Zone.

In 2023, the KIPI Regional Regulation was issued. Within it, the presence of three clusters was confirmed. Cluster number two encompasses industries related to coal products, petroleum, non-metallic minerals, and the development of a CFPP across an area of 2,981.37 hectares.

The complexity of land acquisition processes and the sluggish pace of facility development within KIPI ultimately resulted in a form of natural selection, favouring managing

companies with the courage to undertake the risks associated with developing the area. As of 2021, out of the initial ten companies that expressed readiness to solidify their investments in KIPI, only three managing investor companies persevered until the end²². Meanwhile, seven of them were compelled to withdraw due to their failure to report progress in construction and the expiration of their location permits. Those that persevered are:

- PT Kalimantan Industrial Park Indonesia (KIPI),
- PT Kayan Patria Propertindo (KPP)
- PT Indonesia Strategis Industri

It is not without reason that these three companies have emerged as champions in the investment and development arena of KIPI. PT KIPI (which in this case stands for Kalimantan Industrial Park Indonesia) is a subsidiary under Adaro Energy Minerals, led by Garibaldi 'Boy' Thohir. They didn't come empty-handed, they possessed a 4,000 Ha Cultivation Rights (Hak Guna Usaha - HGU) obtained from the conversion of palm oil land owned by PT Bulungan Citra Agro Persada (BCAP), in which Boy Thohir also holds a portion of the shares.

On the other hand, PT KPP is the largest local company in North Kalimantan, owned by Lauw Juanda Lesmana. He is basically a well-known Kalimantan conglomerate's businessman. His business encompasses property, mining, plantations, and shipping. PT KPP's plan involves supplying green electricity to industries within its managed land in KIPI. The power source is the Mentarang River Hydropower Plant, located in Malinau Regency, North Kalimantan. The Mentarang Hydropower Plant is managed by PT Kayan Hydropower Nusantara (KHN), which is also affiliated with the KPP Group²³.

22

Source: Mulyadi Heri, 'Izin Lokasi Perusahaan di KIPI Berakhir, Bupati Sebut Tiga Nama Perusahaan Berhak Mengelola', <https://benuanta.co.id/index.php/2022/01/19/izin-lokasi-perusahaan-di-kihi-berakhir-bupati-sebut-tiga-nama-perusahaan-berhak-mengelola/66732/17/16/31/> accessed on May 25, 2023

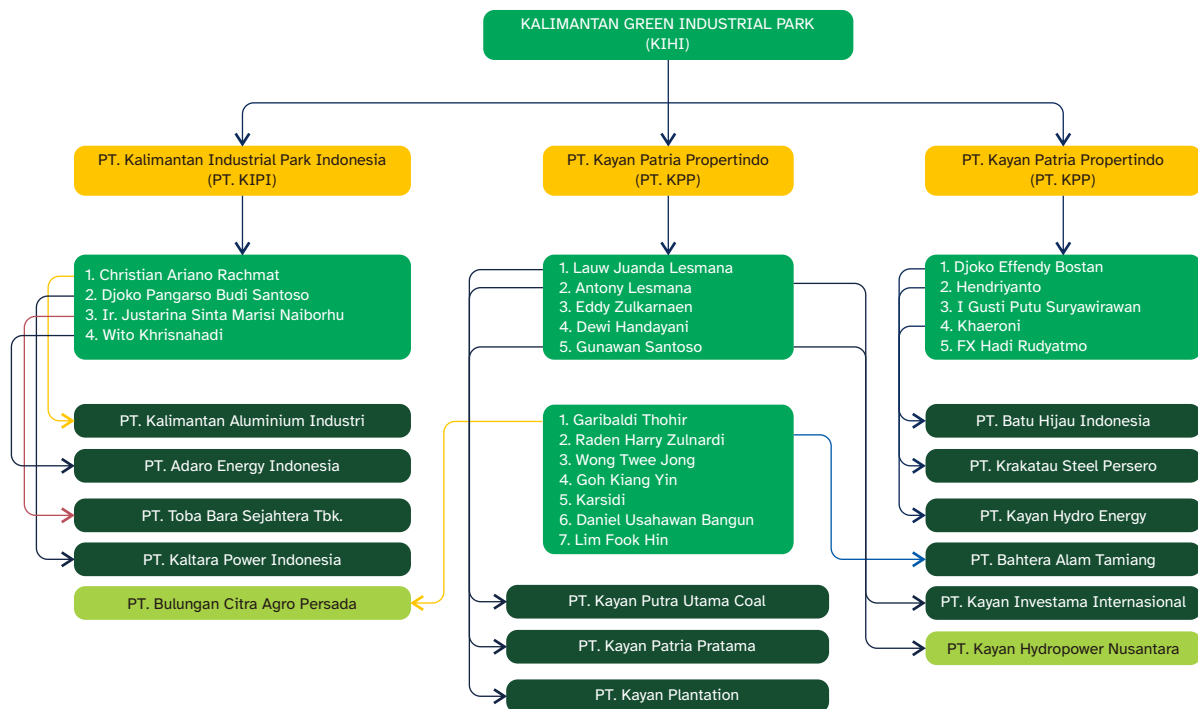
23

Source: Sianturi Hendri Roris, 'Pejabat dan Pengusaha Berebut Pabrik Pembangkit Listrik di Kalimantan' <https://www.gatra.com/news-539496-nasional-pejabat-dan-pengusaha-berebut-pabrik-pembangkit-listrik-di-kalimantan.html> accessed on May 25, 2023

The final managing company is PT ISI. Its owner is Tjandra Limanjaya, an entrepreneur who also played a role in initiating the development of KIIHI. One of his companies, PT General Energy Bali (GEB), is involved in the construction of the Celukan Bawang Coal

Power Plant in Bali. Like PT KPP, PT ISI is also interested in contributing to the electricity supply in KIIHI, using a Hydropower Plant. But unlike KPP, ISI will harness power from the Kayan River for its power generation²⁴.

Key Players Behind the Development of KIIHI



Source: JATAM Kaltim

The decline in investor and managing company participation hasn't deterred the government's determination to realize the KIPI project. This was evident on December 21, 2021, when President Joko Widodo, accompanied by Coordinating Minister for Maritime Affairs and Investment Luhut Binsar Panjaitan and Garibaldi Thohir, directly oversaw the groundbreaking ceremony at KIPI. This event also marked a change in the project's name, from the International

Industrial and Port Zone (Kawasan Industri dan Pelabuhan Internasional – KIPI) to the Indonesian Green Industrial Zone (Kawasan Industri Hijau Indonesia – KIIHI). Since then, the industrial zone has been referred to as its "Green" alias²⁵.

This strategy has proven effective in attracting numerous foreign investors. In 2022, a lineup of investors declared their keenness to invest in this region. Some of them include:

²⁴ Ibid.

²⁵ Although officially, the area is still named the Indonesian Industrial and Port Area (KIPI), however, during the groundbreaking moment, the name Indonesian Green Industrial Zone (KIIHI) began to be introduced by Jokowi.
Source: : Ministry of Secretary website, 'Presiden Jokowi Groundbreaking Kawasan Industri Hijau di Kaltara' /<https://setkab.go.id/presiden-jokowi-groundbreaking-kawasan-industri-hijau-di-kaltara/>, accessed on June 2, 2023
Nugraheni Dian Erika, 'Jokowi Sebut Kalimantan Industrial Park Akan Jadi Kawasan Industri Hijau Terbesar di Dunia' <https://nasional.kompas.com/read/2023/02/28/14440001/jokowi-sebut-kalimantan-industrial-park-akan-jadi-kawasan-industri-hijau> accessed on May 24, 2023

KIHI Investors as of 2022



Country of Origin **China**

- Company Name
PT Tshingshan dan PT Taikun

Investment Amount
US\$ 57 Billion

Allotment
Construction of a Petrochemical Plant
- Company Name
Tongkun Group dan Xinfengming Group

Investment Amount
US\$10 Billion

Allotment
Construction of a Petrochemical Plant
- Company Name
PT CATL

Investment Amount
US\$ 5,1 Billion

Allotment
Construction of an electric car battery factory in Indonesia



Country of Origin **South Korea**

- Company Name
Hyundai Motor Company

Investment Amount
N/A

Allotment
It is planned to purchase production from aluminum smelters



Country of Origin **Indonesia**

- Company Name
PT Adaro Energy

Investment Amount
US\$ 1,5 Trillion

Allotment
Through its subsidiary PT Kaltara Power Indonesia will build the PLTU, while PT Kalimantan Aluminum Industry will build an aluminium smelter



Country of Origin **Australia**

- Company Name
Fortescue Futures Industries

Investment Amount
N/A

Allotment
In early December 2021, signed a cooperation agreement with the Kaltara Provincial Government to study the possibility of building a Hydrogen and Ammonia Plant for export and domestic markets

Source: Abstracted from various sources

In anticipation of investment commitments in KIH, the government has prepared 13,000 hectares (out of the target 30,000 hectares) of land that will be utilized for industries claimed to be green-based, such as electric vehicle (EV) batteries, petrochemicals, and aluminium.

By mid-2022, land acquisition efforts by PT. KIPI were reported to have reached 90%²⁶, and the development of supporting infrastructure has been accelerated. Among these efforts is the construction of the management office building for PT. KIPI. This building is situated on a 6,000 square metre plot of land, with a total area of 1,152 square metres, featuring two floors for each building²⁷.

PT Inalum itself, by the end of 2020, declaring a Memorandum of Understanding (MoU) with PT Kayan Hydropower Nusantara (KHN), the company that responsible for the development of the Mentarang Induk Hydropower Plant in Sungai Mentarang, Malinau, North Kalimantan. Both parties agreed to conduct joint studies in the plan for supplying electricity to the integrated aluminium smelter, supported by the Mentarang Induk Hydropower Plant Project²⁸.

²⁶ Delivered directly by the Governor of North Kalimantan, Zainal Arifin Paliwang, in Tanjung Selor, Bulungan, on Monday, June 6, 2022. Source: Asmalyah Syusilo, 'Pembebasan Lahan Mega Proyek KIPI Mencapai 90 Persen' <https://kaltara.antaranews.com/berita/494521/pembebasan-lahan-mega-proyek-kipi-mencapai-90-persen> accessed on June 30, 2023

²⁷ Afandi Zainal Mutaqqin, 'Gedung Kalimantan Industrial Park Indonesia Selesai Dibangun, Awal Menuju Green Industry Terbesar di Dunia', <https://www.sudahbaca.com/berita/3758823200/gedung-kalimantan-industrial-park-indonesia-selesai-dibangun-awal-menuju-green-industry-terbesar-di-dunia?page=2> accessed on July 17, 2023

²⁸ On March 1, 2023, Adaro officially acquired a 50% stake in PT Kayan Hidropower Nusantara, making Adaro the largest shareholder of PT KHN. Other shareholders include PT Kayan Patria Pratama (25%) and Sarawak Energy Berhad (25%).

C. Adaro Domination in the Green Industrial Zone

The presence of Boy Thohir during the groundbreaking ceremony on December 21, 2021, was not without reason. Currently, among the three managing companies, only PT KIPI has progressed to the stage of infrastructure development. Meanwhile, PT ISI and PT KPP are still in the process of land acquisition and administrative matters, which are yet to be completed²⁹.

PT KIPI is a subsidiary of Adaro Energy Minerals, a coal company where Boy Thohir serves as the CEO. Adaro itself is one of the largest investors in KIHI. Through its another subsidiary, PT Kalimantan Aluminium Industry (KAI), Adaro plans to establish a 580-hectare Aluminium smelter. Additionally, another subsidiary of Adaro, PT Kaltara Power Indonesia, is prepared to construct a CFPP. Adaro disclosed these plans in an announcement related to the capital expenditure for the year 2023³⁰.

Besides that, Boy Thohir is also one of the shareholders of PT Bulungan Citra Agro Persada (BCAP), a palm oil company whose 4,000-hectare land is currently where KIHI is located. In 2021, TSH Resources Bhd, the majority shareholder of PT BCAP, sold land in North Kalimantan Province, Indonesia, to PT KIPI for RM711.66 million, equivalent to approximately Rp2.42 trillion (at an exchange rate of Rp3,400)³¹.

The risk of having conflicts of interest in the development of KIHI are predominantly influenced by two key figures: Boy Thohir and Luhut Binsar Panjaitan. The proximity between Boy and Luhut in this industrial zone project is evident in how their roles intertwine in managing investments and infrastructure development in the region. One example is seen in the involvement of Justarina Naiborhu, a close relative of Luhut, who once headed PT Toba Bara Tbk (an energy company where Luhut served as a founder and was once a major shareholder)³². was appointed as the person responsible for PT KIHI and PT KIKI.

The conflicts of interest between these business actors and officials don't stop there. In addition to being the President Director of Adaro Energy, Boy Thohir is also known as the biological brother of Erick Thohir, the current Minister of State-Owned Enterprises (BUMN) in Indonesia.



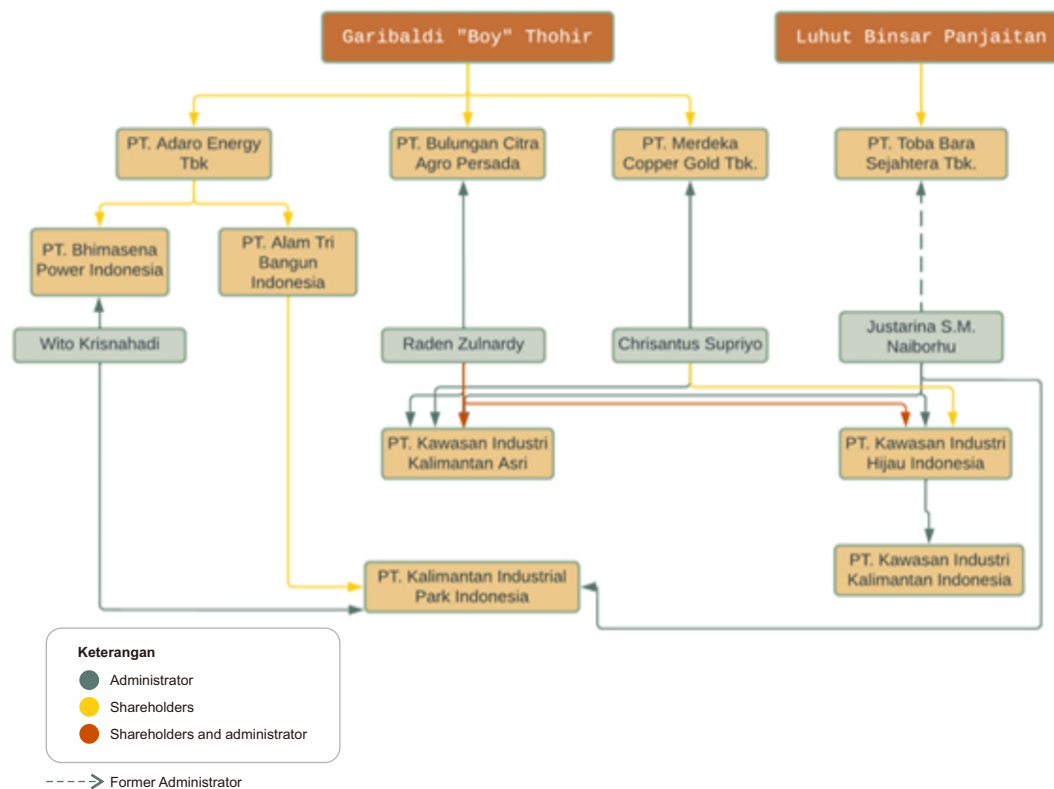
²⁹ Source: Halim Azwar, 'Delapan Tenant Akan Bangun KIHI Tanah Kuning-Mangkupadi Bulungan' <https://radartarakon.jawapos.com/daerah/bulungan/22/05/2023/delapan-tenant-akan-bangun-kihi-tanah-kuning-mangkupadi-bulungan/> accessed on May 25, 2023

³⁰ In its statement, Adaro stated that on December 20, 2022, KAI (PT Indonesia Asahan Aluminium) had signed a conditional equity participation agreement with Aumay Mining Pte Ltd (Aumay) and PT Cita Mineral Investindo Tbk (CITA). According to the agreement, KAI's ownership will include 65% of ADMR (through its subsidiary), Aumay with 22.5%, and CITA with 12.5%. <https://investor.id/market-and-corporate/322424/adaro-adro-beberkan-proyek-di-kaltara-mulai-dari-smelter-aluminium-hingga-pltu> accessed on May 25, 2023

³¹ Zufrizal, TSH Resources BHD. Akan melego Lahan di Kaltara Rp4,2 Triliun <https://bisnisindonesia.id/article/tsh-resources-bhd-akan-melego-lahan-di-kaltara-rp42-triliun> accessed on April 25, 2023

³² Until 2016, Luhut Binsar Pandjaitan acted as a controlling investor in PT Toba Sejahtra, holding 99.98% of the shares (with the remaining 0.02% owned by his son, David Togar Panjaitan). This company was known to possess a 72% stake in a mining company named Toba Bara Sejahtra (Toba Bara). In 2016, Toba Bara sold 61.9% of its shares to the Singaporean company Highland Strategic Holdings, the ultimate beneficiary of which remains unknown to this day. As of July 2023, Toba Sejahtra has carried out 13 share sales transactions, with the purpose and detailed pricing of these sales remaining undisclosed. Recently, the company changed its name to PT TBS Energy Utama Tbk. Luhut still holds a 10% stake, while his nephew, Pandu Patria Sjahrir, currently serves as the Vice President Director of the company. Reference: Global Witness, Diverted Profits: Discrepancies in Indonesian Coal Mining Revenues, April 2019. <https://money.kompas.com/read/2021/09/24/160717526/mengintip-bisnis-luhut-menteri-jokowi-yang-kaya-raya-dari-batubara?page=all> accessed on July 15, 2023 <https://www.idxchannel.com/market-news/toba-sejahtra-milik-luhut-rajin-lepas-saham-tbs-energi-toba> accessed on July 15, 2023

Conflicts of Interest on KIHI



Source: Tempo Magazine³³

Boy Thohir's ambitions and successes have propelled Adaro to become the second-largest coal company in Indonesia. In 2022,

Adaro set a record by achieving a profit increase of 167% compared to the previous year, amounting to US\$2.49 billion³⁴.

