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Understanding 'The Four Phase' of Coal Industries and its Economic Policy Implication in Indonesia: A Systematic Literature Review (SLR) Approach

Natasha Natasha[1], Jahen F. Rezki[2]

[1] Master of Economic Planning and Development Policy, Faculty of Business and Economics, University of Indonesia, Indonesia

[2] Institute for Economic and Social Research, Faculty of Business and Economics, University of Indonesia, Indonesia

[1]natasha01@ui.ac.id

[2]jahen.fr@ui.ac.id

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Abstract

This study seeks to provide a thorough examination of the four stages of coal mining and production. As we will see, there are four major phases in the coal industry across the world: phase-in, phase-out, exporter, and established user. This entanglement is critical for Indonesia's coal phase-out. In this regard, Indonesia, as the primary provider, should grasp the dynamics of coal industries in order to correctly leave coal. We employ a Systematic Literature Review (SLR) to examine the possibilities of nations forming coalitions in the coal industry. The probe is critical because coal companies are associated with high-power politics that necessitate long-term contracts. We discovered that the majority of coal-using countries have a sophisticated yet tough policy. The desire to quit coal in the near future appears to be an impediment. It resonates with classsical political economy studies that to exit coal needs a common consensus between each countries.

INTRODUCTION

Data from Indonesian elections provide empirical evidence (Rezki, 2018, 2022), shows that political competition reduces the incentive to engage in rent-seeking

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behavior by making it easier for voters to punish incumbents who fail to improve certain policies. When voters have several options in an election, politicians must enact pro-people policies. This finding is consistent with research from Blane D. Lewis and Adrianus Hendrawan (Lewis & Hendrawan, 2019), which emphasizes the importance of political accountability to government performance. This notion is important remembering that accountability is major stake while evaluating politicial integrity.

This research is significant for several reasons: 1) Indonesia's goal of generating clean energy, and 2) evidence-based analysis of policy formulation and implementation in the national and local coal sectors. According to our view, the coal sector is one of the major contributors to economic growth.

Literature Review/Analytical Framework

It is understandable that Indonesia has long been one of the world's top coal exporters (Steckel & Jakob, 2021). Today's coal mining sector has grown far too large. In 2016, at least 120 enterprises were legally registered with the Ministry of Natural Resources, not counting the unregistered ones that proliferate uncontrollably[1]. According to the Central Bureau of Statistics, West Kalimantan alone would produce 294.252.801 tons of coal in 2021[2]. Despite its unstoppable expansion, the coal sector accounts for 4% of Indonesia's GDP (Greenpeace Indonesia, 2014). Lignite and coal GDP growth of 6.6 percent is predicted in 2021, totaling to IDR 261,71 trillion[3].

Coal has become one of the country's assets for attaining FDI-based and GDP-based economic growth due to its ease of processing. There is also a strong incentive to maintain coal mining as a key economic activity since associated royalties contribute considerably to local and national government budgets (Ordonez et al., 2021). However, when a country's economic expansion begins, there is always an environmental consequence that every country must deal with. In the case of coal mining, governments must strike an agreement for one country to phase out or at least minimize its use of coal.

The coal mining industry is massive. It is widely interconnected across nations. Coal mining industries, as they are popularly called, are divided into four stages. The

[1] The list of registered coal mining company can be seen here: https://eiti.esdm.go.id/v2/wp-content/uploads/2016/12/Lampiran-Daftar-Perusahaan-Mineral-dan-Batubara-Laporan-EITI-2014.pdf. Up to this day, local security authorities were in hunt to tackle the illegal miners: https://regional.kompas.com/read/2022/09/06/175937078/tambang-batu-bara-ilegal-ditemukan-di-samboja-pemodal-dan-operator-jadi.

[2] The statistics can be found here: https://kaltim.bps.go.id/indicator/10/361/1/produksi-batubara.html.

[3] Along with these price changes, Indonesia's coal export volume increased slightly by 1.14 percent to 345.45 million tons in 2021. Meanwhile, its value increased by 82.59 percent to US$26.53 billion from US$14.53 billion the previous year: https://databoks.katadata.co.id/datapublish/2022/04/04/pertambangan-batu-bara-dan-lignit-tumbuh-66-pada-2021.

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first phase, known as the phase-out, classified nations that no longer rely on coal energy for their daily energy demands. Chile, the United States, the United Kingdom, Germany, and Bulgaria are the countries involved (Jakob & Steckel, 2022).

These are quickly developing imperialist countries with previously developed economies and financial stability. These nations have reduced or eliminated their dependency on coal, or they have embraced a new energy source. As a result, they had no trouble phasing out coal energy since they could afford it.

