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Just Energy Transition in Coal Regions

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CASE STUDY

How do coal mining companies in Indonesia support regional development for a post-coal economy?

Author: Godwin Limberg
Editors: Nafisa Iskandar and Martin Keim

Key takeaways

This case study from Indonesia includes examples of best practices from coal companies in conducting activities to support local economic development during the 1) exploitation and 2) mine closure stages. The following points summarise learnings from the case studies from Indonesia that could be helpful for regions or communities facing similar circumstances:

- In the early stages, the company should invest in the identification of 'local champions', both in regional government and communities/local NGOs. These champions are important in initiating discussions on regional sustainable development, community empowerment, and economic diversification. They can also facilitate the participation of the right representative to ensure broad representation for input and dialogue during key stages of the mine life cycle.
- Companies need to strike a good balance between conventional 'community development' programmes, which specific stakeholders may expect, and long-term capacity building and investment that provides a lasting legacy. The capacity building should cover enhancing existing sources of livelihood, e.g.

advancing technical, business, and management skills to spur new economic developments.

- No examples of companies applying best practices at every single mining stage were found. The lack of such examples is due to several factors, e.g. limited funding, different priorities/company values, and weak governance, which will have to be considered in the future.

Context

In response to climate change risks, Indonesia has announced its national commitment to reduce GHG emissions since the 2009 G20 meeting in Pittsburgh, USA. Indonesia is among the top 10 emitting nations and is highly vulnerable to the impacts of climate change (Bappenas, 2011). In his speech, the president pledged to reduce greenhouse gas emissions by 26% by 2020 through national efforts and by 41% with international assistance (Bappenas, 2011). Indonesia's enhanced Nationally Determined Contribution (NDC) to support the Paris Agreement was submitted by the government in 2022 with a strengthened commitment to an unconditional target of 31.89% reduction and a conditional target of up to 43.2% in 2030 (GoI, 2022).

Among all the sectors outlined in Indonesia's NDC, the energy sector stands out as the primary contributor to GHG emissions in Indonesia (GoI, 2022). About two-thirds of Indonesia's electricity is generated by coal-fired power plants, accounting for more than a quarter of the country's total CO_2 emissions (GoI, 2022). At COP 26, Indonesia signed up for the Coal to Clean Power Transition statement, agreeing to accelerate its coal phase-out into the 2040s, contingent on receiving additional international financial and technical assistance (UNFCCC,2021). On the same occasion, the country also pledged to reach net zero emissions by 2060 or sooner. During the 2022 G20 summit held in Bali, Indonesia, a Just Energy Transition Partnership was announced with a commitment to mobilise USD 20 billion in public and private capital to peak power sector emissions by 2030 and reach net zero by 2050 (JETP Indonesia, 2023).

Although Indonesia has only an estimated 3.2% of the world's coal reserves (BP, 2021), in 2022, Indonesia was the world's third-largest coal producer after China and India (IEA, 2023). The industry is estimated to employ 250,000 (Cui et al., 2022) and 400,000 (formal) workers (IEA, 2023).

In 2022, Indonesia produced 641 million tons of coal (IEA, 2023), of which only 25% was for domestic use. The production is concentrated in four provinces in Kalimantan and two in Sumatra. East Kalimantan leads with 288 million tons, representing 45% of the nation's total output, followed by South Kalimantan with 210 million tons (33%), Central Kalimantan with 38 million tons (6%), and North Kalimantan with 23 million tons (4%). In Sumatra, South Sumatra produces 57 million tons (9%), while Jambi contributes 10 million tons (2%) (Global Energy Monitor, 2023).

The legal framework in Indonesia requires mining companies, including those engaging in coal mining, to conduct comprehensive environmental and social impact assessments and develop environmental management and mine closure plans prior to commencing mining (GoI, 2020). Additionally, the community development regulation (MEMR, 2018) mandates that coal companies develop a master plan for their corporate social responsibility (CSR) programmes. There are eight key activities covered in this programme, namely (1) education, (2) health, (3) sectoral jobs in the area, (4) economic independence, (5) social and cultural independence, (6) environment, (7) institutional development for community-based activities, and (8) infrastructure development.