Adaro Energy Net Profit



Source: Adaro Energy Financial Statement 2022

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Khairul Anam, Pasak Kunci di Tanah Mangkupati, Tempo Magazine, January 20, 2022

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In addition to the higher sales volumes, the increase in revenue was also attributed to the soaring coal prices in that year. Source: Nur Qolbi, Bagaimana Prospek Adaro Energy (ADRO) di 2023? Cek Kata Para Analis <https://investasi.kontan.co.id/news/bagaimana-prospek-adaro-energy-adro-di-2023-cek-kata-para-analis>, accessed on April 25, 2023

The same thing also happened in terms of Adaro's increased value on coal production which increased sharply from the previous years.

Adaro Energy Coal Production 2019-2022



Source: Adaro Energy Financial Statement 2022

Adaro's involvement, particularly Garibaldi (Boy) Thohir's role in the KIHI project, has sparked intense criticism, primarily due to the planned construction of a coal-fired power plant (CFPP) suspected to support energy for the aluminium smelter and petrochemical plant. The land acquisition for this purpose has already been completed, and infrastructure development is underway.

As environmental awareness among the public and consumers grows, Adaro faces increasing pressure. Their claims of green initiatives associated with the CFPP system, along with assertions that the CFPP is a transitional

measure, have not addressed Indonesia's commitment to reduce greenhouse gas emissions by 31% to 41%. This further underscores allegations of greenwashing practices that Adaro has been accused of.

In a statement to the media in 2022, Adaro announced its intention to shift towards more environmentally friendly operational systems. This stands in contrast to the carbon footprint resulting from their active CFPP development. Since 2013, Adaro has embarked on an expansion to build several CFPPs in Kalimantan and Java.



List of Coal Power Plant Owned By Adaro

Capacity / Electricity Supply

2x30 MW

Location

Tabalong,
South Kalimantan



Subsidiary Managing

PT. Makmur Sejahtera Wisesa (MWS)

Electricity Allocation

ADRO operations

Development Status

Already operating

Capacity / Electricity Supply

6,797 Mwh

Location

Kotabaru,
South Kalimantan



Subsidiary Managing

PT. Makmur Sejahtera Wisesa (MWS)

Electricity Allocation

The operations of
PT Indonesia Bulk Terminal
(which is also a subsidiary
of Adaro)

Development Status

Already operating

Capacity / Electricity Supply

2 x 100 Mwh

Location

Tabalong,
South Kalimantan



Subsidiary Managing

PT. Tanjung Power Indonesia (BPI)
dan PT. EWP Indonesia

Electricity Allocation

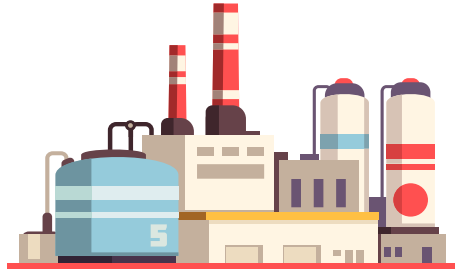
To be sold to PLN under
a 25-year power purchase
agreement.

Development Status

Already operating

Capacity / Electricity Supply
2 x 1000 Mwh

Location
Batang,
Central Java



Electricity Allocation
To meet the electricity needs on the island of Java.

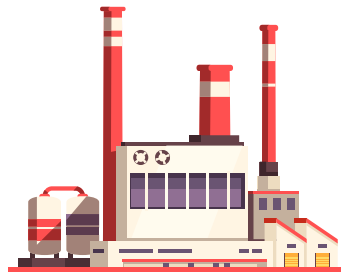
Development Status
Already operating

Subsidiary Managing

PT. Bhimasena Power Indonesia (BPI) bersama KPBU

Capacity / Electricity Supply
1 x 1 Gigawat

Location
Mangkupadi,
North Kalimantan



Electricity Allocation
The operation of the aluminium smelter and the blue zone of the Indonesian Green Industrial Zone (KIHI).

Development Status
In the development process

Subsidiary Managing

PT. Kaltara Power Indonesia (KPI)

Source: Abstracted from Various Sources

A series of notes regarding Adaro's inconsistency with their green commitments have led to several banks withdrawing their funding from Adaro, especially international banks. By the end of 2022, Standard Chartered announced it would sever ties with Adaro due to its significant involvement in the coal industry, particularly concerning plans for an aluminum smelter and a coal-fired power plant (PLTU) in KIHI.

Additionally, Singaporean banks DBS and OCBC also declared their intentions to withdraw their funding from Adaro and refused to be involved in the smelter project³⁶. This stands in contrast to UOB, which, in the previous year, extended a loan of \$350 million to support Adaro's operations.

The situation is mirrored by Indonesian banking institutions. Despite various pressures for the discontinuation of the coal-fired power plant project in KIHI, on May 12, 2023, a consortium of Indonesian banks comprising Bank Mandiri, BRI, BNI, BCA, and Bank Permata reached an agreement with Adaro to sign a Facility Agreement Letter. This letter stated that their subsidiaries, PT KAI and PT KPI, had successfully secured loans for financing the construction of their smelter and coal-fired power plant projects³⁵.

These loans were channeled to two of Adaro's subsidiaries, PT KAI and PT KPI. PT Kalimantan Aluminium Industry (KAI) obtained a loan of \$981.4 million and IDR 1.5 trillion for its aluminum smelter, while PT Kaltara Power Indonesia (KPI) received a loan of \$603 million and IDR 192.140 billion for the construction of the coal-fired power plant³⁷.

³⁵ As quoted in the statement by Market Forces in Tempo on July 7, 2023. Sari Amelia Rahmani, "Pegiat Lingkungan Market Forces Sebut Ada 5 Bank Dana Proyek Smelter dan PLTU Adaro" <https://bisnis.tempo.co/read/1745466/pegiat-lingkungan-market-forces-sebut-ada-5-bank-dana-proyek-smelter-dan-pltu-adaro> accessed on April 25, 2023

³⁶ Prismono, 'OCBC Withdraws from Adaro's Aluminum Smelter Project,' <https://petrominer.com/giliran-ocbc-mundur-dari-proyek-smelter-aluminium-adaro/>, accessed on April 25, 2023

³⁷ Sari Amelia Rahima, Pegiat Lingkungan Market Forces Sebut Ada 5 Bank Dana Proyek Smelter dan PLTU Adaro <https://bisnis.tempo.co/read/1745466/pegiat-lingkungan-market-forces-sebut-ada-5-bank-dana-proyek-smelter-dan-pltu-adaro> accessed on April 25, 2023

d. Contradictions in Green Commitments within KIHI Project

Based on the official statement from the Ministry of Industry, the industrial movement in Indonesia is currently directed towards a scheme known as green industry. Green industry is defined by the government as an industry that prioritizes the efficient and effective use of resources in its production process, while ensuring sustainability and aligning industrial development with environmental conservation, ultimately providing benefits to society³⁸.

The industrial sector becomes a central part of energy production and consumption. Hence, the government deems it necessary to regulate the industrial sector's energy usage

through derived rules in order to achieve the concept of green industry. With ambitious goals, Indonesia has set a target of achieving a 23% energy mix from renewable sources by 2025. Can this target be met? Looking at the reality, the utilization of energy is still significantly imbalanced compared to the 'new' renewable energy (EBT) target. In 2023, the EBT mix reached only 13%, while in 2021 it was at 12.2%. This indicates that over the span of two years, the EBT mix increased by only 0.8%³⁹. Furthermore, in the latest data for the year 2022, Indonesia's renewable energy mix actually decreased. It went from 11.5% in the third quarter of 2021 to 10.4% in the third quarter of 2022⁴⁰.

Renewable Energy mix 2011-2022



Sumber: Ministry of Energy and Mineral Resources

³⁸ Press Release from the Ministry of Industry, Republic of Indonesia, Terapkan Industri Hijau, Sektor Manufaktur Hemat Energi Hingga Rp3,2 Triliun. <https://kemenperin.go.id/artikel/22970/Terapkan-Industri-Hijau,-Sektor-Manufaktur-Hemat-Energi-Hingga-Rp3,2-Triliun> accessed on June 1, 2023

³⁹ Handbook of Energy & Economic Statistic of Indonesia 2021 published by The Ministry of Energy and Mineral Resources

⁴⁰ Perdana Aditya Putra, Kian Menjauhi Target, Bauran Energi Terbarukan Turun <https://www.kompas.id/baca/ekonomi/2022/12/15/kian-menjauhi-target-bauran-energi-terbarukan-turun> accessed on April 27, 2023

Aside from the renewable energy mix target being far from achieved, the effort to completely phase out coal-fired power plants (CFPP) by 2050 is also questionable. Evidence lies in the 2021-2030 Electricity Supply Business Plan (RUPTL), where PLN (the state-owned electricity company) still targets to add a capacity of 13.8 GW from CFPP. Additionally, there are several captive CFPPs planned to be built simultaneously in various regions with nickel and aluminium smelters, such as in Morowali, Weda Bay, and North Kalimantan.

Apart from captive CFPPs, the complete closure of coal-fired power plants is also hindered by co-firing methods, which in reality only reduce coal usage by around 5% - 10%. This method can potentially exacerbate deforestation due to the high demand for biomass, not to mention the efforts to extend the lifespan of CFPPs, with a 30-year life cycle

scheme, which should have been retired by now⁴¹.

Considering these factors, KIIHI, which is part of the broader green industry scheme, should ideally align with the green paradigm being pursued by the government. However, even in its planning process, there are already numerous contradictions. One example is the imbalance in the application of the industrial zoning percentage in KIIHI, through the division of blue zones (industrial areas with fossil fuel reliance) and green zones (green industrial areas) in the Environmental Impact Assessment (ANDAL) of PT KIPI for the year 2021 and its subsequent addendum in 2022. How can an industrial zone be claimed as 'green' if the area supported by fossil fuels is much larger than the area supported by clean and renewable energy?

Blue Zone

Type of Industry	Area (Ha)	Coal Needs (Tons/Year)		Electricity Requirements (GWh/Year)	
Petrochemical	2.505,02	ANDAL 2021	ADDENDUM 2022	ANDAL 2021	ADDENDUM 2022
		9,92 million	10.884,2	4.320	4.740
Steel	673,928	Coking coal		3.628	3.980,64
		14,9 million	16,35 million		
		Coal injection			
		2,8 million	3,07 million		
Polycrystalline manufacturing	731,449	N/A		N/A	219,44
Total	3.910,41				

Green Zone

Type of Industry	Area (Ha)	Coal Needs (Tons/Year)	Electricity Requirements (GWh/Year)	
Alumunium	778,620	N/A	3.456	3.456 (constant)
Other type of industry	1.411,94	N/A	N/A	
Total	2.190,56			

Source: Environmental Impact Assessment (ANDAL) for the KIPI, Tanah Kuning Area, 2021.

Various contradictions that contradict green commitments are not only shown by KIHI stakeholders through the development of their mega projects. The following is a summary of

policy inconsistencies and statements from various key actors involved in the construction and development of the coal-fired power plant project in KIHI.


Contradictions in Green Commitments from Stakeholders in the Development of Captive Power Plants in the KIHI

Statements		In Reality
"With such great natural potential, Indonesia continues to contribute to tackling climate change. The rate of deforestation has fallen significantly, the lowest in the last 20 years. Forest fires decreased by 82% in 2020" ⁴²		Deforestation in Indonesia has actually increased, from the previous 2.45 million hectares during the 2003-2011 period to 4.8 million hectares during 2011-2019 - including during Jokowi's first leadership period from 2014-2019
"In recent years, Indonesia has shown concrete steps in terms of climate control" ⁴³		<ul style="list-style-type: none"> The proliferation of captive coal-fired power plant (Captive CFPP) developments in Indonesia. The Renewable Energy Bill (RUU EBT) whose contents are still questioned, particularly regarding false solutions (nuclear, coal gasification, etc.) being offered in the energy transition.
In the energy sector, we are also moving forward. With the development of the electric car ecosystem, the construction of the largest solar power plant in Southeast Asia, the use of new renewable energy including biofuels, and the development of clean energy-based industries, including the construction of the world's largest green industrial area in North Kalimantan ⁴⁴ .		<ul style="list-style-type: none"> In reality, the Green Industrial Area KIHI still relies on coal-fired power plant energy supply. Behind the intensive propaganda on electric vehicle programs, the nickel industry, which has been proven to contribute to environmental and social destruction, continues to be promoted, as seen in areas like Morowali and Weda Bay.

⁴² President Jokowi's statement during his speech at the COP26 World Leaders' Summit on Climate Change in Glasgow, Monday, November 1, 2021.

⁴³ Ibid.

⁴⁴ Ibid.

Statements		In Reality
<p>"China will increase support for other developing countries in developing green and low-carbon energy, and will not build new coal-fired power projects overseas,"⁴⁵</p> <p>"Greening the BRI means reducing climate emissions, reducing pollution, and protecting biodiversity, while providing improved economic opportunities for the countries involved. The Opinions highlight some important ambitions to achieve this goal."</p>		<ul style="list-style-type: none"> Through its Belt and Road Initiative (BRI) scheme, China has become the largest contributor of funds for coal projects in developing countries such as Indonesia, Vietnam and Bangladesh. KIHI itself is one of the recipients of BRI China funds. The BRI funding received by KIHI also includes the allocation for the captive CFPP project
<p>"China adheres to the idea of community of human life with nature, strives to pursue a development path that prioritizes ecology and low-carbon, accelerates the construction of a green, low-carbon and circular economic system, continuously promotes the adjustment of industrial structure, resolutely blocks the development of projects with high energy consumption and high emissions, accelerating the drive for the transformation of green energy and low carbon"⁴⁶</p>		<ul style="list-style-type: none"> China's emissions in 2019 were more than the US, India and the EU combined, or 27% of the world's total greenhouse gases, and are expected to increase over the coming decades, given its dependence on coal fuel. China currently runs 1,058 coal power plants, or more than half of the world's capacity⁴⁷.

Statements		In Reality
<p>"We are committed to creating green energy products that are able to compete in the global market,"</p> <p>the company will make a transition towards a green economy by carrying out business transformation through long-term green initiatives"⁴⁸</p>		<ul style="list-style-type: none"> Since 2013 until this report is being made, we are still actively building coal-fired power plants, one of which is the largest at KIHI. Working with various investors who have a bad track record in environmental preservation.


⁴⁵ Xi Jinping's written statement at the UN General Assembly event in New York, September 2021

⁴⁶ Xi Jinping's written statement at the COP 26 event in Glasgow, November 2021

⁴⁷ Ariyani Tatik, Sok-sokan Nasehati Negara Maju untuk Perangi Perubahan Iklim, Xi Jinping 'Lupa' China Penyumbang Emisi Karbon Terbesar di Dunia, Tapi Tak Lakukan Upaya Apapun untuk Mengurangnya
<https://intisari.grid.id/read/032972126/sok-sokan-nasehati-negara-maju-untuk-perangi-perubahan-iklim-xi-jinping-lupa-china-penyumbang-emisi-karbon-terbesar-di-dunia-tapi-tak-lakukan-upaya-apapun-untuk?page=all> accessed on June 22 2023

⁴⁸ In his written statement when he received the same award, namely Businessman of the Year from Forbes for the second time, in 2022

Statements		In Reality
<p>"This year's G20 presidency is a crucial momentum for Indonesia. The government is advocating for the implementation of a circular economy, reducing the use of non-renewable resources, lowering carbon emissions, and promoting new economic growth. The growing interest in blue carbon is also seen as a solution for climate change, enhancing marine ecosystems and biodiversity through marine conservation efforts."⁴⁹</p>		<ul style="list-style-type: none"> • Encouraging investments that clearly have a negative impact on the environment and local communities. • Prioritizing personal interests over official responsibilities as a state official and blending them with business interests.

Statements		In Reality
<p>Bank Mandiri will strengthen the distribution of sustainable loans or environmental, social, and governance (ESG) loans. To achieve this, the bonds will be issued to support loans with sustainable business activity criteria (KKUB), and the bank is currently developing its business plan to align with these goals.⁵⁰</p>		<ul style="list-style-type: none"> • Co-funding projects that have a negative impact not only on the environment and society but also deny ESG commitments.

Statements		In Reality
<p>As a national entity, PT Bank Central Asia Tbk. (BCA) is committed to continuously supporting the implementation of a circular economy to expand the presence of green economy-based initiatives and efforts.⁵¹</p>		<ul style="list-style-type: none"> • Participate in funding projects that have a negative impact on the environment and society, where the commitment to sustainability is questionable.


Statements		In Reality
<p>"BNI is committed to preserving forests and empowering the local communities around them."⁵²</p>		<ul style="list-style-type: none"> • Participate in funding projects that have a negative impact on the environment and society and play a role in deforestation.