RESEARCH METHODS

The systematic literature review is used to aid our benchmark analysis (Mengist et al., 2020). We next use the framework and our identified keywords to narrow down the relevant findings owing to the coalition and coal.

Table 1. Framework on Benchmark Comparison using Systematic Literature Review

No.	Code	Description
1.	Background	The article's general explanation of the issues raised.
2.	RQ/Problematics	Scientific formulation (with concepts/theories) of where or what the problem points in the article will be researched. Can take the form of a question.
3.	Aims/Objectives	What will be done or discussed in order to answer and solve difficulties.
4.	Urgency / Novelty	The "why and so what" of an article; the significance and promise of fresh contributions from the topic debate, which the article will do.
5.	Theoretical/Conceptual Framework	A brief overview of the article's analytical framework: what theory/concept it is, who it quotes, what its assertions are, and how it is applied.
6.	Method	A description of the procedures employed, how they were utilized, and the data that was utilised.
7.	Main argument	The article's major argument assertions, analysis support, and data are all described.
8.	Supporting argument	The assertion of the supporting argument/derivative, as well as the analysis support and data utilized in the article, are described.

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9.	Quotes	Important quotes that are directly relevant to the article's points.
10.	Commentary	The subjective comments/notes of the reviewers will be subject to one or two of the above-mentioned aspects of the review (problematization, analytical framework/methods, interpretation, data validity, etc.).
11.	User's Relevance	Relevance points that explain why and how this article was valuable for study.

Based on framework above, we searched relevant journals that concerning our priority countries:

Table 2. The Criteria Used for the Extraction of Information from the Selected Articles

Phase(s)	Concept	Countries	Journal Portal	Criteria	Keywords
Phase-Out	Countries that no longer adopt coal usage	Chile, Germany	Quarterly Journal of Economics, Electoral Studies,	Year of publication under the past five years	Coal, coalition, Chile, Germany
Phase-In	Countries that are still on a verge in coal adoption	Philippines, Vietnam	Global Environmental Change, Energy Strategy Review	Year of publication under the past five years	Coal, coalition, Philippines, Vietnam
Established User	Countries that broadly declare the coal usage	China, India	World Bank Economic Reviews, Frontiers of Business Research in China	Year of publication under the past five years	Coal, coalition, China, India
Exporter	Countries that become the main supplier	Indonesia, Australia	Energy Research and Social Sciences	Year of publication under the past five years	Coal, coalition, Indonesia, Australia

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RESULTS AND DISCUSSION

To understand the developments in the coal sectors, we undertake comparative benchmark analysis. In this position, we intend to investigate if Indonesia followed a similar path to other nations in terms of coalition building and coal. First, we look at the pattern of phase-out nations Chile and Germany.

Table 3. Benchmark Analysis in Phase-Out Countries: Chile and Germany

Indicator/ Countries	Phase-Out	
	Chile	**Germany**
Motivation	Chile's clean energy consumption objective is to improve local clean energy initiatives (Fuentes González et al., 2020).	In Germany, the main concern is to ensure climate protection targets and general political and economic condition. The government create a law schedule on coal phase-out by 2038 at the latest (Brauers et al., 2020; Markard et al., 2021).
Party System	Chile has agreed to a multi-party system (Alemán et al., 2021; Gainza et al., 2021).	Germany has been forced to adopt a multi-party system. It used the concept of 'color coding' to reflect each party's position on various subjects (Brauers et al., 2020; Markard et al., 2021).
Ideologies	Democratic, which Chile very recently	Republic of the Democratic and

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	embraced (Gainza et al., 2021).	Federal Parliamentary Parties (Adena et al., 2015; Brauers et al., 2020; Markard et al., 2021).
Market Economy	Open Market Mechanism (Alemán et al., 2021; Fuentes González et al., 2020; Gainza et al., 2021).	Social Market Economy (Brauers et al., 2020; Markard et al., 2021).
Coalition Formation	Binomial electoral rules (Alemán et al., 2021; Gainza et al., 2021).	Germany agreed to a grand coalition based on the ideological closeness of the parties (Brauers et al., 2020; Markard et al., 2021).
Conflicts	Chile's fledgling democracy frequently backfires due to incentives and party prejudice issues (Gainza et al., 2021).	Germany's two ideologies result in a lack of authority in its demand-supply relationships, codependence, and broad European interference (Adena et al., 2015; Brauers et al., 2020; Markard et al., 2021).
Policy Barriers	The issue that leads to policy hurdles is partisanship and a lack of common ground (Gainza et al., 2021).	The problem that drives Germany's policy barrier is market problems; aside from hurdles connected with EU legislation and regulation, there are minimal legal impediments to US trade or investment (Markard et al.,