⁴⁹ In his statement at the Talk Show on the G20 Summit entitled Partnership in Climate Actions at BNDCC in a hybrid manner on Monday November 14, 2022

⁵⁰ In the statement announcing the provision of green credits in an effort to participate in the emission reduction process

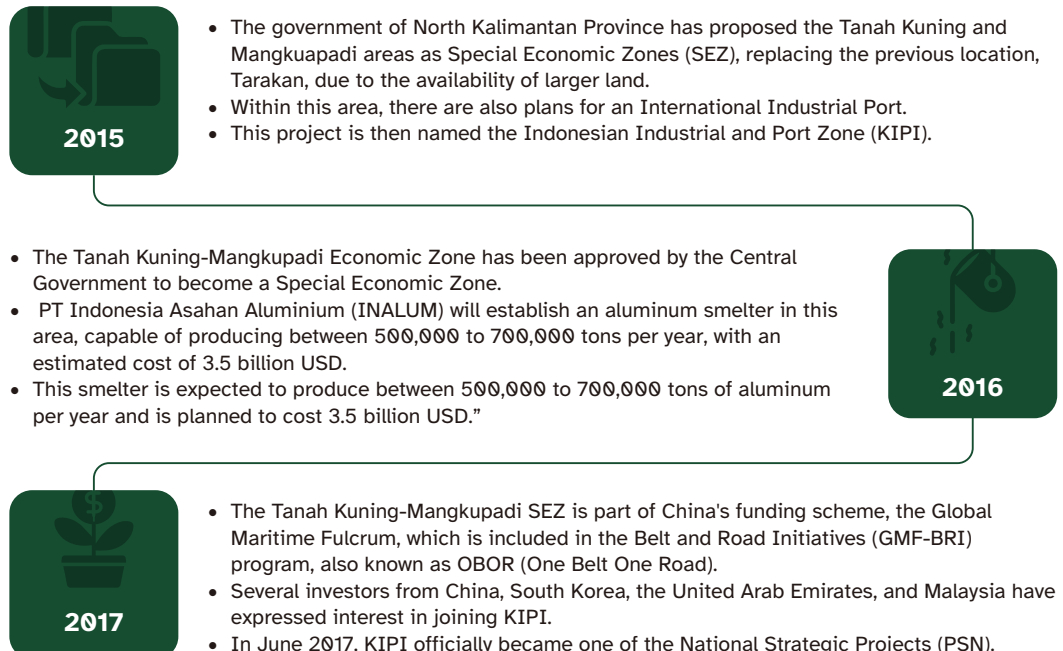
⁵¹ It was stated when announcing its investment in PT Eco Paper Indonesia, a subsidiary of PT Alkindo Naratama Tbk (ALDO) to support the company's business and investment in the circular economy segment.

⁵² BNI statement when launching the Equator Coffee Trail Program

Statements		In Reality
"...it is very important for BRI to be able to analyze the climate change risks faced by prospective loan customers to consider the impact that will be faced by the company on the loans provided..." ⁵³		<ul style="list-style-type: none"> Participate in funding projects that have a negative impact not only on the environment and society, but are especially influential in adding to the harmful impact of climate change.

Statements		In Reality
The Indonesian government has set a long-term development direction that integrates economic, environmental and social aspects or achieves sustainable development. To support its achievements, the Government engages Financial Services Institutions including PermataBank through financial products and services as well as Environmental, Social and Governance (LST) practices that are in line with the principles of environmental protection and social justice" ⁵⁴		<ul style="list-style-type: none"> Participate in funding projects that have a negative impact not only on the environment and society, but also have very dubious principles of social justice and sustainability.

KIPI Development Timeline



⁵³ In his response regarding the provision of green bonds by BRI for many MSME entrepreneurs in Indonesia

⁵⁴ As being written in Permata Bank's 2021 Sustainability Report

- The Chinese government donated IDR 100 billion to the North Kalimantan provincial government.
- This funding was intended for feasibility studies and delineation of KIPI.
- The outcome of these activities included determining the KIPI area, which covers 10,000 hectares.
- Discussions about CFPP (coal-fired power plant) construction began, initially sparked by Tshingshan's interest in establishing an aluminium smelter in this industrial area, which would require an immediate power supply.

2018

2019

- Land acquisition efforts began under the management of the operating company.
- The North Kalimantan provincial government initiated plans for developing supporting infrastructure such as ports, raw water supply, regional planning, and road and bridge construction to KIPI.
- Three out of ten investors withdrew from the project due to their failure to report progress and the expiration of location permits.

2020

- Out of the ten development companies, only five are still operational, including PT KIPI, a subsidiary of Adaro, which holds an HGU covering 4,000 hectares.
- Fortescue and Dragon Land have expressed their interest in investing in the Kayan Hydroelectric Power Plant (PLTA Kayan) and coal-fired power plants (CFPP) in KIPI.
- The KIPI regional regulation (Perda) was issued, which includes provisions for the coal, petroleum, and non-metallic mineral industries.

2021

- Out of the ten KIPI management companies, only three remain: PT KIPI, PT ISI, and PT KPP.
- On December 21, Jokowi, accompanied by Coordinating Minister for Maritime Affairs and Investment Luhut Binsar Panjaitan and State-Owned Enterprises Minister Garibaldi Thohir, laid the first stone in KIPI.
- Adaro signed an investment agreement to build an aluminium smelter in KIPI.
- There was a name change from KIPI (Indonesia Industrial and Port Area) to KIH (Indonesia Green Industrial Area).

2022

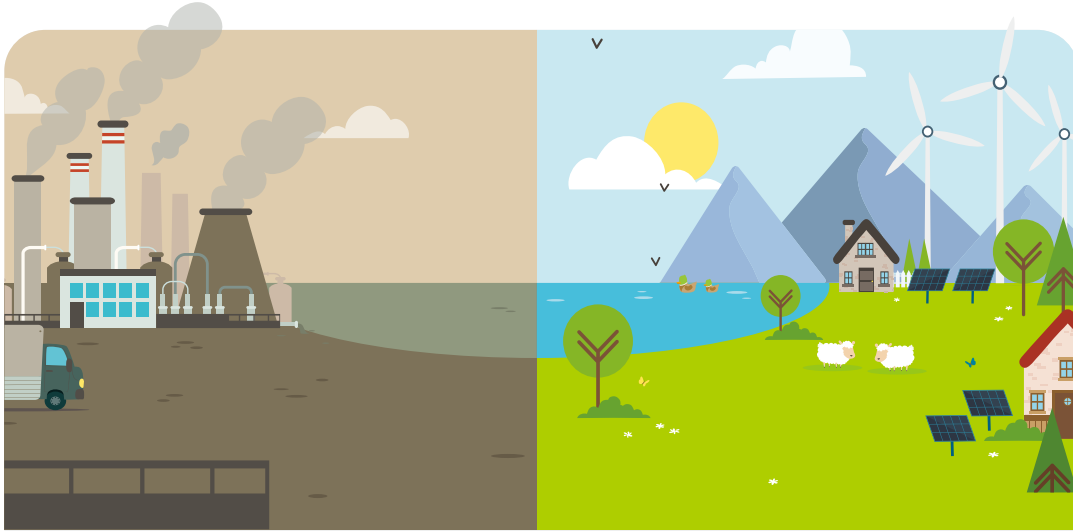
- Hyundai signed an MoU with Adaro Energy. The MoU states that Hyundai will purchase aluminium from Adaro through its smelter in KIH, supported by a CFPP.
- PT Kayan Hydro Energy (KHE) entered into an investment cooperation agreement with Sumitomo Corporation of Japan for the development of a 9,000-megawatt hydropower plant.
- The land area, initially 10,100 hectares, increased to 16,400 hectares in the first stage of land acquisition. In the second stage, the target is to reach 30,000 hectares.

2023

- The office building of the PT KIPI management has been completed in KIH.
- At least six domestic and international investors have agreed to participate in the KIH industrial area.
- Adaro secured a loan from a consortium of Indonesian banks (Mandiri Bank, BNI, BRI, BCA, and Permata Bank) amounting to 1.5 trillion USD to finance the aluminium smelter and CFPP project in KIH.



The Coal Trap in The Green Zone



a. History and Financing of Coal-Fired Power Plants in KIHI

Initially, the KIHI project scheme was integrated with the plan to develop the Kayan River Hydropower Plant (HPP). The overarching idea was an Economic Zone driven by renewable energy, in this case, hydropower or dams. The discourse regarding the introduction of a new coal-fired Power Plant (CFPP) emerged during Indonesia's discussions with China in 2017, related to the One Belt One Road (OBOR) initiative⁵⁵.

Tsingshan Group, as one of the investors representing China, expressed their interest in building an Aluminium Smelter in the KIHI area. The stalled progress of the Hydropower Plant (HP) construction, combined with

unclear investor issues and the time-consuming nature of infrastructure development, considering that HP construction can take 5-6 years, while a Coal Power Plant can be completed in just 24 months, all of these factors are considered ineffective for the prompt realization of the smelter construction.

Luhut Binsar Panjaitan, the Coordinating Minister for Maritime Affairs and Investment (Menko Marves), affirmed Indonesia's readiness to construct a Coal Power Plant facility in KIHI. In one of his statements, he mentioned that:

"North Kalimantan has coal resources. So, for the construction of Coal Power Plants (CFPP), God willing, there should be no issue, and it can be built. Tsingshan (the Chinese investor) that plans to build a smelter industry has already conducted surveys."⁵⁶

Luhut Binsar Panjaitan



55

As agreed by the Indonesian working team, the Garuda Maintenance Facility (GMF)-BRI Cooperation Committee, chaired by Luhut B. Panjaitan, during the coordination meeting on investment cooperation between the Indonesian government and China on September 5, 2017. Source: Nur Islami, "Investment of IDR 613 Trillion Expected to Enter North Kalimantan." https://www.kominfo.go.id/content/detail/10566/investasi-rp-613-triliun-bakal-masuk-kaltara/0/sorotan_media accessed on June 23, 2023

56

Ibid.

As more investors show interest in investing in the Tanah Kuning industrial area, the need for electricity supply becomes increasingly pressing. During their visit to KIHI, representatives from Tsingshan, along with the North Kalimantan Provincial Government, began to explore the possibility of cooperation with the coal company PT Pesona Khatulistiwa Nusantara (PKN) as both the manager and supplier of coal for the CFPP in KIHI⁵⁷.

Responding to this collaboration, PKN stated that they have already allocated a site for the CFPP in the coal-rich area of Ranggau, located 14 kilometres from the KIHI site. They also expressed their readiness to provide a power supply of up to 2 x 300 MW, considering their substantial coal reserves amounting to approximately 74 million tons. This announcement was well-received, given that the construction timeline for a Coal Power Plant is much shorter compared to other power generation methods. While a Hydropower Plant might take 5 to 6 years for completion, a Coal Power Plant can be operational within a maximum of 24 months.

During the second Belt and Road Initiative (BRI) international cooperation forum held from April 25 to 28, 2019 in Beijing, China, Indonesia presented 28 project proposals, including two projects related to ports and the CFPP in KIHI. In response to criticism from various environmental organizations, the Indonesian government argued that all the proposed projects were environmentally friendly, as they employed Ultra Supercritical (USC) technology.

However, in reality, this technology primarily aims to reduce coal consumption and does not eliminate carbon emissions and other waste gases. According to a statement from Walhi Nasional, "Emissions from steam power plant construction, including NO_x, SO_x, PM_{2.5}, and

mercury emissions, will not disappear even when using USC technology. PM_{2.5} and mercury emissions, which have the potential to cause premature deaths and Minamata disease, will still persist."⁵⁸

In addition to China, South Korea's Dragon Land Group also expressed its interest in funding the development of a 2 x 200 MW CFPP in the KIHI Port area. However, due to limited progress and the expiration of the company's location permit by the North Kalimantan Provincial Government in 2022, Dragon Land Group was declared to have ceased discussions regarding industrial and infrastructure development in KIHI.

On December 21, 2021, coinciding with the ceremony of laying the first stone for the Green Industry Zone of Indonesia, witnessed directly by President Joko Widodo (Jokowi), PT Adaro Energy Tbk. through PT Adaro Aluminium Indonesia signed a Letter of Intention to Invest worth US\$728 million for the construction of an aluminium smelter in KIHI. This smelter is touted to become the largest aluminium smelter in Indonesia⁵⁹.

⁵⁷ Ibid.

⁵⁸ This was revealed by Walhi in their statement regarding the Deputy for Infrastructure Coordination of the Coordinating Ministry of Maritime Affairs, Ridwan Djamaludin, who mentioned that coal-fired steam power plant (CFPP) technology funded by China is not environmentally friendly. Source: Tim Penulis., Respon WALHI Terhadap Pernyataan Deputi Bidang Koordinasi Infrastruktur dan Pengakuan Hyundai yang telah Menyuar Bupati Cirebon <https://www.walhi.or.id/respon-walhi-terhadap-pernyataan-deputi-bidang-koordinasi-infrastruktur-dan-pengakuan-hyundai-yang-telah-menyuar-bupati-cirebon> accessed on June 23, 2023

⁵⁹ Media Indonesia: Adaro Segera Bangun Aluminium Smelter di Kawasan Industri Hijau Indonesia <https://mediaindonesia.com/ekonomi/459759/adaro-segera-bangun-aluminium-smelter-di-kawasan-industri-hijau-indonesia> Diakses 18 Maret 2023

With a total investment value of US\$2 billion or around Rp.30.5 trillion, this smelter is targeted to produce 500,000 - 1,500,000 tons of aluminium ingots per year. In terms of employment, this project is said to be able to provide jobs for more than 6,000 local workers

in the construction phase and 1,500 local workers in the operational phase⁶⁰. The construction of the smelter, which is targeted to be completed by the end of 2025⁶¹, seems to have reinforced the urgency of supplying electricity quickly and cheaply.

Adaro Operational Phase Table in KIHI

Phase 1

Project Specifications

Coal-fired power plant that supports an aluminium smelter with a capacity of 500,000 tons per year.

Sponsored by

- a. Aluminum Smelter
Operator:
Kalimantan Aluminium Industri (KAI)
Investors:
 - Adaro Minerals Indonesia (65%)
 - Aumay Mining (22.5%)
 - Cita Mining Investindo (12.5%)
- b. Coal-fired Power Plant (CFPP)
Operator:
Kaltara Power Indonesia
Investors:
 - Adaro Power
 - Cita Mining Investindo

Timeline

COD Q1 2025

Project Costs

US\$2 Billion (estimation)

Financing Scheme

Equity and Bank Loans

Planning Stage

The loan reached final agreement on May 12, 2023

Borrower

North Kalimantan Aluminum Industry: US\$981.4 million (tranche 1), IDR 1.547 trillion (tranche 2). Due 12 May 2031, tenor 8 years

Kaltara Power Indonesia: US\$603.6 million (tranche 1), Rp.952.1 billion (tranche 2). Maturity, May 12 2033, tenor 10 years

Lender

Bank Mandiri (US\$585M), BNI (US\$350M), BRI (US\$450M), BCA (US\$270), Permata Bank (US\$100M)

Phase 2

Project Specifications

The coal-fired power plant that supports the aluminium smelter has a capacity of 500,000 tons per year

Sponsored by

- a. Aluminum Smelter
Manager:
Kalimantan Aluminum Industry (KAI)
Investors:
 - Adaro Minerals Indonesia (65%)
 - Aumay Mining (22,5%)
 - Cita Mining Investindo (12,5%)
- b. Coal Power Plant (CFPP)
Manager:
(Kaltara Power Indonesia)
Investors:
 - Adaro Power
 - Cita Mining Investindo

Timeline

COD Q4 2026

Project Costs

US\$2 Billion (estimation)

Financing Scheme

Equity and Bank Loans

Planning Stage

Planned

Lender

N/A

60

Dianka, Ananda Astri, Adaro Minerals Targetkan Proyek Smelter Aluminium senilai Rp30,5 Triliun Rampung pada 2025, <https://www.trenasia.com/adaro-minerals-targetkan-proyek-smelter-aluminium-senilai-rp-30-5-triliun-rampung-pada-2025>. Diakses 17 Maret 2023

61

Dewi Mis Fransiska, Smelter Aluminium Adaro Ditargetkan Rampung 2025, <https://www.kompas.id/baca/ekonomi/2023/03/02/proyek-smelter-aluminium-senilai-rp-305-triliun-ditargetkan-rampung-2025>. Diakses 15 Maret 2023

Phase 3		
Project Specifications The coal-fired power plant that supports the aluminium smelter has a capacity of 500,000 tons per year	Timeline COD Q4 2029	Lender N/A
Sponsored by N/A	Project Costs N/A	
	Financing Scheme Equity and Bank Loans	
	Planning Stage Planned	

Source: Market Forces⁶²

In 2021, the Environmental Impact Assessment (ANDAL) for the Tanah Kuning Industrial Zone owned by PT KIPI was issued. Within it, the plan for the construction of a CFPP as the first power generator was outlined. Even though the main power generator in the area is a Hydropower Plant, it is not explicitly stated whether the presence of the Coal Power Plant is meant to be a transitional measure or a long-term solution. Considering the substantial capacity of 1.1 GW⁶³, it's unlikely that the Coal Power Plant's presence would be limited to only 5-10 years, especially given President Joko Widodo's affirmation that the Hydropower Plant would only begin operating in 2030⁶⁴.