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		2021).
Transaction Cost Economics	Yes, as Chile reshapes its ideas toward democracy, power struggle has increased significantly (Alemán et al., 2021; Gainza et al., 2021).	Yes, primarily to aid in the shift from energy to economic performance (Brauers et al., 2020; Markard et al., 2021).
Historical Background	Chile was previously conceived by military dictatorships that controlled the interchange of power in decision-making processes. (Alemán et al., 2021; Gainza et al., 2021).	The first coal was mined in Germany some 900 years ago, but it wasn't until the nineteenth century that coal mining came of age, when industrialization transformed the mining areas of the Ruhr Valley and the Saarland into Germany's industrial heartland (Brauers et al., 2020; Markard et al., 2021).

In Germany and Chile, the coalition structure will become more open to market distribution. This situation promotes exchange and assists in coal leaving. However, it is also critical to note that its policy challenges are greatly influenced by partisanship, making its policy susceptible. While considering a coal departure, Indonesia's potential for self-sufficiency in energy generation should be considered. Furthermore, developing a law-schedule has become critical for improving policy implementation.

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China, India, and Turkey are the established users of coal energy in the second phase (Jakob & Steckel, 2022). These are developing market economies. They have a long history of using coal. They will continue to rely on coal energy to drive economic growth by expanding output and consumption.

Table 4. Benchmark Analysis in Established Coal Users: China and India

Indicator/ Countries	Established User	
	China	**India**
Motivation	Climate change was seen as a scientific foreign-policy issue until 1998, when it was transferred from the purview of China's meteorological service to the powerful national development and reform commission (NDRC), which also oversees energy programs (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	The Ministry of Environment and Forestry oversaw climate change (MOEF). In 2007, Prime Minister Singh established the Prime Minister's Climate Change Council, which includes representatives from several ministries, the media, business, and non-governmental groups (NGOs) (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).

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Party System	Chinese communist party (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	A Westminster-style legislature with a clientelist political settlement (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).
Ideologies	The ideology of China is that of an authoritarian unitary state. (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022)..	Federal democracy is Indian philosophy (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).
Market Economy	Transitioning from a regulated to an open market economy (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).	Since 1991, India's economy has been more open, although the energy sector is still dominated by state-owned firms (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).

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Coalition Formation	The Chinese Communist Party is the sole ruler (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	Alliances headed by the Indian National Congress (INC) and the Bhartiya Janata Party (Indian People's Party, BJP) (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).
Conflicts	State-owned enterprises (SOEs) dominate the energy industry, with many of the top energy-consuming companies being SOEs. Companies seldom express their unhappiness with government policies in public; instead, they prefer to communicate through informal channels (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	Many major private firms have close relations to the government; the Tata Group and the Confederation of Indian Industries have been involved in India's involvement at COPs since the outset, and they are also represented on the Prime Minister's Council on Climate Change (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).

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Policy Barriers	Several SOEs are ranked at the vice-ministerial level in the government's hierarchy, rendering lower-ranking officials unable to direct them.(Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	Because it has a parliamentary majority, the government typically gets desired legislation passed, and MPs who vote against party decisions may be removed. The political settlement is also fractured, with environmental issues coming under the Concurrent List, where the border between federal and state authority is unclear. The independence of the judiciary and the appointment of public officers to permanent contracts in the Indian Administrative Service are both sources of stability (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).
Transaction Cost Economics	Yes, mostly to maintain donations and interaction with government SOEs (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al.,	Yes, mostly to sustain contributions and engagement with government SOEs (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla &

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	2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	Swarnakar, 2022).
Historical Background	Prior to the arrival of civilisation in China 5,000 years ago, the region's ancient people had been utilizing coal for around 1,000 years. China dominated coal use in the pre-modern world, carving coal into ear ornaments and building the world's first coal mine. Ancient China's use of coal helped it to develop into a sophisticated economy and civilization (Aamodt & Stensdal, 2017; J. Chen & Xie, 2019; K. Chen et al., 1992; Garnaut & Song, 2012; Liang et al., 2021; Lin & Bega, 2021; Sovacool & Martiskainen, 2020; Springer, 2022; Tan et al., 2021; Wang et al., 2022).	Commercial coal mining in India dates back over 220 years, beginning in 1774 with M/s Sumner and Heatly of the East India Company at the Raniganj Coalfield on the Damodar River's western bank. India has mined coal since 1774, and it is the world's second largest producer and consumer of coal after China (Aamodt & Stensdal, 2017; Besley et al., 2012; Jakob et al., 2020; Montrone et al., 2021; Shukla & Swarnakar, 2022).

We can observe that the exporting countries have challenges in meeting the nation's energy supply (China and India). As a result, the country was striving to keep its own

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resources. This situation subsequently proved to be a barrier to the development of a more liberalized market. China and India have a specific policy to maintain their coal supplies, which included exporting from outside. In this respect, Indonesia has become a China export referral point (Wang et al., 2022).

The phase-in nations are those that begin to use coal on a big scale in the third phase. They were debating whether to employ new coal capacity to enhance production. Kenya, the Philippines, and Vietnam are among them (Jakob & Steckel, 2022). Coal is used in the phase-in nations to boost product output and the economy.

Table 5. Benchmark Analysis in Phase-In Countries: Philippines and Vietnam

Indicator/ Countries	Phase-In	
	Philippines	**Vietnam**
Motivation	Coal-fired electricity supplies most the Philippines' energy demands. The Philippine government strongly encouraged the growth of the coal sector until the 2020 ban on the establishment of new coal-fired power plants, classifying coal projects as nationally significant (Camba, 2021; Delina, 2021, 2022;	Because coal development is primarily motivated by political concerns, energy businesses are crucial to the communist party's legitimacy strategy (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).

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	Marquardt, 2015).	
Party System	A multi-party system (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	Communist party (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Ideologies	Democracy, led by a president who serves as both head of state and head of government (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	Communism (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Market Economy	A mixed economic system characterized by a mix of private liberty with centralized economic planning and government regulation (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	Doi Moi open market mechanism (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Coalition Formation	Kilusang Pagbabago, which refer to coalition for change (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	The independence coalition is known as Viet Minh. As a result, there is just one party in the Vietnamese legislative structure (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde,

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		2016; Jakob et al., 2020; Zimmer et al., 2015).
Conflicts	The Philippines has become one of the largest importers of coal from Indonesia and Australia, and the current administration has built a new coal-fired power plant on a regular basis (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	The Vietnamese Planning and Finance Ministries are unable to drive significant reform in the energy sector, which can only be initiated by the CPV. Thus, institutional, and human incentives to maintain the status quo not only contradict the fundamental goals of delivering stable and cost-effective energy supply, but also actively encourage fossil, mostly coal-based, generating expansions (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Policy Barriers	Legislation obstacles in the Philippines coal and coalition include ongoing conversations with the business sector over the introduction of Renewable Portfolio Standards	In Vietnam, emission reduction targets for coal usage are unclear, inconsistent, and poorly implemented, and the approval process is lengthy (Breul & Nguyen,

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	(RPS), a market-based policy that requires providers to obtain or deliver a part of their electricity from certified RE projects (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Transaction Cost Economics	Yes, mostly to entice private sector participation (Camba, 2021; Delina, 2021, 2022; Marquardt, 2015).	Yes, there is mutual interest among foreign contributors (Breul & Nguyen, 2021; Dorband et al., 2020; Fforde, 2016; Jakob et al., 2020; Zimmer et al., 2015).
Historical Background	The first coal was discovered in the Philippines under Spanish colonization in 1800 and was used as the country's principal source of electricity. In 1827, it was discovered in the Philippine Islands (Delina, 2021, 2022; Marquardt, 2015).	The Ke Bao coal mine (Van Yen commune, Van Don district) was Vietnam's first coal mine, according to historical documents. Around 1840, Vietnamese people began mining coal in Dong Trieu. In 1888, the French established a coal mine, and on September 1, 1988, S.F.C.T (Bac Ky Coal Company) established the first coal mine, Ke Bao (Breul & Nguyen, 2021; Dorband et al., 2020; Zimmer et al., 2015).

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Vietnam and the Philippines are on the point of deciding whether to keep using coal or export additional coal. Vietnam has become China's primary source of labor supply, with most of the product usage manufactured in Vietnam (Fforde, 2016). As a result of this firm agreement, it has become more difficult for Vietnam to quit coal. Furthermore, when discussing coal utilization in the Philippines, it firmly emphasized its capacity to participate in increased production. As a result, its policy was largely focused on facilitating diverse commercial prospects (Delina, 2021).

The exporter, which is the country that produces coal and delivers it to other countries, is the most significant user. Australia, Colombia, South Africa, and Indonesia are among them (Jakob & Steckel, 2022). In this situation, Indonesia is the next coal exporter, propelled by a vested interest on the side of its political party and politically well-connected coal mine owners (Ordonez et al., 2021).

In this situation, Indonesia is driven by a vested interest by its political party and politically well-connected coal mine owners (Edenhofer et al., 2018; Jakob et al., 2020; Jakob & Steckel, 2022; Ordonez et al., 2021; Steckel & Jakob, 2021).