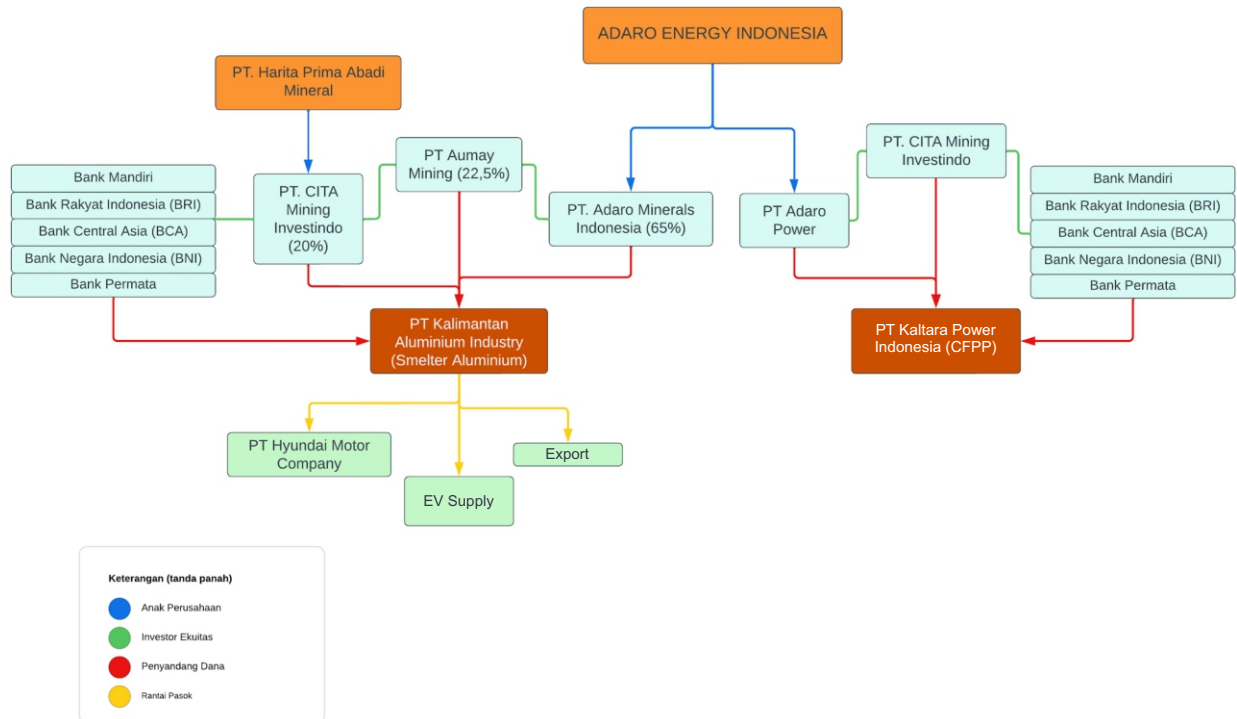
Moving into the year 2022, information regarding the Coal Power Plant (CFPP) in the North Kalimantan Green Industrial Zone has become increasingly difficult to obtain. Both Adaro and PT KIPI have tightened their control over information access, likely in response to mounting criticism, particularly considering Indonesia's commitment to reducing emissions and increasing the share of renewable energy. Despite these

developments, the inclusion of the CFPP in the Environmental Impact Assessment (ANDAL) of PT KIPI⁶⁵ is a decisive confirmation of the project's certainty and Adaro's central role in the funding and construction of the CFPP in the North Kalimantan Green Industrial Zone. Through its subsidiary, PT Kaltara Power Indonesia, Adaro will unequivocally establish a CFPP in the Indonesia Green Industrial Zone.

On December 20, 2022, KAI signed a conditional equity participation agreement with Aumay Mining Pte Ltd (Aumay) and PT Cita Mineral Investindo Tbk (CITA). According to this agreement, KAI's ownership will comprise 65% from Adaro Minerals Indonesia Tbk. (ADMR) (a subsidiary of KAI), 22.5% from Aumay, and 12.5% from CITA. The proceeds from this transaction will be allocated for the development costs of the aluminium smelter, jetty construction, land preparation, and other supporting infrastructure, including the CFPP⁶⁶.

- 62 Market Forces, 'Banks can't fund Adaro's smelter without funding coal' <https://www.marketforces.org.au/campaigns/international/adaro-smelter/> accessed on May 12, 2023
- 63 As an illustration, PLTU Pangkalan Susu has a capacity of 840 MW, 4 units, meanwhile PLN Suralaya 8 of 625 MW and PLN Cilacap which is intended to supply the Java-Bali electricity system, "only" has a capacity of 600 MW. Accessed March 10, 2023
- 64 Karunia, Ade Miranti, 'Telan Dana 40 Triliun, PLTA Mendatang Induk Ditargetkan Beroperasi pada Tahun 2030', <https://money.kompas.com/read/2023/03/01/1540000126/telan-dana-rp-40-triliun-plta-mentarang-induk-ditargetkan-beroperasi-pada-2030>, accessed on July 23 2023.
- 65 It is stated in the ANDAL document along with the addendum from PT KIPI, which will be published in 2022, specifically written in the attachment section regarding PT KIPI's company profile
- 66 Deswika Thresa Sandra, Adaro Minerals (ADMR) Beberkan Jadwal Financial Close Proyek Smelter Aluminium <https://investor.id/market-and-corporate/323689/adaro-minerals-admr-beberkan-jadwal-financial-close-proyek-smelter-aluminium> Accessed on March 8, 2023

KIHI CFPP Funding Scheme by Adaro


















Source: Market Forces and Celios

Only one day after protest actions marked the Adaro Shareholders' Meeting on May 12, 2023⁶⁷ Adaro officially signed loan agreements with five major domestic banks: Bank Mandiri, Bank Negara Indonesia (BNI), Bank Central Asia (BCA), Bank Rakyat Indonesia (BRI), and Bank Permata. Notably, a substantial loan amounting to Rp2.5 trillion and \$1.5 billion was extended to Kalimantan Aluminium Industry (KAI) and Kaltara Power Indonesia (KPI), which are Adaro's two subsidiary companies. In the official agreement letter issued by Adaro, it explicitly states that these significant funds are allocated for the construction of the Aluminium Smelter and Coal Fired Power Plant located in Bulungan, North Kalimantan.



KIHI CFPP Funding Scheme by Adaro



	Bank Bank Mandiri		Loan Amount (In USD) US\$585 million		Rupiah equivalent (Exchange rate Rp. 15,008) ⁶⁸ (approximately IDR 8.78 trillion)
	Bank Bank Rakyat Indonesia (BRI)		Loan Amount (In USD) US\$450 million		Rupiah equivalent (Exchange rate Rp. 15,008) (approximately IDR 6.76 trillion)
	Bank Bank Negara Indonesia (BNI)		Loan Amount (In USD) US\$350 million		Rupiah equivalent (Exchange rate Rp. 15,008) (approximately IDR 5.26 trillion)
	Bank Bank Central Asia (BCA)		Loan Amount (In USD) US\$270 million		Rupiah equivalent (Exchange rate Rp. 15,008) (approximately IDR 4.05 trillion)
	Bank Bank Permata		Loan Amount (In USD) US\$100 million		Rupiah equivalent (Exchange rate Rp. 15,008) (approximately IDR 1.6 trillion)

Source: processed from Bloomberg Terminal

This agreement marks a new beginning for Adaro's business endeavours, along with the involvement of five major national banks, in contradicting their green commitments. It also serves as evidence of the government's

inconsistency in its promise to not further increase emissions in Indonesia, and as a form of neglect in fostering an environmentally friendly and equitable industrial climate.

**Green Industrial Area
Infected by Coal Power Plant:**
Economic Impacts, Conflicts of Interest, and Environmental Threats



Estimated Impact on Captive Coal Power Plant in KIHI

In this section, we will present various reasons why the construction of coal-fired power plants (CFPP) in the Indonesian Green Industrial Zone (KIHI) needs to be cancelled. We aim to explore and estimate the potential impacts that may arise, encompassing environmental, social, and economic aspects.



a. Economic Impact

A Glimpse on IRIO Method

The method used in the analysis of the impact of the KIHI coal-fired power plant on the economy is the Inter Regional Input-Output (IRIO) analysis. IRIO is similar to the Input-Output (I-O) method, but the IRIO model provides more detailed analysis compared to the I-O model, particularly in analyzing intra-regional effects and inter-regional effects, including spillover effects and feedback effects.

The Inter-Regional Input-Output (IRIO) model is an extension of the input-output model that analyzes economic activities in specific regions. This model measures and models the economic relationships between different regions. With IRIO, we can assess the impact of investment policies in one region on other regions. The IRIO table consists of

input-output tables from various regions interconnected through interregional trade transactions. This table reflects the flow of goods between regions and can be considered as interregional trade. The IRIO table used is the latest version from the year 2016.

In general, the IRIO analysis is described in Table 1, where there is a process of input allocation to produce a certain output. In producing output, the primary production sectors will produce inputs for both their own sector and other sectors (secondary and tertiary), in addition to the final demand in each province.

IRIO Scheme

Location		North Kalimantan			East Kalimantan			Others		
Sector		1	...	16	1	...	16	1	...	16
North Kalimantan	1	Z_{11}^{DD}	...	Z_{116}^{DD}	Z_{11}^{DJ}	...	Z_{116}^{DJ}	Z_{11}^{DL}	...	Z_{116}^{DL}
	16	Z_{161}^{DD}	...	Z_{1616}^{DD}	Z_{161}^{DJ}	...	Z_{1616}^{DJ}	Z_{161}^{DL}	...	Z_{1616}^{DL}
East Kalimantan	1	Z_{11}^{JD}	...	Z_{116}^{JD}	Z_{11}^{JJ}	...	Z_{116}^{JJ}	Z_{11}^{JL}	...	Z_{116}^{JL}
	16	Z_{161}^{JD}	...	Z_{1616}^{JD}	Z_{161}^{JJ}	...	Z_{1616}^{JJ}	Z_{161}^{JL}	...	Z_{1616}^{JL}
Others	1	Z_{11}^{LD}	...	Z_{116}^{LD}	Z_{11}^{LJ}	...	Z_{116}^{LJ}	Z_{11}^{LL}	...	Z_{116}^{LL}
	16	Z_{161}^{LD}	...	Z_{1616}^{LD}	Z_{161}^{LJ}	...	Z_{1616}^{LJ}	Z_{161}^{LL}	...	Z_{1616}^{LL}

The diagonal matrix of Z represents the inter-sectoral transactions matrix within the same region. For instance, Z^{DD} represents the inter-sectoral transactions matrix within North Kalimantan. On the other hand, the off-diagonal matrix of Z represents the inter-sectoral transactions matrix between one region and another region. For example, the matrix Z^{JD} represents the inter-sectoral transactions between East Kalimantan and North Kalimantan, where East Kalimantan is the producer and North Kalimantan is the consumer. It's worth noting that these off-diagonal matrices do not necessarily have to be square matrices, as there could be variations in the number of sectors between different regions.

In this study, in addition to analyzing interdependencies, research is also conducted on the impact of policies on output and employment absorption. This policy impact refers to changes in the value of components of final demand, such as household consumption (C), government consumption (G), investment (I), changes in

inventory (I), and exports (E). This approach shares similarities with the Keynesian multiplier framework, where changes in exogenous variables in final demand can influence increased output across all sectors. For example, economic policies such as investment can be allocated to all sectors or specific sectors. Despite the equal amount, the resulting impacts will differ due to the varying strength and interconnections of each sector. In this study, the impacts calculated are on economic output and employment absorption.



Economic Impact Simulation

To measure the impact of the construction of captive coal-fired power plants in KIHI, this study employs several simulations, namely:



1 In the first two years, there is an additional capital in the form of direct investment in the construction of the captive coal-fired power plants amounting to Rp952 billion and US\$603 million. However, there are negative impacts caused by the construction of the coal-fired power plants in KIHI, North Kalimantan. There are two negative impacts: a decrease in productivity in plantations due to land conversion and a decrease in fisheries productivity due to pollution from the power plants and disruptions in fishing routes for fishermen and coastal areas.



2 From 2025 to 2050, there is also a decrease in fisheries and forestry productivity due to coal mining activities as the energy source for the power plants in KIHI.

3 From 2025 to 2032, coal usage doesn't show a decrease as the capacity of the power plants is still full. From 2033 to 2050, reflecting global trends, there is a decrease in power plant capacity which reduces coal consumption by 13% annually⁶⁹.

Economic Losses Due to The KIHI CFPP



Indicator	Unit	Result
Output	Trillion Rupiah	(3.93)
Indicator	Unit	Result
Value Added	Trillion Rupiah	(3.82)
Indicator	Unit	Result
Labor's Income	Trillion Rupiah	(2.16)
Indicator	Unit	Result
Businessman's Income	Trillion Rupiah	(1.52)
Indicator	Unit	Result
Household's Income	Trillion Rupiah	(3.68)
Indicator	Unit	Result
Workforce Reduction	Per Thousand Workers	(66)

Source: CELIOS, 2023

* (..) Sign: indicating reduction

The results of the simulation modelling conducted by CELIOS indicate that the presence of investment in the construction of a coal-fired power plant in KIHl brings about negative impacts, including a decrease in marine quality and a reduction in the amount of plantation land used for the construction of the power plant and its supporting infrastructure. In the case of the coal-fired power plant development in KIHl, North Kalimantan, the negative impact results in a direct and indirect reduction in economic output by Rp3.93 trillion. This impact stems from the decreased production in fisheries and plantations due to the construction of the power plant.

Furthermore, the added value to the economy also experiences a decline of Rp3.82 trillion, and the community's income diminishes by Rp3.68 trillion. The most substantial income reduction is suffered by the workforce. Additionally, there is a reduction of 66 thousand job opportunities, directly impacting individuals such as fishermen and plantation workers, due to the pollution caused by the coal-fired power plant. Workers in non-coal power plant sectors negatively affected by the development and operation of the power plant are compelled to lose their income and, in some cases, switch to different professions.

Sectoral Impact of CFPP Development on North Kalimantan Macroeconomic Indicators

Sector	Output (In Million Rupiah)
Annual and Seasonal Plantations	(2,771,814)
Farming	(1,391)
Agricultural and Hunting Services	(9,976)
Fishery	(51,538)
Oil, Gas and Geothermal Mining	1,575
Coal and Lignite Mining	1,073
Metal Ore Mining	4,232
Mining and Other Quarrying	742,701
Chemical, Pharmaceutical and Traditional Medicine Industries	(187)
Other Processing Industries, Machinery and Equipment Repair and Installation Services	(291)
Electricity	4,445
Insurance and Pension Funds	(171)
Other Financial Services	2,275
Financial Support Services	(5,897)
Real Estate	91

Source: CELIOS 2023

* (..) Sign: indicating reduction

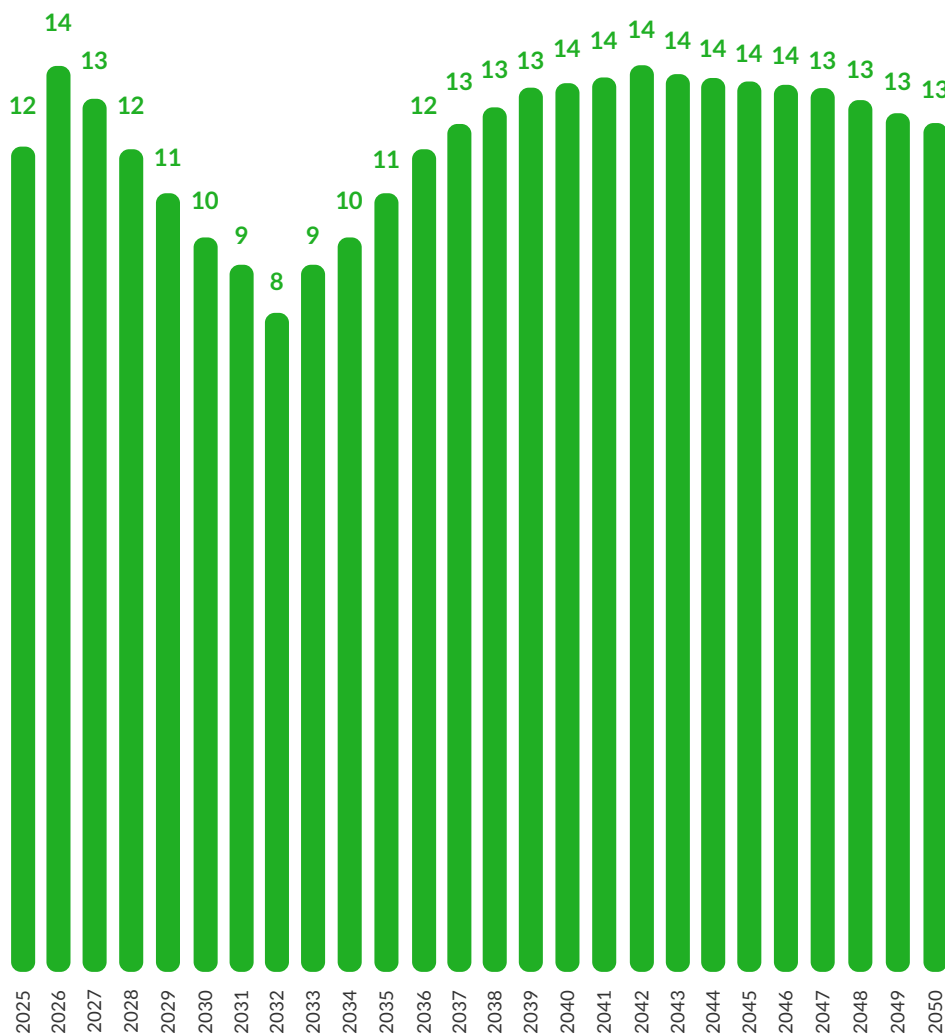
Long-Term Economic Impact of Operational Coal-Fired Power Plant in KIHI, North Kalimantan

The adverse long-term impact of the KIHI coal-fired power plant is manifested in the income of agricultural sector workers in North Kalimantan, which experiences a significant decline after 15 years of the plant's operation. In the 15th year, farmers' income in North Kalimantan can decrease by up to Rp30.8 billion due to the environmental damage caused by the coal-based operational activities of the power plant. In the medium term, there is an additional significant reduction in income of around Rp97 billion

over a span of 8 years, reducing to approximately Rp2.6 billion.