Table 6. Benchmark Analysis in Coal Exporter Countries: Australia and Indonesia

Indicator/ Countries	**Exporter**	
	Australia	**Indonesia**
Motivation	Not in a position to phase out	Indonesia's energy goal is to reduce the

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	coal, as Australian government refuses to join 40 nations phasing out coal (Curran, 2021).	use of coal-fired electricity by 2030 (Ordonez et al., 2021).
Party System	Two-party system (Curran, 2021).	A multi-party system that allows several political parties to participate in government and legislatures (Fossati et al., 2020).
Ideologies	Liberal democratic political system (Curran, 2021).	Democracy (Fossati et al., 2020).
Market Economy	Mixed-market economic system (Curran, 2021).	Close market economy system (Sarwedi, 2010).
Coalition Formation	Conservatism backed Australia's coalition government (Curran, 2021).	Coalitions in Indonesia are organized into two primary groups: the Onward Indonesia Coalition and the United Indonesia Coalition. Following the election of the president, most of the parties' alliances shifted (Ordonez et al., 2021; Sanjaya, 2016).
Conflicts	Conflict over codependence with the corporate sector in coalition building around coal, which the Morrison administration	Conflict in coalition formation over land use, pro-business policies, and a lack of public participation as a watchdog (Mietzner, 2016; Ordonez et al., 2021).

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	supported and encouraged, was highly denounced in Australia (Curran, 2021).	
Policy Barriers	Obstacles in the market, a lack of government action on transitioning to sustainable energy, and a shortage of human resources (Curran, 2021).	Most policies are mainly concerned with contractual/technical frameworks, rather than the environmental impact of coal mining (Ordonez et al., 2021).
Transaction Cost Economics	Yes, the coal in Australia were mostly government-driven agenda (Curran, 2021).	Yes, most coal industries were run by members of parliament or people with close political links (Ordonez et al., 2021).
Historical Background	The earliest mention of coal was made in 1797 by survivors of a shipwreck who walked up the coast from southern Australia to Sydney (Curran, 2021).	Indonesia has a long history of commercial coal production that extends back more than 160 years. However, with the implementation of two new investment and mining legislation in 1967, which provided a framework for experienced multinational mining organizations to engage, the modern coal sector began in the 1980s (Friederich & van Leeuwen, 2017).

The coalition formed in Indonesia is mostly connected to the dispersion of participants

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across many industries. Furthermore, Indonesia is regarded as one of the countries with a strong political economy and a well-organized coalition building process. Long before the election, almost every business, from media to mining to food and beverage, was represented in each alliance (Lewis & Hendrawan, 2019).

This powerful political culture may become the major distinction between Indonesia and the other nations, expressing the oligarchic network of Indonesia across numerous platforms. It was significantly tied to businesses who had a strong-willed relationship inside the parliament and the coal mining industry itself (Febriani et al., 2021).

In Indonesia, there are various policies in place to increase the use of coal, including Presidential Regulation No. 22/2017, RPJMN 2015-2019, and many others. It allows them to influence the debate toward business-oriented policies, even to higher authority, all of which is generated in the body of law. Each policy is described in detail below.

Policy Framework on Coal Production in Indonesia

The policy framework below is summarized based on AOC (Actor, Objective, Context) Framework by Michael Jakob, Christian Flachsland, Christoph Steckel, and Jan Urpelainen (Edenhofer et al., 2018; Jakob et al., 2020; Jakob & Steckel, 2022; Ordonez et al., 2021; Steckel & Jakob, 2021) with several elaborations and add-ins. In summary, the framework explains how actors are connected and how they relate to societal and political discourses on coal mining issues.

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Table 7. Notable Policy Framework of Coal Production in Indonesia

No.	Policies/Objectives	Level	Stakeholders	Summary
1.	Technical Regulation on Permission in Coal Exploration and Processing in Local Area (Local Regulation of Tanjung Jabung Timur, West Kalimantan, and Island of Bangka Belitung, Special Region of Yogyakarta No. 1/2019, No. 9/2012, No. 9/2019, No. 31/2015)	Local	Local government, local stakeholders, Ministry of Energy and Natural Resources, and other SOEs	The article goes on the technical compatibility of coal processing and byproducts. It assures the efficiency with which local mining businesses are implemented and controlled. In this situation, the local authority restricts coal processing and purification to its minimal concentration.
2.	Technical Regulation on	Local	Local government,	The local government aimed to build a mechanism wholly focused