The income of communities relying on forest resources is the group most negatively impacted by the operational activities of the power plant. Their income loss reaches Rp13 trillion in the long term. The exploitation of forests for coal mining is a primary driver of income reduction for workers in the forestry sector in North Kalimantan.

Reduction in Workers' Income in Forestry Sector in North Kalimantan (In IDR trillion)



Source: CELIOS 2023

b. Environmental Impact

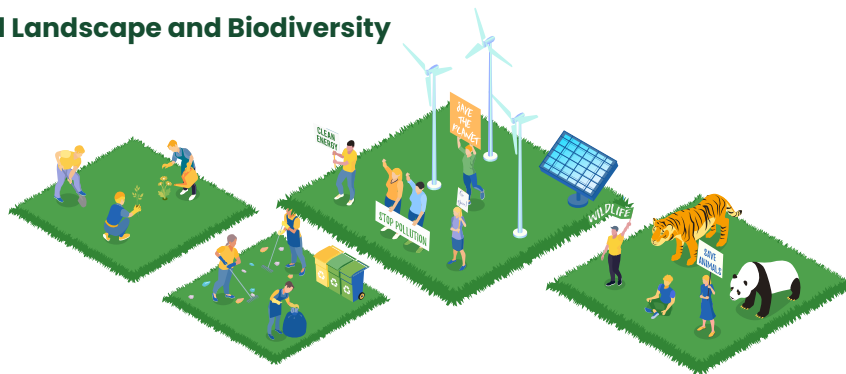
The development of large-scale industrial projects and the operation of a captive coal-fired power plant lead to the loss of ecological spaces and ecological niche, disrupting their function in supporting the balance of interactions between living organisms and their external environment. Coastal areas, seas, and river basins that have long supported the lives of many organisms within an ecosystem will experience disturbances.

In the realm of human society, this ecological balance is a crucial prerequisite for sustaining various social, economic, cultural, and any other activities. As a result, the conditions of abiotic factors—encompassing soil, air, temperature, humidity, and other

elements—intertwine with the sustainability of living organisms within its ecosystem. Hence, it seems impossible to isolate impacts due to the inherent interconnectedness among the components. The categorization provided below aims to facilitate the understanding of the landscape.

Therefore, we attempt to merge field observations and literature based on a comparative study of several other existing coal-fired power plants to illustrate the estimated multi-sectoral impacts that will arise. Below, we will attempt to unpack some major environmental impacts that can be discerned at this time.

1. Natural Landscape and Biodiversity



Based on data from the Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber Daya Mineral – ESDM)⁷⁰ and the Ministry of Environment and Forestry (Kementerian Lingkungan Hidup – KLH)⁷¹, the North Kalimantan region consists of a significant portion of forested areas, covering 79.49% or 5,494,781 hectares of the province's land area. This includes 47% of the area designated as production forests, which encompasses permanent production forests, limited production forests, and converted forests, spanning a total of 3,211,972 hectares. Furthermore, protected forests cover an area of 1,010,703 hectares (15%), while the conservation forests within Taman Kayan

Mentarang make up 1,272,105 hectares (18%). North Kalimantan also features a diverse mangrove ecosystem in the Delta Sungai Kayan-Sembakung area.

Specifically, within the industrial project site of Kawasan Industri Tanah Kuning, the land use comprises 1,199.63 hectares (12.5%) of secondary dryland forest, 142.801 hectares (1.4%) of secondary mangrove forest, 1,646.169 hectares (17.2%) of plantations, 1,359.052 hectares (14.2%) of swamp shrubland, 2,466.182 hectares (25.8%) of mixed dry land agriculture, 2,155.951 hectares (17.2%) of shrubland, and other natural landscape types⁷².

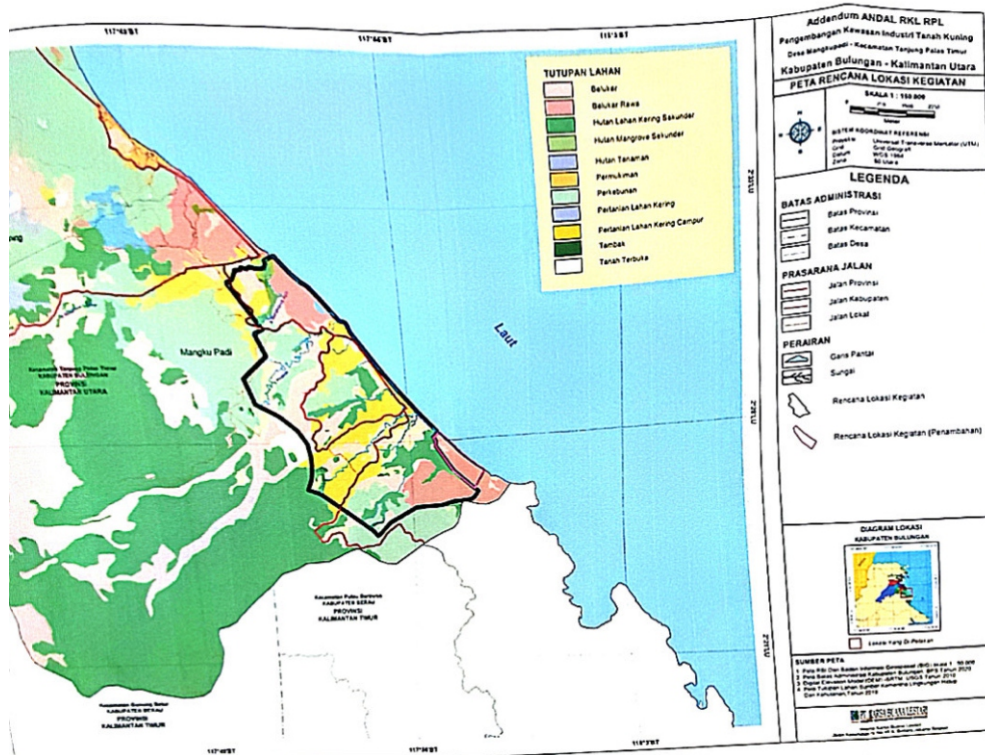
⁷⁰ North Kalimantan Provincial Energy and Mineral Resources Office, "KIPI Tanah Kuning Jadi Role Model Ekonomi Hijau" (<https://desdm.kaltaraprov.go.id/berita/kipi-tanah-kuning-jadi-role-model-ekonomi-hijau.html>, accessed on March 11 2023, 20:23)

⁷¹ Ministry of Environment and Forestry of the Republic of Indonesia, "Sekjen KLHK Paparkan Strategi Pembangunan North Kalimantan Berkelanjutan" (https://www.menlhk.go.id/site/single_post/4917, accessed on March 11 2023, 20:41)

⁷² Listed in the ANDAL Addendum document from PT KIPI, which will be published in 2022.

Moreover, with the proposed expansion of KIH to up to 30,000 hectares, it is clear that a more extensive range of natural landscapes will be affected.

Image of the planned location map for the Tanah Kuning Industrial Area



Source: Addendum Document of KIPI Tanah Kuning 2022 Environmental Impact Assessment

Considering the various natural structures that shape the landscape of North Kalimantan, the construction of coal-fired power plants (CFPP) specifically, or the KIH project in general, will lead to the loss of various vegetation types, including mangroves. However, the mangrove vegetation along the coast plays a crucial role in carbon absorption and storage, particularly in its sediment accumulation.

Under normal conditions, it is observed that the levels of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) in river bodies already exceed water quality standards⁷³. This is primarily due to rivers being used as direct dumping sites for household waste and waste from palm oil plantations, which often contains a mixture of artificial chemical

fertilizers. The presence of mangrove stands at the estuary allows solid particles carried by the river flow to settle, resulting in reduced residual pollutants in the runoff water flowing into the coast.









The ability to absorb a relatively large amount of carbon over an extended period is related to the climate change mitigation capacity. Mangrove sediments are capable of storing more than 50% of the carbon within coastal ecosystems⁷⁴. However, the mangrove ecosystem's function in mitigating climate change will decline due to deforestation and land conversion within project areas.

Furthermore, the construction of wave breaker boulders intended to protect the coastal area where the CFPP is planned to be built will alter the wave patterns. Together with the loss of

mangrove cover, this will substantially increase the potential for coastal erosion. Ultimately, the erosion process leads to a reduction in land area, causing various forms of extensive environmental damage and degradation.

The alteration of vegetation along riverbanks, coasts, and inland areas at the project site will also remove a vital food source for many herbivore species. This disruption will disturb the intricate balance of the food chain. There is a serious threat of a food crisis looming over the lives of those living around Bulungan area.

Table of Identified Animal in the Tanah Kuning KIPI Project Area

<p>Species Bald Eagle (<i>Haliaeetus indus</i>)</p>  <p>Conservation Status Protected</p>	<p>Species Green Turtle (<i>Chelonia mydas</i>)</p>  <p>Conservation Status Endangered</p>
<p>Species Javan Coucal (<i>Centropus nigrorufus</i>)</p>  <p>Conservation Status Vulnerable</p>	<p>Species Hawksbill Turtle (<i>Eretmochelys imbricata</i>)</p>  <p>Conservation Status Critically endangered</p>
<p>Species Long tail monkey (<i>Macaca fascicularis</i>)</p>  <p>Conservation Status Vulnerable</p>	<p>Species Whale Shark (<i>Orcinus orca</i>)</p>  <p>Conservation Status Vulnerable</p>

Source: Tanah Kuning KIPI Addendum 2022 (III-87)

From the field observations conducted by the CELIOS team, the terrain in the villages of Mangkupadi and Tanah Kuning is uneven and characterized by numerous mounds that are higher than the surrounding land. For the KIHI project's development, as outlined in the Environmental Impact Assessment (ANDAL) document, a cut and fill process will be employed to achieve level and smooth land. However, the changes don't stop there. The drilling and excavation required for constructing the CFPP boiler stack will also contribute to altering the existing land contours.

This process will strip away the topsoil layer rich in humus, consequently affecting its fertility. Additionally, it will modify the soil composition, influencing its permeability and its role in surface water infiltration. In summary, the disturbance of the natural land contours will impact the hydrological system that supports the life and livelihoods in the vicinity of the project area.

2. The Karst Ecosystem Landscape Support

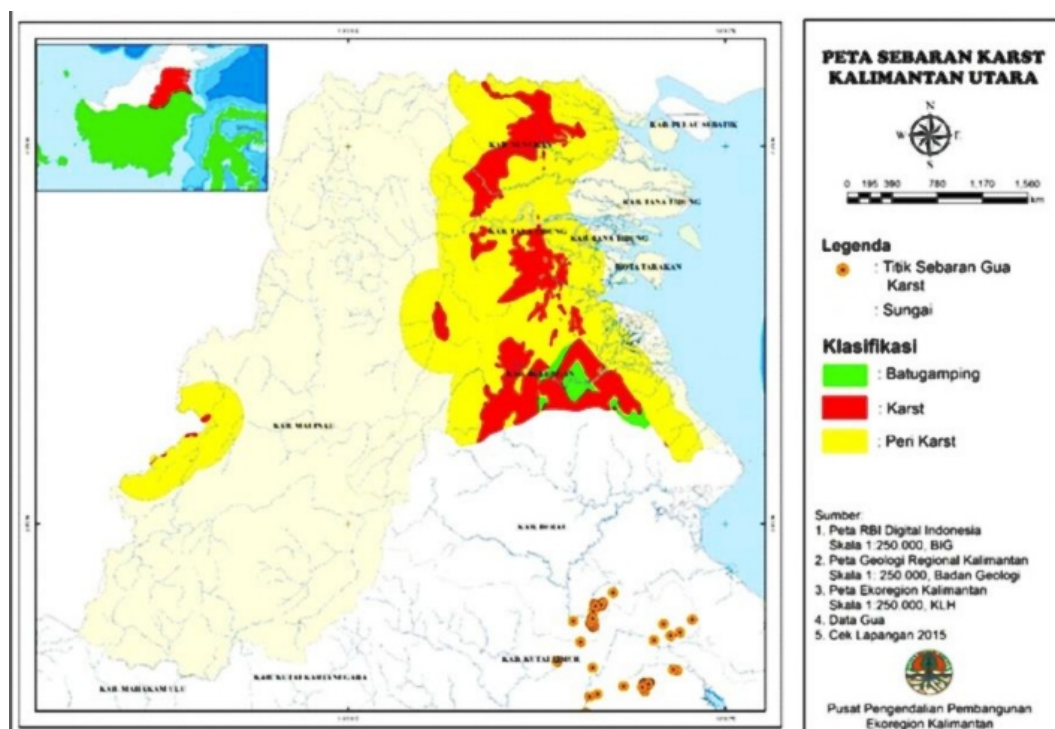


The area of karst landscapes in North Kalimantan reaches 536,103 hectares, with the largest extent found in Bulungan Regency, covering 312,851⁷⁵ hectares. Karst is an ecological system consisting of exokarst (surface karst conditions), endokarst (subsurface karst conditions), and perikarst (conditions outside exokarst and endokarst that influence the balance and stability of karst), where these three components have interrelated relationships. Damage to one component can disrupt the overall stability of the karst system.



From what we have observed from the KIHI master plan map in general, the industrial project area—ironically continually expanding—crosses through the perikarst area of Bulungan Regency, which is situated at a distance of 19 km from the exokarst and endokarst areas.

Map of North Kalimantan Karst Area



Source: P3EK Ministry of Environment and Forestry

The process of project development involving heavy machinery and blasting process, as well as the operational activities of the coal-fired power plant (CFPP), will contribute to massive air pollution with heat and fly ash emissions, also it will undoubtedly affect numerous biota in the surrounding area. Due to the disturbances caused by industrial activities and CFPP operations, the functions of these biota in providing ecological services will also be lost. For example, several species of herbivorous and insectivorous bats play a role in both pollination and seed dispersal for plants.

With the operational noise of the project and the pollution from the CFPP disrupting their ecological habitat, bat colonies will likely migrate from the karst caves in the area to karst caves in other regions. As a result, many plant species in the affected area will not receive the necessary pollination, leading to the extinction of certain tree species.

Further disturbances to bats and insect-eating birds can cause significant losses in agriculture and health in the perikarst region. Each individual bat in a colony can consume up to seven grams of insects, such as mosquitoes that are abundant in Borneo, or other insects that attack local crops, every night⁷⁶. Bats and insect-eating birds play a crucial role as natural insecticides.

The local community, relying on the ecological services provided by bats and insect-eating birds, will be directly impacted. This includes an increased risk of zoonotic diseases transmitted by insects, as well as the rising costs of agricultural production due to the need for more insecticides. Additionally, the environmental damage caused by pesticide pollution in soil and water ecosystems should also be considered.

Referring to the distribution map, there is a karst area to the northwest of the industrial project site. With higher land contours, water from underground karst caves flows towards the lower coastal area – the perikarst region. Karstification processes, involving the dissolution of rock minerals, also transport sediments to the coastal area. This sedimentation forms calcite rock formations with high permeability.

The damage to the calcite rock formation in the perikarst area of the KIIHI project site due to the cut and fill land process will inevitably disrupt the clean water supply for the local

residents. The majority of residents in Tanah Kuning and Mangkupadi villages rely on water from drilled wells for their daily needs. These drilled wells are typically around 60-100 metres deep.

Upon observation, there is evidence of calcification in the taps that deliver water from the drilled wells. This suggests a connection between the underground river in the karst area to the southwest and the groundwater. The deterioration of the calcite layer implies a loss of soil permeability function, which has the potential to contaminate the clean groundwater supplied from the karst area.

3. Aquatic Ecosystem Degradation



The construction of coal-fired power plants (CFPP) is commonly carried out in areas near water bodies, such as coastal regions or major rivers, to facilitate easy access to water for cooling systems and boiler feedwater. Additionally, considerations are made for the convenience of transporting coal, usually done by barges, which serves as the raw material. The steam generated from burning coal is used to drive steam turbines and electricity generators.

The proposed captive CFPP in KIIHI is also strategically located to meet the electricity demands of various industries within the region. The project's proximity to the coast and

its positioning along several major rivers are deemed advantageous for the development of the CFPP.

Based on the project area map included in the Environmental Impact Assessment (ANDAL) for Tanah Kuning, several river streams intersect the area, including Sungai Mangkupadi Tawar, Sungai Mangkupadi Asin, Sungai Pindada, Sungai Kataputan Besar, Sungai Kampung Baru, which are part of the Kerang-Segendang Watershed, along with other small rivers. These rivers fall under the category of perennial or permanent rivers, meaning their water flow remains relatively constant throughout the year⁷⁷.

The construction and operation of this CFPP will bring about changes to many aquatic landscapes, leading to the degradation of aquatic ecosystems. Alterations to the river's structure to accommodate the infrastructure for directing CFPP runoff will also involve the loss of natural river bends. These changes to the river's natural structure will impact the availability of suitable spawning grounds for various freshwater fish species, potentially leading to their extinction.

Another crucial impact can arise from the thermal pollution caused by the discharge of hot water or wastewater from the cooling system. The temperature of the wastewater from the coal-fired power plant's cooling system is much higher than the ambient water temperature, reaching up to 40°C⁷⁸. However, Minister of Environment Regulation No. 51 of 2004 regarding Sea Water Quality Standards for Marine Organisms has already established that the ideal temperature range for coral and seagrass ecosystems should not exceed 28-30°C, while mangrove ecosystems should not exceed 28-32°C. Additionally, Government Regulation No. 22 of 2021 regarding Sea Water Quality Standards also specifies that the increase in sea water temperature due to thermal waste should not exceed 2°C from its original environmental temperature.