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	Procedures in Scope of Work, Delegating Mechanism, Incentives and Disincentives in Environmental, and Working Contracts (Local Regulation in Central Kalimantan, West Kalimantan, North Kalimantan, West Nusa Tenggara, Aceh, No. 128/2016, No. 25/2015, No. 51/2015, No. 35/2017, No. 63/2006)		local stakeholders, local miner, Ministry of Energy and Natural Resources, and other SOEs	on the working mechanism in coal mining, requiring its scope of work, incentives-disincentives scheme, as well as the scope of work and policies of each mining industry sector. The goal of this document is to guarantee that certain policies are built into the local topology and nature of the job.
3.	National Energy Strategy 'KEN' and	National	President of Indonesia,	By 2025, coal is predicted to contribute for less than 30% of total

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	National Energy Plan 'RUEN' (Presidential Regulation No. 22/2017 on the General Plan on National Energy and Governmental Regulation No. 79/2014)		Ministry of State-Owned Enterprises, Ministry of Energy and Natural Resources, PLN, and other SOEs	renewable energy (RE) in Total Projected Energy Use (TPES), and less than 25% by 2050. According to the national energy policy, it will account for 23% of RE in TPES by 2025 and 31% by 2030.
4.	GW fast-track program (Stipulated in Mid-term National Development Plan – RPJMN 2015-2019)	National	President of Indonesia, Ministry of State-Owned Enterprises, Ministry of Energy and Natural Resources, PLN, and other SOEs	The goal of the fast-track effort is to provide 35 GW of extra capacity to the power industry immediately, 20 GW of which must be coal-based. It is being used by PLN to construct its ten-year business strategy for electricity delivery (RUPTL). RUPTL thinks that mine-mouth coal power stations should be prioritized wherever there are adequate energy supplies.
5.	Rural electrification	National	Local	The primary goal of PLN's rural

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	program (Stipulated in Mid-term National Development Plan – RPJMN 2015-2019, RUKN 2018-2015, MEMR Regulation No. 38/2016)		government, local stakeholders, Ministry of Energy and Natural Resources, and PLN	electrification project is to achieve total electrification by 2024. This is since Indonesia's average national electrification rate in 2017 was 93 percent, implying that around 20 million people remained without access to power. With over 20 million people still without access to electricity, the government has planned 97.35 percent electrification by 2019 and 100 percent electrification by 2024, up from 93 percent in 2019. Prior to 2013, all power in Indonesia was subsidized, using a 37-tiered pricing plan.
6.	Electricity and fossil fuel subsidy reform (Ministerial Regulation No. 30/2012 and Ministerial Regulation No.	National	President, population, Ministry of Finance	Since 2013, power subsidies have been gradually phased off, affecting 16 percent of non-subsidized sales in 2013 and 78 percent in 2017. RON 88-gasoline, diesel, kerosene, and LPG subsidies have also been reformed.

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	38/2016 among many others)			
7.	Domestic Market Obligation – IUP Scheme (Ministerial Regulation No. 23/2018, updated to No. 1924/K30/2018, with basis on Mining Law No. 4/2009)	National	Coal mining industry, IPPs, national government, sub-national governments, key functionaries with vested interest in coal	The Domestic Market Obligation (DMO), enacted in 2018, requires all coal producers to set aside one-quarter of their yearly output for domestic use. The price of coal sold for power production in the United States is restricted at USD 70 per ton (reference quality 6322 kcal/kg).
8.	Feed-in tariffs abolishment to area based (BPP) scheme (MEMR regulation No. 12/2017, 50/2017 and Resolution No. 1404 K/20/MEM/2017)	National	President, population, Ministry of Finance	Renewable energy feed-in tariffs were phased down in 2017 and replaced by an "area-based strategy" ("BPP-scheme"). The maximum for IPPs delivering RE electricity to PLN is set at 85 percent of the average PLN production cost in the relevant region for solar photovoltaics, wind, biomass, and biogas, and 100 percent for geothermal, hydro, and

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				waste-to-energy. This is especially true in locations where the PLN's production costs exceed the national average.
9.	National Determined Contribution (NDC) (Regulation No. 16/2017)	National	Ministry of Forestry and Environment, sub-national governments, NGOs, international development aid agencies, population in coal mining sites	Under normal circumstances, the Indonesian government will unconditionally decrease its GHG emissions by 29% by 2030. Energy sector emissions are expected to rise from 453 million tons CO2eq in 2010 to 1,355 million tons CO2eq in 2030. This reflects the objective of the National Energy Strategy of expanding coal usage to satisfy rising electricity demand. By 2030, NDC plans to cut greenhouse gas emissions in the energy sector by 19% compared to business as usual in the power sector by installing 7.4 GW of RE and using "clean coal" technologies.
10.	Export-Import	National	Ministry of	The purpose of this policy paper is