The average use of cooling water for each megawatt of electricity generated from a coal-fired power plant requires about 45-55 cubic metres per second⁷⁹. Based on this calculation scheme, the proposed captive CFPP KIH with a total capacity of 1.1 gigawatts would need a cooling water supply of 49,500-60,500 cubic metres per second. There will be two possible scenarios: the hot water may be directly discharged into water bodies without cooling

or it could be temporarily stored in ponds until its temperature decreases.

When the hot water, which is thermal waste, enters the water body, it leads to a significant increase in water temperature. This heat transport disrupts the heat balance at the water's surface and within the body of water. Chemically, the temperature rise affects the speed of chemical reactions.

The reaction rate will approximately double for every 10°C increase, and sedimentation increases due to changes in water properties, flocculation, and ion exchange. Many reactions affecting water quality are biochemical reactions occurring around areas of microbial activity⁸⁰. The temperature increase affects the concentration of dissolved oxygen, which in turn affects metabolism, reproduction, lifespan, and hinders the growth of aquatic ecosystems.

The construction of cooling ponds has proven to be ineffective in reducing the risk of damage to water bodies. Based on a comparison with the Teluk Sepang Power Plant, the design of cooling ponds, usually built on the coastal edge, is believed to actually increase the rate of erosion. The pond's structure, made of rock formations (riprap), obstructs the movement of sea currents, disrupting sediment stability and leading to a severe increase in erosion rates along the pond's edges⁸¹. Not to mention the potential risk of the cooling pond rupturing, which would result in the direct release of high-temperature water into the water body.

78 Nurjaya, I.W. & Surbakti, H. (2010). *Model Dispersi Bahang Hasil Buangan Air Proses Pendinginan PLTGU Cilegon CCPP ke Perairan Pantai Margasari di Sisi Barat Teluk Banten*. E-Jurnal Ilmu dan Teknologi Kelautan Tropis, DITK-IPB. 2(1): 31-49.

79 Fudlailah Mukhtasor, Zikra, M., *Pemodelan Penyebaran Limbah Panas di Wilayah Pesisir (Studi Kasus Outfall PLTU Paiton* from <http://digilib.its.ac.id/public/ITS-paper31211-4309100011-paper.pdf> (viewed 10 January, 2017).

80 Asfaq S.M. Thermal Dispersion Model for Cooling Water of Thermal Power Plant System. *International Journal of Current Engineering and Technology* 5(4), August 2015. INPRESSCO. (p.2472-2477)

81 Kanopi Hijau Indonesia, "Kolam Pembuangan Limbah Air Bahang PLTU Teluk Sepang Jebol, Terbukti Abal-abal" (<https://kanopihijauindonesia.or.id/kolam-pembuangan-limbah-air-bahang-pltu-teluk-sepang-jebol-terbukti-abal-abal/>), diakses pada 7 April 2023, 17:44).

Findings from the Australian Financial Review reveal⁸² that the coastal landscape of North Kalimantan features shallowness extending up to four kilometres from the shoreline. Considering this characteristic, the construction of jetty harbours for the movement of coal-carrying barges (and other industrial raw materials) would necessitate dredging. The construction of cooling ponds along the coastal area and the dredging of the sea combined would significantly increase the rate of coastal erosion. This, undoubtedly, would damage the existing coral reef ecosystem. However, as we all know, coral reefs are homes to various types of fish and other marine organisms. Within them, a closely intertwined symbiosis exists among species.


With the degradation of the coral reef ecosystem due to dredging, many coral reef fish species will disappear. Fishermen from the villages of Mangkupadi, Tanah Kuning, and Binai, who rely on marine catches for their livelihoods, will be directly affected. Not only will the quantity of their catches decrease significantly, but fishermen will also have to venture farther out to sea. Consequently, this will increase the production burden, such as the need for more fuel for fishing vessels and extended fishing durations.



82

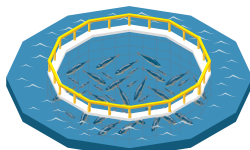
Emma Connors, "Australia Could Lose \$196b Chance as China Muscles In on Green Power" (<https://www.afr.com/world/asia/australia-could-lose-196b-chance-as-china-muscles-in-on-green-power-20230221>, diakses pada 15 Mei 2023, 17:38).

Table of Fishery Production Results in North Kalimantan



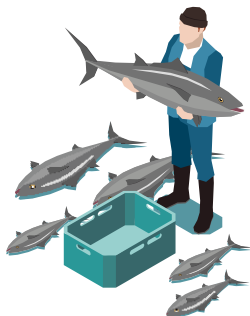
Sea Capture Fisheries

Capture Fisheries Production (Tons)								
Regency/City Malinau				Regency/City Nunukan				
2018	2019	2020		2018	2019	2020		
-	-	-		4.795	3.609	4.141		
Regency/City Bulungan				Regency/City Tarakan				
2018	2019	2020		2018	2019	2020		
6.642	6.780	6.974		19.890	23.704	13.430		
Regency/City Tana Tidung				Total				
2018	2019	2020		2018	2019	2020		
849	757	685		32.175	34.850	25.230		



General Water Fisheries

Regency/City Malinau				Regency/City Nunukan				
2018	2019	2020		2018	2019	2020		
102	94	96		99	129	110		
Regency/City Bulungan				Regency/City Tarakan				
2018	2019	2020		2018	2019	2020		
238	177	178		-	-	-		
Regency/City Tana Tidung				Total				
2018	2019	2020		2018	2019	2020		
217	185	191		686	585	574		



Capture Fisheries

Regency/City Malinau				Regency/City Nunukan				
2018	2019	2020		2018	2019	2020		
102	94	96		4.893	3.739	4.251		
Regency/City Bulungan				Regency/City Tarakan				
2018	2019	2020		2018	2019	2020		
6.881	6.956	7.151		19.890	23.704	13.430		
Regency/City Tana Tidung				Total				
2018	2019	2020		2018	2019	2020		
1.065	941	876		32.831	35.435	25.804		

Source: Ministry of Maritime Affairs and Fisheries accessed from BPS North Kalimantan⁸³

Considering this data, the marine and fisheries sector is one of the crucial economic sectors for North Kalimantan. Kabupaten Bulungan itself is the second-highest fishing catch area in the province, following Tarakan. The high production of fishing catches supports the local economy, even during the COVID-19 pandemic. The Department of Marine Affairs and Fisheries (DKP) states that the contribution of the marine and fisheries sector to the regional gross domestic product (PDRB) of North Kalimantan has been consistently increasing since 2008, with an average growth rate of 10-15% per year. This makes the sector a prime driver of North Kalimantan's economic development.

On the other hand, the transportation process, potential coal spillage, fuel leakage from barges, fire hazards, and the waves generated by the movement of barges will have an impact on the habitats of fish and turtles. This is particularly concerning considering that in the Addendum to the Environmental Impact Assessment (ANDAL) in 2022, it is explicitly mentioned that the coast of North Kalimantan has been designated as a Sustainable Fisheries Zone (KKP-ZPB) and a conservation zone due to its significance as a passage for green turtles (*Chelonia mydas*), hawksbill turtles (*Eretmochelys imbricata*), and orcas (*Orcinus orca*). Additionally, the International Union for Conservation of Nature (IUCN) has categorized hawksbill turtles as critically endangered, while green turtles are classified as endangered species.

Due to the narrowing of the coastline caused by erosion, coupled with intense industrial activities, turtles are losing their nesting grounds. Disruption of the nesting process is equivalent to a decline in the population, which further adds to the vulnerability status of turtle species.

Summing up the aforementioned impacts; the pollution from hot wastewater, seabed dredging, potential coral reef damage, coastal erosion, and the transportation of coal collectively form a recipe that steers the coastal life of North Kalimantan towards an ecological disaster.



With a capacity of 1.1 gigawatts, the coal requirement to supply the captive PLTU KIH reaches 3.85 million tons per year. Using a 300-foot barge with a maximum capacity of 8,000 tons of coal per trip, this requirement could be met with a minimum of 482 round-trip transports from the mine to the Coal Preparation Plant (CPP) site.



4. Air Pollution



In addition to generating heat pollution, the operational activities of a coal-fired power plant (CFPP) also emit carbon emissions and ash resulting from the combustion of coal, significantly contributing to the deterioration of ambient air quality within a certain radius. The residual materials from the coal combustion process are classified into two categories based on their characteristics and particle mass: fly ash and bottom ash (FABA). Fly ash has smaller particle size and lighter particle mass compared to bottom ash, making it easily carried by the wind when released from the combustion stack, while bottom ash tends to settle.

Based on the findings in related areas, from various coal-fired power plants, fly ash is suspected to be a major contributor to the

increase in respiratory problems experienced by the local communities. The project's proximity to residential areas, coupled with the landscape's low dominance of tall trees, will increase the potential dispersion of fly ash, which in turn raises the incidence of respiratory illnesses. Referring to the accumulation of wind speed and direction data from BMKG Kabupaten Bulungan for the years 2011-2020, during the months of July to September, the wind tends to blow towards the southwest direction⁸⁴. It means that the wind patterns indicate that airborne ash pollution would be directly transported to the areas where people reside and conduct their daily activities.

Data Table of Acute Respiratory Infection (ARI) for Bulungan Regency

Pulmonary Tuberculosis

361
2019

128
2021

114
2020

251
2022

Pneumonia

164
2019

74
2021

0
2020

421
2022

Source: BPS (Central Statistics Agency) Data of North Kalimantan

84

It is stated in the ANDAL document along with the addendum from PT KIPI, which will be issued in 2022, specifically written in the chapter 'Description of Environmental Baseline' (III-31).

Based on the detailed air quality and health impact modelling conducted by CREA (Center of Research on Energy and Clean Air), it is indicated that the emissions of pollutants from operational coal-fired power plants in Indonesia in 2022 are responsible for approximately 10,500 deaths due to air pollution exposure (95% CI: 65,000-16,400) and a healthcare cost burden of US\$7.4 billion⁸⁵. The findings are consistent with the data on Acute Respiratory Infections (ARI) from the North Kalimantan Central Bureau of Statistics (BPS), which indicates a surge in pneumonia cases among infants in the Bulungan Regency in 2022. It is noteworthy that during that year, the land clearing and construction processes for the KIIHI mega-project in the Bulungan Regency were initiated⁸⁶.

With the national increase in coal-fired power plant capacity from 45 GW to 63 GW – expected to peak by 2028 – there will be a projected increase in deaths due to air pollution exposure to 16,600 per year (CI 95%: 10,300-25,900), along with healthcare costs amounting to US\$11.8 billion annually. In the context of North Kalimantan, these mortality figures could potentially rise due to the additional challenge posed by limited healthcare services. In the Bulungan Regency, which is the central location for the KIIHI project, there is only one general hospital and 12 sub-district health centres available as of 2022.

If we want to take a leisurely stroll around the Tanah Kuning Village to Mangkupadi, we will commonly find houses owned by residents that are used for swiftlet farming. Swiftlet farming, involving the *Collocalia vestita* species, is one of the economic supports for the surrounding community. Swiftlet farming is ideally carried out away from crowded areas and requires a temperature ranging between 24°C-26°C, considering the natural habitat of this species.

The operational activities of industries and the coal-fired power plant, resulting in heat emissions and ash from their smokestacks, pose a distinct threat to swiftlet farming. The intensive disruptions caused by air pollution, exacerbated by the scarcity of food sources due to drastic environmental changes, can induce stress in swiftlets. This, in turn, hampers their reproductive processes and nest production. In the most severe cases, these disturbances prompt swiftlets to seek more optimal environments by migrating.

Furthermore, the presence of fly ash has implications for the diminishing quality of cultivated crops within the community. In the vicinity of the research area, many residents depend on cultivating crops such as pepper, chilli, and various other agricultural commodities for their livelihoods. Coupled with high emissions of sulphur dioxide (SO₂ and SO₃) and nitrogen oxides (NO and NO₂) during operational processes, this contributes to the occurrence of acid rain.



85

CREA and IESR. Manfaat Kesehatan dari Transisi Energi Berkeadilan dan Penghentian Bertahap Batubara di Indonesia. Accessed online through <https://iesr.or.id/> on July 16, 2023.

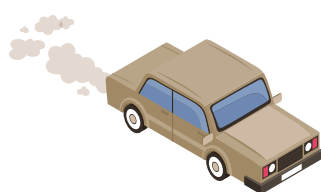
86

North Kalimantan Central Statistics Agency, "Jumlah Kasus Penyakit 2022" (<https://kaltara.bps.go.id/indikator/30/107/1/jumlah-kasus-penyakit.html> accessed on June 18, 2023, 11:50).

Rainwater becomes acidic upon contact with plants directly or upon accumulation in the soil, resulting in the depletion of various macro and micronutrients. However, these nutrients are crucial for plant growth, and their removal leads to nutrient deficiencies and soil infertility. This phenomenon is evident in the yellowing patches observed on tobacco plants

near the Paiton coal-fired power plant or on coconut leaves within the vicinity of the Celukan Bawang power plant. This poses a significant issue, particularly since derivative regulations of the Job Creation Law classify FABA waste as a B3 category substance (hazardous and toxic material).

Carbon Emission Data in the Project Construction Process



Parameter

SO₂

Air Quality Data (µg/Nm₃)

No Activities	With Activities	Hue Change
27	551,86	484,86

Quality Standards (µg/Nm₃)

75



Parameter

NO₂

Air Quality Data (µg/Nm₃)

No Activities	With Activities	Hue Change
21	22,01	1,01

Quality Standards (µg/Nm₃)

65



Parameter

CO

Air Quality Data (µg/Nm₃)

No Activities	With Activities	Hue Change
845	859,98	14,98

Quality Standards (µg/Nm₃)

4.000



Parameter

PM₁₀

Air Quality Data (µg/Nm₃)

No Activities	With Activities	Hue Change
37	45,56	8,56

Quality Standards (µg/Nm₃)

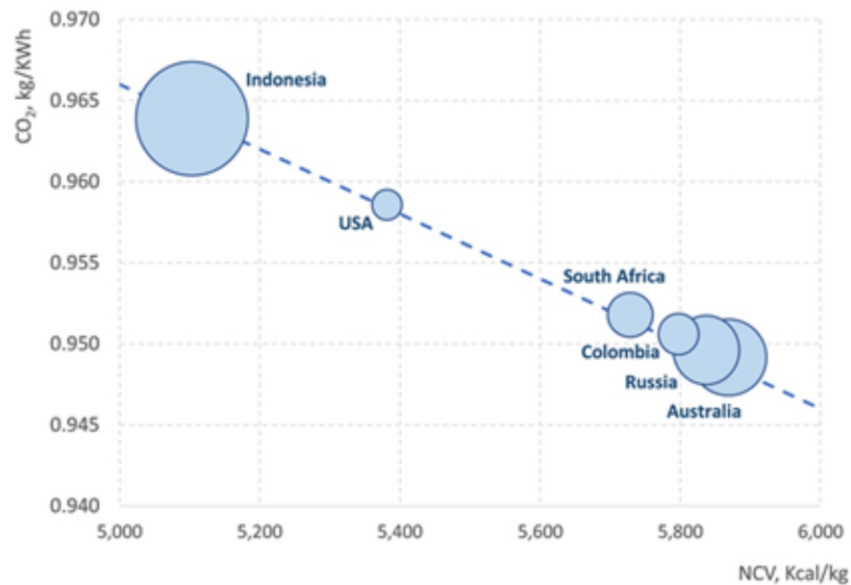
75

Source: Addendum to Environmental Impact Assessment (ANDAL) KIPI Tanah Kuning 2021 (see page V-38)

The calculations of SO₂ gas emissions during the construction process from the movement of project vehicles have already shown significant deviations above the set standards.

Therefore, it can be anticipated that the operation of the captive coal-fired power plant supporting the KIH industrial activities will exacerbate the emissions of acidic gases.

Comparison of CO₂ Emissions per KWh from Several Coal Exporting Countries



Source: Coaltrans Conferences

Based on the comparison graph of CO₂ emissions, it can be observed that Indonesian coal, with an export rate of over 440 million tons, is the type of coal with the highest emissions level, often referred to as the 'dirtiest' in the international market.



C. Social Cultural Impact

Demographically, the areas around Desa Tanah Kuning, Mangkupadi, and Binai, which will be the project's location, consist of communities from various ethnicities. Among them, observed ethnic groups include the Dayak Kenyah, Punan, Tidung, Bugis, Tana Toraja, Javanese, and Bajau/Bajo people. The socio-cultural multi-ethnic aspect that shapes the communities around Bulungan can be seen through the diversity of social structures, languages, and livelihood systems.

Due to this diversity, each ethnic group has specific socio-cultural characteristics that guide them into particular social niches. For instance, this can be observed in the coastal areas. In the coastal regions, the majority of the population consists of the Bugis ethnic group, many of whom migrated from Makassar or Bone. This is linked to the tradition of migration and the maritime culture that is part of Bugis culture. Many of those who currently inhabit the coastal areas of North Kalimantan are second-generation migrants from South Sulawesi. It's not surprising that their professions are linked to the maritime sector (fishermen) and trade.

The coastal areas of North Kalimantan are also inhabited by the Bajau/Bajo community. The close connection of the Bajo people with the sea and the coast enables them to possess various local knowledge about natural phenomena that guide their activities at sea. The ocean is their source of life (*panamamie ma di lao*). They hold the principle of "*pinde kulitang kadare, bone pinde sama kadare*," which translates to moving the Bajo people to the land is akin to moving turtles to the land – in other words, it's taking away their life and livelihood⁸⁷.

On the other hand, the Dayak people are predominantly found in the forested areas around the major rivers. The Dayak community, in general, holds a strong cultural attachment to the forest. Uluk et al. (2001) elucidate this attachment in relation to how the Dayak people use the forest as a place to pass down their traditional knowledge from one generation to another. Within the forest, Dayak elders teach their children various hunting techniques such as "*berburu*" (hunting), "*ngasu*" (hunting with dogs), "*ngeduk*" (imitating monkey hunting techniques), "*meleput*" or "*nyumpit*" (shooting with a blowpipe), "*menjala*" (fishing with nets), and setting up fishing traps to sustain and fulfil their livelihood needs. The forest and rivers are central cultural elements in their way of life⁸⁸.