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	Working Regulation and Working Competencies by Ministry of Energy and Natural Resources and President of Republic of Indonesia (Ministerial Regulation No. 43/2016 and Government Regulation No. 96/2021)		Energy and Natural Resources, Government of Indonesia, Local Government, Coal mining industries, Ministry of Employment	to offer an outline of the technological idea of the coal mining operating mechanism. It is made up of the process and the stakeholders who will be encountered. This policy's purpose is to create a due diligence matrix for coal miners looking for work in the mining business.
11.	Coal Contract of Work, Contract of Work, Mining Business Licenses (Mining Law No. 4/2009 with	National	Coal mining industry, IPPs, national government, sub-national governments,	The CCOW and COW agreements were authorized by the Government of Indonesia following consultation with the House of Representatives, according to Article 10(3) of Law No. 11/1967. The technique is

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	reference to Mining Law No. 11/1967. The regulation also become the baseline point for Mining Law No. 3/2020 and Omnibus Law No. 11/2020)		key functionaries with vested interest in coal	consistent with the legislative process. This legislation is governed by the provision on contracts in Indonesian Civil Code Book 3, which states that contract parties are equal and that an agreement cannot be altered unless all parties agree. The authority to export in CCOW/COW is governed by Indonesian national policy, and it has no bearing on the contractor's obligations under applicable coal supply agreements with third parties. Furthermore, under the CCOW, the government may choose a contractor to operate as its selling agent under commercial agreements acceptable to all parties. In this sense, ownership is passed to the contractor at the time of delivery.

Notes: This information was obtained from many sources of regulation in Indonesia, ranging from national to local. Several regional restrictions were eliminated in this case due to their comparable substance, which centered on functioning mechanisms. We only evaluate initiatives that have contrasting

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viewpoints on coal and coalition in Indonesia.

In short, the policies in Indonesia are always beneficial to coal miners. Although the measures listed above appear to be anti-coal, many support it. In Indonesia, there is no legitimate ecology to allow coal mining to end. To leave coal, for example, it is encouraged to have alternate power to improve renewable energy. Renewable energy must continue to be fueled by coal. As a result, it is rare to have completely 'clean' energy that does not include the usage of filthy energy as its major supplier/driver.

Going Deep Dive: Impact of Coal Production to Society

In summary, the coin has two sides: the government (through rules) and society (in the form of activism to protest mining at the regional level). This is done to show an unfair policy tendency that is harmful to society. In this example, regulations essentially silenced society, and the local government appeared to have abdicated its responsibilities to prioritize community interests. This problem is compounded by the prevalence of long-term contracts that do not reflect society concerns or engage with them. The mapping of impacted communities from desk research is presented below[4]. This mapping also highlights the significance of non-

[4] We conduct the desk study from the perspectives of the victim, drawing on resources from local community media outlets, such as kaltim.tribunnews.com, eksposkaltim.com, and pedomanbengkulu.com, (https://www.kaltimprov.go.id/berita/pertambangan-batu-bara-banyak-merusak-lingkunganl, https://kaltim.tribunnews.com/2017/05/23/tindak-lanjuti-keluhan-pencemaran-akibat-tambang-legislator-kutim-temui-warga-desa-sempayau, https://www.eksposkaltim.com/berita-4820-10-jam-tutup-hauling-pt-gam-kades-sempayau-dipolisikan.html, https://www.pedomanbengkulu.com/search/label/tambang%20batu%20bara, https://www.merdeka.com/peristiwa/tambang-batu-bara-dituding-ikut-jadi-penyebab-banjir-di-samarinda.html, https://www.mongabay.co.id/2017/06/10/mereka-yang-kehilangan-buah-hati-di-lubang-tambang-batubara/). We consult the reliability of local news sources using studies from by JATAM, WALHI, and Waterkeeper Alliance. The research may be obtained at the following websites: https://www.jatam.org/wp-content/uploads/2021/07/deadly-coal-series-Bahasa-Indonesia.pdf,

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governmental organizations (NGOs) in amplifying society's views.

Desk Study of Impacted Communities

Brief Description	Main Actor	Main Agitator	Impacted Actors	Government's Response
West Kalimantan, Samarinda: • **Pemprov Kaltim licensed 1.041 coal firms. There are around 800 permits that are both non-clear and clean. Meanwhile, mining has a tremendous impact on the residents of Samarinda and**	• Pempro v Kaltim • Mining compani es	• Local communities • JATAM • Waterkeeper Alliance	• Local farmers • Elderly people • Babies, young and adults	Head of the East Kalimantan Provincial Office of Petroleum and Energy did not want to confirm

https://waterkeeper.org/wp-content/uploads/2017/05/Hungry-Coal-English-Web.pdf, and https://www.walhi.or.id/wp-content/uploads/Laporan%20Tahunan/FINAL%20IKN%20REPORT.pdf. Several of news sources listed in the study, including *kliksangatta.com*, *antarakaltim.com*, and *kaltim.prokal.co*, were no longer operational.

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Kutai Kartanegara, affecting not only their livelihood but also their health and civil rights. • In Kutai, for example, Mulawarman residents may face harassment if they refuse to sell their property. Residents eventually agreed to sell the paddy fields to the				

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corporation because the mining operations were mostly upstream, causing floods and draughts. • According to the JATAM and WA research, iron concentrations in seven of the 17 water samples are greater than 1 ppm, posing a risk to rice and fish farms. One sample reportedly had				

up to 119 ppm. The value in one sample was 119 ppm. Sample 15 was collected from an irrigation channel that supplied water to rice crops and fish farms. As a result, iron may be found in almost any grain or seafood.				
Bengkulu, Merigi: • **The existence of underground coal mining, which produces pollution and**	• PT. Citra Buana Selaras • Police • TNI	• Rejang Gunung Bungkuk Forum (FRGB) • WALHI, the KPA, KontraS, JATAM, and	Local farmers and communities	• The regional administration declared that they

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environmental harm, endangers civilian communities. • **Farmers want the company's permission withdrawn and its operations terminated. The location, on the other hand, was secured by police and the TNI. The protesters eventually collide. Officers used tear gas and**		other civil society organizations denounced the police officers' aggression, arrogance, and injustice. • They encouraged the police to stop employing violence in dealing with environmental and natural resource/agrarian problems, and to stop assisting and siding with companies in disputes with		do not have the right to stop the mine because it has passed the AMDAL of the Environmental Agency and the Mining Agency. • The central Bengkulu regent, on the other hand, announced that all

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shot many individuals.		citizens. • The Civil Society Coalition also urges President Joko Widodo to emphasize environmental sustainability and citizen welfare, as well as to put an end to harmful mining.		medical bills for conflict casualties will be covered.
West Kalimantan, Sempayau: • **Coal mining activity is around 700 meters from the nearest dwellings. This**	PT Ganda Alam Mandiri (GAM)	• Local community • Village head	• Elderly • Babies	There has been no response from the government, except from the village head (*kepala desa*), who has also

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circumstance has resulted in significant air pollution (high intensity dust). In October of 2016, the firm commenced operations. However, residents worry not just about the air pollution, but also about the machine's noise and brightness. • **Meanwhile, PT GAM is still operating without a complete**				urged the company to be responsible.

authorization, having acquired just a "regional suggestion permit" in 2009 and a "provincial recommendation permit" in 2010.				
East Sumatera, Sawahlunto: • **In March 2017, more than two persons were killed in the coal mining area. Coal mining in Sawahlunto has raised the**	CV Bara Mitra Kencana (BMK)	Victim's family	Productive age man	No response

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possibility of methane gas. Two locations burst in one month, killing three people.				
West Kalimantan, Sanga-Sanga: • **Between 2011 and 2015, 21 children drowned in pit mines, with the figure increasing to 25 by November 2016. JATAM, along with women and children, demands that the government**	1.400 coal companies in East Kalimantan on general and Sanga Sanga on specific	• JATAM • Victims' mothers	Children	KLHK, Kemenhut, POLRI, and KSP have announced that they will conduct "joint surveillance" under the supervision of the coordinating ministry for political and security matters.

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investigate and revoke all mining licences near residential areas immediately.				

Notes: compiled from various sources, such as pedomanbengkulu.com, eksposkaltim.com, kaltim.tribunnews.com, Kompas.com, and kaltim.prokal.co. Crosschecked using official report from JATAM, Waterkeeper Alliance, and WALHI.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

It contains an answer or explanation to the problem of research. Moreover, it can also be added to the development prospects of the research and the further application in subsequent studies.

There is no one-size-fits-all answer to severing Indonesia's coal mining chain. As demonstrated, there was still a significant desire to use coal energy. However, it should be an imposition on the government to develop particular policies that promote green energy. Coal mining, in this respect, need widespread agreement at the national, municipal, and international levels. The coal mining business is not a separate enterprise in terms of macroeconomics; rather, it is complicated and linked across countries. Most nations should share the same environmental concerns in order to minimize the use of coal, so that negative externalities are not borne by the people.

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