The Dayak people have customary laws to protect "*tana' ulen*," which refers to the sacred forests that must be preserved. This is intended to safeguard the forests from land clearing processes for agricultural purposes. Given the strong connection, it is understandable that the values and social status of the Dayak tribe are deeply rooted in elements found within the forest.

The demographic structure and its characteristics mentioned above reflect the culture of each tribe as an expression of their relationship with nature and the environment. Therefore, issues related to land, territory, and access to natural resources are of paramount importance in the rights of local communities. With the development of the KIIHI mega-project, the previously complex social structure will be disrupted due to drastic changes.

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Yohanes K. Aryanto. 'Bapongka: Sistem Budaya Suku Bajo dalam Menjaga Kelestarian Sumber Daya Pesisir'. Sabda Volume 12, Nomor 1, Juni 2017. Accessed on May 30, 2023, 21:53.

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Uluk Asung, Made Sudana, Eva Wollenberg. (2001). Ketergantungan Masyarakat Dayak Terhadap Hutan di Sekitar taman Nasional Kayan Mentarang. Center of International Forestry Research (CIFOR). Bogor: Indonesia.

The development agenda, if it ignores the diverse cultural identities, is exploitative, and is imposed top-down, not only marginalizes existing local community participation, but also dismantles their way of life. They are forced to move away from the natural environment that sustains them, abandoning their traditional way of life in favor of a more market-oriented society⁸⁹.

The development of the integrated captive coal-fired power plant (CFPP) within the KIH project has led to the degradation of aquatic ecosystems, pollution of river bodies, and the destruction of agricultural and plantation lands, resulting in difficulties for the surrounding communities to earn a livelihood. The deterioration of coral reef ecosystems due to dredging, the constant movement of coal-carrying barges, and the contamination from heated discharge water directly impacts the marine catch that sustains the livelihoods of local fishermen.

In the end, as marine resources no longer suffice to sustain their livelihoods, fishermen are faced with the choice of transitioning to informal employment in the CFPP/KIH project or relocating from the coastal areas. The migration of those who once resided along the coast to inland areas subjects them to the risks of unemployment and food self-sufficiency challenges.

Comparative studies in the Chittagong Hill Tracts (CHT) of Bangladesh due to the construction of hydropower projects have clearly shown that the forced migration of complex populations results in a drastic transformation of socio-demographic structures. This transformation is reflected in significant changes in the ethnic and religious affiliation composition of the population, as well as related shifts in social and political relations among ethnic groups⁹⁰.

The consequence is the emergence of social tensions and conflicts within the community, coupled with a high degree of social envy between the "native residents" and the "migrant population." This phenomenon occurs due to the competition for ownership of resources, social status, and power, where the limited availability of these resources is unevenly distributed in the society⁹¹. The disparity in social assets and access to resource management within the community leads to structural poverty among those who lack access to these resources.

This exploitative development not only results in deforestation, pollution, and the destruction of local water sources and agricultural systems, but also the phenomenon of land grabbing in the name of national development constitutes a form of genocide, as it affects the "capability of the environment to sustain life."⁹² Too much is being forced to disappear due to the loss of habitus (local culture), local capital assets (land, livestock, plants), living space, livelihood sources, and social structures. Therefore, it can be said that this is akin to the systematic destruction of indigenous communities and fishing communities by oligarchs through mega-projects.



⁸⁹ Rassela Malinda. (2021). *Mama Ke Hutan*. Jakarta: Yayasan Pusaka Bentala Rakyat.

⁹⁰ Quasem, S. (2012). Forced migration, land grabbing and ethnic conflict: Demographic and socio-economic transformation of the Chittagong Hill Tracts of Bangladesh. An interview with Dr Shapan Adnan. *The South Asianist Journal*, 1(1), accessed on May 30, 2023, 23:05.

⁹¹ Elly M, Setiadi dan Usman Kolip. (2011). *Pengantar Sosiologi*. Jakarta: Kencana.

⁹² John E. Mc Donnell, 'The Merauke Integrated Food and Energy Estate (MIFEE): An Ecologically Induced Genocide of the Malind Anim'. *Journal of Genocide Research*, Volume 23 tahun 2021, (p.257-278). (<https://www.tandfonline.com/doi/abs/10.1080/14623528.2020.1799593?journalCode=cjgr20> accessed on May 29 2023, 22:42).

Summary Table of Coal Power Impact



Ecological Aspects

- Significant land contour changes that lead to potential flooding due to runoff water
- Loss of biodiversity
- Threat of food crisis
- Increased potential for coastal erosion
- Salt/sea water intrusion into residents' wells
- Disruption to the North Kalimantan karst support system (perikarst) which is related to the hydrological system supporting the community's clean water needs
- Respiratory problems for local communities due to fly ash from the coal power plant chimney



Socio-Cultural Aspects

- Potential for horizontal conflict due to the forced-migration process of residents evicted by the KIH project
- Impoverishment (structural) of the community around the project area



Economic Aspect

- Reducing the quantity of marine catches
- The decline in people's income in the seasonal and annual plantation sector, livestock, fisheries, financial support services and several other sectors.
- North Kalimantan's agricultural sector decreased to IDR 30.8 billion
- Decrease in income for forestry sector workers by up to IDR 13 trillion

Considering the description of estimated impacts, it can be seen that the inner components have a closely intertwined relationship. This means that the disruption impact on one component will accumulate with the disruption impact on other components. This accumulation leads to a massive socio-ecological disaster that threatens various forms of life in the North Kalimantan region.

Similarly, the analysis of the coal-fired power plant's impact cannot be viewed in isolation. As an endeavour to destroy living spaces in order to fulfil ambitions of downstream

industrialization, it leaves a trail of ecological destruction from upstream to downstream; from extractive processes, production processes, to distribution. The raw materials that support industries in KIH are the result of mining that erodes the sustainability of other islands. The exodus of swallows that inhabit the karst caves around Bulungan not only causes disruption to the peri-karst in the project location but also to a much larger area. Therefore, a reading with limited temporal-spatial boundaries is insufficient (to put it euphemistically, it's 'inadequate') to accurately describe the accumulation of potential impacts that might occur.

Contradiction in Coal Power Plant Phase Out

The pace of new captive power plants, including CFPP, in Indonesia remains largely unhindered, except for the implementation of commitments related to climate change. Legally, the construction of new captive power plants, including CFPP, is still permitted in Indonesia and is not subject to cessation requirements under the JETP funding scheme.

These aspects are further reinforced by Presidential Regulation (PERPRES) Number 112 of 2022 concerning the Acceleration of Renewable Energy Development for Electricity Supply, Article 3 paragraph (4), and the EMBER report titled "JETP and Reflections on Indonesia's Electricity Sector Transition Ambitions."⁹³

"JETP indeed limits emissions from the electricity sector and acknowledges restrictions on captive power plants, including CFPP. However, this agreement does not tighten emission requirements for captive CFPP. Therefore, additional requirements to reduce coal emissions must be established as part of the JETP agreement in Indonesia,"

EMBER wrote in its report.

Indonesia must uphold its commitments by examining the approaches taken by other countries to avoid repeating the same contradictions. This is crucial, considering Indonesia's interest in achieving a net-zero emissions target by 2050 in the electricity

sector and by 2060 across all sectors. An important example is the case of CFPP closures in China, which unexpectedly led to environmental damage and social crises in Indonesia.



JETP is at risk of delaying because Government still allow new Captive Power Plant construction

Investment in industrial area power plants is the main obstacle to just energy transition funding commitments. The postponement of the Comprehensive Investment and Policy Plan (CIPP) of JETP is believed to be related to the change in the 2030 peak emission target from 290 MtCO_{2e} to 334 MtCO_{2e}. The massive development of captive power plants, especially in the mineral downstream areas, during the discussion of JETP commitments is clearly a contradiction. It is predicted that the addition of new industrial area power plant capacity will reach 13 GW.

If PLN and existing IPP power plants are retired gradually, but the construction of industrial area

power plants continues, then the emission reduction targets will keep getting delayed. Long-term issues will arise when businesses request a significant amount of funding for closing newly constructed industrial area power plants. This will pose a significant fiscal challenge and introduce new risks in terms of health and environmental costs borne by the public. Countries involved in energy transition funding commitments may lose interest in continuing discussions if permits for new industrial area power plants continue to be approved. If Indonesia wants to benefit from energy transition funding, there is no other way but to shut down both existing power plants and the issuance of permits for new ones.

Captive CFPP Closure in China

Starting with the intensified air pollution in Beijing, the Chinese government implemented a series of policies to close several coal-fired power plants and industries reliant on coal energy, including the aluminium smelting industry. These policies included the Three-Year Action Plan to Win the Battle for Blue Skies in 2018⁹⁴, the second phase of the Action Plan, and the 13th Five-Year Plan (2016-2020⁹⁵), which encompassed coal power plant energy efficiency and caps on aluminium production. "These policies forced the Chinese government to move its aluminium smelting plants further away from coal-fired power plant usage," stated Wood Mackenzie, a representative of a global energy consulting firm⁹⁶.

The dependence of the aluminium industry on coal-fired power plants has led to high air pollution and high carbon emissions. China's primary aluminium production resulted in 667 Mt of CO₂ emissions in 2020 – surpassing Indonesia's total emissions. Of this total, more than 75% originated from coal-fired electricity used for aluminium electrolysis, primarily from captive coal-fired power plants⁹⁷.

Wood Mackenzie, in its report, estimated that aluminium smelting in China generated an average of 12.36 tons of CO₂e (carbon dioxide equivalent) per ton of aluminium produced from coal-fired power plants in 2020⁹⁸. This figure is higher compared to the global average of 10.3 tons, according to the latest data covering the period from 2005 to 2019⁹⁹.

During the period of 2016-2020, the Chinese government planned to halt all construction of captive coal-fired power plants intended for aluminium smelting, with a total capacity of 11.2 GW, according to a report from the NDRC (National Development and Reform Commission) and NEA (National Energy Administration) as processed by Aluminium Insider¹⁰⁰. The Jinlian company in Mongolia had to halt the construction of a 1.52 GW captive coal-fired power plant, Hunan Chuangyuan around 0.99 GW, and Sichuan Qiya would stop working on an additional 0.72 GW. Additionally, Shandong Xinfu Aluminium Group was required to cease the development of a 1.98 GW plant¹⁰¹.

From the latest data, the Shandong Province, which serves as the largest aluminium production base in China, has closed down 2.5 GW of subcritical captive coal-fired power plant capacity used in the aluminium sector¹⁰².

- ⁹⁴ Shi, Q., Zheng, B., Zheng, Y. et al. (2022). Co-benefits of CO₂ emission reduction from China's clean air actions between 2013-2020. *Nat Commun* 13, 506. <https://doi.org/10.1038/s41467-022-32656-8>
- ⁹⁵ The 13th Five-Year Plan For Economic and Social Development of the People's Republic of China (2016-2020) dapat diakses secara online: <https://en.ndrc.gov.cn/policies/202105/P020210527785800103339.pdf>
The Electric Power Development Planning in 13th Five-Year (2016-2020). <https://www.gov.cn/xinwen/2016-12/22/5151549/files/696e98c57ecd49c289968ae2d77ed583.pdf>
- ⁹⁶ Lihat Wood Mackenzie. Carbon neutrality goal forces Chinese aluminium smelters away from captive coal power: <https://www.woodmac.com/press-releases/carbon-neutrality-goal-forces-chinese-aluminium-smelters-away-from-captive-coal-power/> Accessed on March 20, 2023
- ⁹⁷ Mui Yang. (2021). As aluminium surges in China, so do carbon emissions. EMBER. Diakses 20 Maret 2023 <https://ember-climate.org/insights/research/as-aluminium-surges-in-china-so-do-carbon-emissions/>
- ⁹⁸ Wood Mackenzie. Carbon neutrality goal forces Chinese aluminium smelters away from captive coal power: <https://www.woodmac.com/press-releases/carbon-neutrality-goal-forces-chinese-aluminium-smelters-away-from-captive-coal-power/> Accessed on March 20, 2023
- ⁹⁹ International Aluminium. GHG Emissions Data for the Aluminium Sector (2005-2019) <https://international-aluminium.org/resource/ghg-emissions-data-for-the-aluminium-sector-2005-2019/> Accessed on march 20, 2023
- ¹⁰⁰ Aluminium Insider; China Shuttters 11.2 GW of Captive Coal Power at Aluminium Smelters <https://aluminiuminsider.com/china-shuttters-11-2-gw-captive-coal-power> Accessed on March 20, 2023
- ¹⁰¹ Aluminium Insider, *ibid*.
- ¹⁰² Mui Yang. Op. Cit.

Asianews reports, citing financial media Yicai, that on March 9, 2022, the provincial governments of Hunan, Heilongjiang, Anhui, Shaanxi, Shanxi, Shandong, and Hubei had closed more than 90 coal-fired power plant units¹⁰³. As a result, several companies have relocated their factories to the southwestern regions of China, such as Yunnan, Guangxi, Qinghai, and Sichuan. These provinces have abundant electricity supply through renewable energy power plants.

During the period from 2013 to 2020, when the series of Action Plans and the 13th Five-Year Plan were implemented in China, not all aluminium smelting companies relocated their production from one region to another within China. For instance, Aluminium Corp of China (Chalco) closed down its aluminium plant in Shandong, which represented 5% of its total capacity, due to a shortage of electricity supply¹⁰⁴. On the other hand, China Hongqiao Group¹⁰⁵ and Shandong Nanshan¹⁰⁶, among others, partially relocated their aluminium production abroad, including to Indonesia.

According to Shi, Q. et al. (2022), the sequence of Action Plans in China generally succeeded in improving air quality in several regions of the country, with the additional benefit of reducing carbon emissions¹⁰⁷. The success was further solidified with President Xi

Jinping's announcement of climate commitments during the United Nations General Assembly in 2020, stating that China would reach its peak carbon emissions by 2030 and achieve carbon neutrality before 2060¹⁰⁸.

However, the success and declarations are only applicable on a national scale within China. Meanwhile, China has shifted the climate crisis to neighbouring countries that provide raw materials and have weaker regulations for social and environmental protection. Instead of extending its successes to its partner countries, China has adopted a dual stance by remaining indifferent to the social-ecological crises caused by its foreign investments.

The Chinese government intentionally encourages its domestic companies to expand and relocate abroad, with the China Development Bank (CDB) and Export-Import Bank of China (CHEXIM) leading the way under the Belt and Road Initiative (BRI)¹⁰⁹. Unfortunately, the Indonesian government facilitates these investments in the form of large-scale industrial zones that house multiple business units such as aluminium smelters, nickel, steel, and captive power plants, along with significant fiscal incentives provided.

- 103 Asia News Network: China consolidates green energy transition <https://asianews.network/china-consolidates-green-energy-transition/> Accessed on April 1, 2023.
- 104 Reuters: China's Chalco shuts Shandong aluminium plant amid rising power costs <https://www.reuters.com/article/china-metals-aluminium-idUSL3N1ZV3PK> Accessed on April 3, 2023.
- 105 Reuters: China's Chalco shuts Shandong aluminium plant amid rising power costs <https://www.reuters.com/article/china-metals-aluminium-idUSL3N1ZV3PK> Accessed on April 3, 2023.
- 106 Tempo: Cina Bangun Smelter US\$5 Miliar di Teluk Bintan <https://bisnis.tempo.co/read/522133/cina-bangun-smelter-us-5-miliar-di-teluk-bintan> Accessed on April 3, 2023.
- 107 Shi, Q., Zheng, B., Zheng, Y. et al. (2022). Ibid.
- 108 The Guardian: China pledges to become carbon neutral before 2060 <https://www.theguardian.com/environment/2020/sep/22/china-pledges-to-reach-carbon-neutrality-before-2060> Accessed on April 3, 2023.
- 109 Bo Kong, Kevin P. Gallagher. (2019). Globalisation as Domestic Adjustment: Chinese Development Finance and the Globalization of China's Coal Industry. Boston University. <https://www.bu.edu/gdp/files/2019/04/GCI-GDP.WP6-Globalization-as-Domestic-Adjustment-Kong-Gallagher.pdf>

For instance, the nickel industrial zone in Morowali stands out as the most prominent face of China's investment in Indonesia. However, this prominence does not stem from positive achievements in terms of social welfare and ecological harmony with the industrial zone. Instead, it is marked by the deprivation of rights and labour discrimination, workplace accidents, and massive-scale ecological damage¹¹⁰.

The same dire situation has also unfolded in the Ou Treh Highlands region of Cambodia. The most polluting/subcritical coal-fired power plants that were dismantled and relocated from the Hunan Province in China have posed a serious health threat to the local population. Coal ash carried by the wind from the storage site of the power plant waste has led to coughing, itching, and digestive issues due to contaminated food. In fact, the ash has coated pots and household items within just a day's time, as reported by China Dialogue, quoting local residents¹¹¹.

With the increasing Chinese investment in Indonesia¹¹² It seems that these social and ecological crises will continue unless the Indonesian Government strengthens regulations for social protection and environmental conservation, and fulfils its international climate commitments to reduce carbon emissions. This implies halting the construction of captive coal-fired power plants in parallel with phasing out PLN and IPP coal-fired power plants as soon as possible.

This can be initiated by placing a stronger focus on developing small-scale renewable energy power plants from decentralized sources that are managed directly by local communities. Apart from minimizing conflicts, this approach will encourage active community involvement while simultaneously curbing the development of large-scale centralized power plants that often contribute to further conflicts.



¹¹⁰ Report on China Investment In Indonesia: Case of Tsingshan Nickel Industry-Morowali. Center of Economic and Law Studies (2020)

¹¹¹ China Dialogue: Coal plant deemed too polluting for China heads to Cambodia <https://chinadialogue.net/en/energy/11474-coal-plant-deemed-too-polluting-for-china-heads-to-cambodia-2/> Accessed on July 12 2023.

¹¹² Polemik Investasi China Di Indonesia Bagaimana Menghindari Kualitas Investasi yang Rendah dan Jebakan Utang?. Center of Economic and Law Studies. (2023). https://celios.co.id/wp-content/uploads/2023/06/Policy-Paper_-Polemik-Investasi-China-di-Indonesia.pdf



Policy Recommendations

- The government needs to urgently revoke the permits for coal-fired power plants in the green industrial zone of North Kalimantan and halt the construction of other coal-fired power plants in industrial areas. Industrialization that is falsely labelled as "green" while being based on fossil fuels should not be part of any master plan for other regions.
- There is an immediate need to align energy procurement policies and carbon emission reduction commitments. The REBED/REBID, RUEN/RUED, and Presidential Regulation 112/2022 on Energy Transition should be revised to disallow coal-fired power plants in order to avoid conflicts with the Paris Agreement and the Glasgow Climate Pact.
- Including the requirement for the closure of coal-fired power plants in industrial zones in the Comprehensive Investment and Policy Plan (CIPP) of the JETP would be a step towards achieving Just Energy Transition funding.
- The points within the Renewable Energy Bill (RUU EBT) should eliminate incentives for coal-derived products and ban the construction of new coal-fired power plants in industrial areas.
- Banks need to re-evaluate the financing risks and economic-environmental impacts arising from the KIH coal-fired power plant project.
- Investors related to debt/bond financing are advised to carefully assess Adaro's energy transition commitments.
- There should be a push for the revision of the Green Taxonomy released by the OJK (Financial Services Authority) to classify coal-fired power plants as "Red" labelled, preventing banks from financing new coal-fired power plants. Early retirement funding for coal-fired power plants can be labelled as "Yellow".
- These actions are crucial in aligning with climate goals and ensuring a sustainable energy transition while minimizing negative environmental and social impacts.
- Increasing the application of ESG (Environmental, Social, and Governance) standards among companies in Indonesia, especially those listed on the stock exchange or receiving public funding, is crucial.
- Publicly-listed companies need to transparently and accountability disclose sustainability risks in their annual reports in line with the adoption of IFRS 1 and IFRS 2 by the International Sustainability Standards Board (ISSB).
- Credit rating agencies should incorporate environmental destruction and social cost calculations into debt ratings, especially for companies involved in financing, construction, and operation of coal-fired power plants.
- Requesting the government and relevant stakeholders to conduct an Environmental Impact Assessment (AMDAL) audit for the Tanah Kuning - Mangkupadi Industrial Zone (Green Industrial Zone) as it may not have fully considered the ecological disaster risks. The AMDAL document should include the risks to the perikarst area. An ecologically-oriented and unbiased perspective is needed to assess risks, given that the perikarst area supports the karst ecosystem. Damage to the perikarst area correlates with damage to the karst area, which can lead to hydrological disasters.
- Engaging affected communities, whether directly or indirectly, in a holistic and integrative manner in the formulation of energy procurement policies is essential. The community should be involved in open monitoring and assessment schemes from formulation, planning, development, operation, and post-operative stages.
- Active involvement of local communities around industrial zones in building renewable energy sources like micro-hydro and solar power can foster sustainability and community empowerment.



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**Green Industrial Area
Infected by Coal Power Plant:**
Economic Impacts, Conflicts of Interest, and Environmental Threats



Appendix

Appendix 1 . Press Release Signing of MOU between Adaro Minerals and Hyundai.



News Release

Hyundai Motor Company and PT Adaro Minerals Indonesia, Tbk. Signed a Memorandum of Understanding to Secure Aluminum Supply In The Face of Growing Demand for Automobile Manufacturing

- Hyundai Motor Company and PT Adaro Minerals Indonesia, Tbk. signed a Memorandum of Understanding (MoU) to secure stable aluminum supply amid the growing demand for aluminum for automobile manufacturing and to establish a comprehensive cooperative system regarding the production and supply of aluminum.
- Based on cooperation in the production of cars, battery cells, and aluminum in Indonesia, Hyundai Motor Company will continue to discover areas of cooperation to secure future leadership of eco-friendly automobiles in Indonesia.

Bali, Indonesia, 13 November – Hyundai Motor Company and PT Adaro Minerals Indonesia, Tbk. (AMI) signed a Memorandum of Understanding (MoU) to secure stable aluminum supply amid the growing demand for aluminum for automobile manufacturing. This cooperation is also to establish a comprehensive cooperative system regarding the production and supply of aluminum by AMI through its subsidiary PT Kalimantan Aluminium Industry (KAI), that would be beneficial for both parties.

The MoU signing ceremony was conducted during the B20 summit at Bali Nusa Dua Convention Center, Indonesia, by Jaehoon Chang, President and CEO of Hyundai Motor Company and Garibaldi Thohir, President Commissioner of PT Adaro Minerals Indonesia, Tbk.

The B20 is the official G20 engagement group representing the global business community with a mandate to deliver actionable policy recommendations on the priorities established by each presidency to spur economic growth and development. This year's B20 summit embraces the theme of *'Advancing Innovative, Inclusive and Collaborative Growth'* in support of the G20 theme *'Recover Together, Recover Stronger'*. The collaboration between Hyundai Motor Company and PT Adaro Minerals Indonesia, Tbk. marks the company's commitment to accelerating the transition to sustainable energy, especially carbon neutralization.

Aluminum in Indonesia, which is rich in natural resources and energy, is considered to have future competitiveness. Indonesia's green aluminum is classified as low-carbon aluminum using hydroelectric power generation, which is an eco-friendly power source and is expected to supply aluminum that meets HMC's carbon neutralization policy amid the growing demand for aluminum in global automakers. In addition, supply and demand became unstable due to unpredictable situational



variables which led to an increase in energy prices for aluminum production.

"Hyundai Motor Company has started operating a manufacturing plant in Indonesia and is also actively cooperating with Indonesia in various areas, where it can exert synergy in the future automobile industry, such as investing in battery cell manufacturing joint ventures," said Jaehoon Chang, President and CEO of Hyundai Motor Company. "This cooperation of the aluminum smelter is also expected to strengthen the cooperative relationship between Hyundai Motor Company and Indonesia with stronger synergy."

Items of cooperation in this MoU include the production and supply of aluminum produced by KAI and HMC has the right to purchase aluminum produced by KAI at an early stage, and then the first negotiation as to the purchase of low carbon aluminum produced by KAI in the future (undetermined offtake volume in the range of about 50 thousand TPA to 100 thousand TPA).

Christian Ariano Rachmat, President Director of PT Adaro Minerals Indonesia Tbk, said, "This cooperation shows investor's confidence on Indonesian mineral downstream processing in the world's largest green industrial park in North Kalimantan. With the support from all our stakeholders and Hyundai Motor Company who has the track record, experience, and cutting-edge technology on electric vehicles, we hope to achieve Commercial Operation Date (COD) by the first quarter of 2025 and produce 500,000 TPA aluminum in initial stage."

PT Kalimantan Aluminum Industry (KAI) is a limited liability company where PT Adaro Indo Aluminum (AIA) holds a majority of its interest, and PT Adaro Indo aluminum (AIA) is also a limited liability company whose majority interest are held by PT Adaro Minerals Indonesia, Tbk. (AMI). Based on cooperation in the production of cars, battery cells, and aluminum in Indonesia, Hyundai Motor Company will continue to discover areas of cooperation to secure future leadership of eco-friendly automobiles in Indonesia.

-End-

About Hyundai Motor Company

Established in 1967, Hyundai Motor Company is present in over 200 countries with more than 120,000 employees dedicated to tackling real-world mobility challenges around the globe. Based on the brand vision 'Progress for Humanity,' Hyundai Motor is accelerating its transformation into a Smart Mobility Solution Provider. The company invests in advanced technologies, such as robotics and Advanced Air Mobility (AAM), to bring about revolutionary mobility solutions, while pursuing open innovation to introduce future mobility services. In pursuit of sustainable future for the world, Hyundai will continue its efforts to introduce zero emission vehicles equipped with industry-leading hydrogen fuel cell and EV technologies.

More information about Hyundai Motor and its products can be found at: <http://worldwide.hyundai.com> or <http://globalpr.hyundai.com>

About PT Adaro Minerals Indonesia Tbk

Established in 2007, PT Adaro Minerals Indonesia Tbk (IDX: ADMR) focuses on mineral-related business within Adaro Group. The Company is Indonesia's leading metallurgical coal producer with low-cost, efficient operation supported by Adaro Group's integrated supply chain network. With large reserves and resources



base which supports long-term sustainable growth, Adaro Minerals Indonesia has strong demand profile from blue-chip steel companies, dominated by Asian countries including Japan, China, and India. Adaro Minerals Indonesia is currently developing aluminum smelter project in North Kalimantan through its subsidiary to capture opportunities in green economy.

More information about Adaro Minerals Indonesia can be found at: <http://adarominerals.id>.

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Appendix 2. KIPI Master Plan Based on the 2018 Feasibility Study (North Kalimantan)


Source: Public Relations of North Kalimantan

Appendix 3. ADARO Funding Sources for the KIHI Project



Number: AEI/77/V-2023/corsec
Encl.: -

Jakarta, May 16, 2023

To
**Chief Executive of the Supervision of Capital Market, Financial Derivatives, and Carbon Exchange
Financial Services Authority (OJK)**
Gedung Sumitro Djojohadikusumo
Jl. Lapangan Banteng Timur No. 2-4
Jakarta 10710
For the attention of: Supervisory Director of Issuers and Public Companies 2

**President Director
PT Bursa Efek Indonesia**
Gedung Bursa Efek Indonesia, Tower I
Jl. Jend. Sudirman Kav. 52-53
Jakarta 12190
For the attention of: Director of Corporate Valuation

Re: Information Disclosure of PT Adaro Energy Indonesia Tbk ("the Company")

Dear Sirs,

We hereby submit an Information Disclosure as required in Regulation of the Financial Services Authority of the Republic of Indonesia No. 17/POJK.04/2020 on the Material Transaction and Change of Business Activities ("**POJK 17/2020**"), and Regulation Number I-E on the Information Disclosure Obligations, Appendix to the Decree of the Board of Directors of PT Bursa Efek Indonesia Number Kep-00066/BEI/09-2022, as follows:

Name of Issuer or Public Company:	PT Adaro Energy Indonesia Tbk (ADRO)
Business sector:	Head office activities and management consultation (for the businesses of the Company's subsidiaries operating in mining, excavation, mining support services, large-scale trading, logistics, warehousing, and logistics support activities, cargo handling (stevedoring), seaport service activities, plant agriculture, construction, engine repair and installation, power provision, water treatment, forestry, and industry)
Address:	Menara Karya, 23 rd floor, Jl. H.R. Rasuna Said Blok X-5, Kav. 1-2, Jakarta Selatan, 12950
Telephone / Facsimile:	+62 21 2553 3000 / +62 21 5794 4709
E-mail address:	corsec@adaro.com

1.	Date of event	May 12, 2023
2.	Type of information	The Signing of Facility Agreements and the Plan to Provide Guarantee
3.	Description of information	<p><u>Signing of Facility Agreements</u></p> <p>PT Kalimantan Aluminium Industry ("KAI") and PT Kaltara Power Indonesia ("KPI"), each being a limited liability company which is a controlled company indirectly owned by the Company, have individually signed a Facility Agreement with a syndication of several financial institutions for loan facility (i) for KAI, amounting to US\$981,400,000 (nine hundred eighty-one million four hundred thousand United States Dollars) and IDR1,547,900,000,000 (one trillion five hundred forty-seven billion nine hundred million Rupiah) ("KAI's Loan Facility"), and (ii) for KPI, amounting to US\$603,600,000 (six hundred three million six hundred thousand United States Dollars) and IDR952,100,000,000 (nine hundred fifty-two billion one hundred million Rupiah) ("KPI's Loan Facility", which collectively with KAI's Loan Facilities referred to as the "Signing of Facility Agreements").</p> <p>KAI's Loan Facility will be used, among others, for financing the development of an aluminum smelter project with the capacity of 500,000 tons per annum (tpa) owned by KAI, which is located in the industrial park being developed by PT Kalimantan Industrial Park Indonesia, in North Kalimantan, Indonesia ("KAI's Project") and will mature no later than 8 (eight) years as of the date of signing of KAI's Loan Facility.</p> <p>KPI's Loan Facility will be used, among others, for financing the development of a power plant project with the capacity of 1,060 MW owned by KPI which is located in the industrial park being developed by PT Kalimantan Industrial Park Indonesia, in North Kalimantan, Indonesia ("KPI's Project") and will mature no later than 10 (ten) years as of the signing of KPI's Loan Facility.</p> <p>(KAI's Project and KPI's Project are collectively referred to as the "Project").</p> <p><u>Plan to Provide Guarantee</u></p> <p>In relation to KAI's Loan Facility:</p> <ul style="list-style-type: none"> (i) PT Adaro Indo Aluminium ("AIA"), a controlled company of the Company, will pledge its shares in KAI ("Pledge of AIA's Shares"); (ii) KAI will pledge its bank account, provide fiducia security on its material assets, fiducia security on its receivables, and mortgage on the land located in the area of KAI's Project's ("Guarantee by KAI"); and

		<p>(iii) The Company will provide corporate guarantee based on AIA's ownership of KAI ("Corporate Guarantee to KAI").</p> <p>(The Pledge of AIA's Shares, Guarantee by KAI, and Corporate Guarantee to KAI are collectively referred to as the "Plan to Provide KAI Guarantee").</p> <p>In relation to KPI's Loan Facility:</p> <p>(i) PT Adaro Power ("AP"), a controlled company of the Company, will pledge its shares in KPI ("Pledge of AP's Shares");</p> <p>(ii) KAI will pledge its shares in KPI ("Pledge of KAI's Shares");</p> <p>(iii) KPI will pledge its bank account, provide fiducia security on its material assets, fiducia security on its receivables, and mortgage on the land located in the area of KPI's Project ("Guarantee by KPI"); and</p> <p>(iv) The Company will provide corporate guarantee based on AP's ownership in KPI ("Corporate Guarantee to KPI").</p> <p>(The Pledge of AP's Shares, Pledge of KAI's Shares, Guarantee by KPI, and Corporate Guarantee to KPI are collectively referred to as the "Plan to Provide KPI Guarantee").</p> <p>(The Plan to Provide KAI Guarantee and the Plan to Provide KPI Guarantee are collectively referred to as the "Plan to Provide Guarantee").</p> <p>The total transaction value of the Plan to Provide Guarantee does not exceed the total value of the transaction of the Signing of Facility Agreements.</p>
4.	Impacts of the event or information on the issuer's or public company's operational activities, legal status, financial condition, or business continuity	<p>The transaction of the Signing of Facility Agreements and the Plan to Provide Guarantee will support the Company's investment activities, operations and business continuity, by covering the funding needs in the business development of the Company's controlled companies in aluminum processing and power generation businesses.</p> <p>The development of this Project is part of the Company's commitment to participate in the Indonesian Government's mineral downstream policy.</p> <p>Through the Project, the Company can contribute in the job creation and state tax revenue, as well as reducing Indonesia's dependence on the imports of aluminum products in order to reduce trade deficit and increase the state's foreign exchange income.</p> <p>Based on the Company assessment, there is no material adverse impact on the Company's operational activities, legality, financial condition, or business continuity.</p>

5.	Other remarks	<p>The transactions of the Signing of Facility Agreements and the Plan to Provide Guarantee are deemed as Material Transaction as defined in POJK 17/2020 because the total value of the Loan Facility (including the value of Guarantee) is higher than 20% of the Company's equity as at December 31, 2022.</p> <p>According to the provision of Article 11 letter b and c of POJK 17/2020, the Company is not required to engage an appraiser as specified in Article 6 paragraph (1) letter a, if conducting a Material Transaction in the form of (i) loans received directly from a bank and/or (ii) providing security to a bank in relation to loan directly received by the controlled companies of the Company.</p>
6.	Statement of the Board of Directors	<p>The transaction of the Signing of Facility Agreements is not an affiliated transaction as described in Regulation of the Financial Services Authority of the Republic of Indonesia Number 42/POJK.04/2020 on Affiliated Transactions and Conflict-of-Interest Transactions ("POJK 42/2020").</p> <p>The Plan to Provide Guarantee forms an integral part of the transaction of the Signing of Facility Agreements and shall not be construed as a separate and standalone transaction.</p> <p>Referring to the description above:</p> <ul style="list-style-type: none"> (i) The plan of the Pledge of AIA's Shares, Corporate Guarantee to KAI, the Pledge of AP's Shares, and Corporate Guarantee to KPI are exempted affiliated transactions as described in Article 6 paragraph (1) letter e of POJK 42/2020, as they are transactions of providing security to a bank in relation to the loans directly received by the controlled companies of the Company; and (ii) The plan of the Pledge of KAI's Shares is an exempted affiliated transaction as described in Article 6 paragraph (1) letter c of POJK 42/2022, as the transaction value does not exceed IDR5,000,000,000 (five billion Rupiah).
7.	Statement of the Board of Commissioners and the Board of Directors	<p>The transactions of the Signing of Facility Agreements and the Plan to Provide Guarantee do not contain a conflict of interest as described in POJK 42/2020 and all material information has been disclosed and not misleading.</p>



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