However, some mining companies have failed to fully comply with the legal framework, leading to public outcry when negative impacts arise. Most notably, there is a lack of proper mine closure and limited long-term benefits to local communities and efforts for regional development. Coal companies are obligated to perform reclamation and submit a reclamation plan along with a post-mining activity plan following the implementation of Government Regulation No. 78/2010 (Toumbourou et al., 2023). However, despite the regulation being in place, a study in 2017 revealed that 48% of coal companies did not meet their reclamation and post-mining responsibilities (Anggraini et al., 2023). At the same time, the implementation of CSR may often be confined to charitable activities and initiatives aimed at enhancing the social acceptance of mining activities in the area. However, for a just energy transition to thrive, it is imperative to bolster operational standards beyond mere regulatory compliance and identify novel economic opportunities associated with this transition.

Coal mining companies' contribution to regional economic diversification

The primary focus of this case study revolves around the initiatives made by coal mining companies in Indonesia to foster **regional economic diversification**. The study delves into the findings and insights gleaned from two companies operating coal mines in the provinces of East Kalimantan and West Sumatra, highlighting actions taken during two key stages of mining operations: (1) the **exploitation phase**, recognising the importance of economic diversification and preparing for regeneration after the mining has ended; and (2) the **redevelopment phase**, associated with mine closure and aimed at securing favourable post-mining legacy.

During the planning phase, companies often narrowly focus on the technical planning of mining operations with limited activities that consider the potential contributions to regional development. In contrast, the exploitation phase, there is tendency for companies to support visible 'community development' projects, e.g. infrastructure development, such as houses of worship, roads, and village meeting halls, but are much less active in providing capacity building for local stakeholders as a means to strengthen the local economy. Other forms of contribution also include providing food, offering service assistance, or supporting health initiatives (Anggraini et al., 2023). Furthermore, mine reclamation and closure are frequently conducted inadequately

due to lax legal enforcement, fragmented mining governance, and regulatory inconsistencies, providing coal companies with ample opportunities to evade their obligations (Nasir et al., 2022). Between 2015 and 2020, the reclamation realisation increased from approximately 6,700 to 9,700 hectares, only to decline to 4,500 hectares by 2022 (MEMR).

Mining exploitation phase – Kaltim Prima Coal

Kaltim Prima Coal operates one of the world's largest open-pit mines in East Kalimantan, spanning 84,000 hectares and employing over 25,000 people (workers and contractors) (KPC, 2023). When this coal mining operation commenced in 1990, the nearby village was a small community primarily comprised of subsistence farmers and fishermen. Over time, a bustling mining town developed, with numerous activities directly or indirectly linked to the mining operations. Kaltim Prima Coal is an example of a coal mining company that took early initiatives in the late 1990s to promote regional economic diversification and regeneration. Recognizing the potential overreliance on the mining sector, the company identified opportunities for economic diversification and resilience beyond the lifespan of the mining operations. Given that most local residents were farmers, the company invested in agricultural training and capacity building to broaden the income sources of these people. The company also supported the improvement of the road networks, which provide infrastructure for agricultural produce that supply the local needs (connected to the mining operations) and the wider region. For example, in 2021, the 50 micro and small enterprises facilitated by Kaltim Prima Coal supplied 76% of the eggs consumed in the district (KPC, 2021). During the same period, Kaltim Prima Coal procured goods and services totaling USD 1.33 million from 21 local suppliers it had previously trained and mentored (KPC, 2021).

Mine closure phase – Bukit Asam Ombilin

The Ombilin mine, situated in Sawahlunto, West Sumatra, was established during the Dutch colonial period and subsequently managed by the state-owned enterprise PT Bukit Asam Tbk after independence. The surface mining operations at Ombilin ceased in 2002, a decision precipitated by the financial crises of 1998 and exacerbated by rampant unauthorised mining activities, which led to substantial financial losses and depletion of coal reserves (Narny & Hanif, 2016). The cessation of mining activities was abrupt, with the company focused on securing the remaining assets. This rapid action resulted in a sharp decline in the workforce, significantly affecting the regional economy. Confronted with challenging economic circumstances, the local government engaged in discussions with legislators and the community to revive the city immediately after the official closure of the mine. Tourism was identified as a potential alternative to drive economic growth since Sawahlunto has unique potentials, such as historic colonial-era mining buildings or abandoned tunnels used for underground mining (Permadi et al., 2021). The municipal government enshrined its long-term commitment to comprehensive master plans and local regulations. It acted as the facilitator to engage various stakeholders, such as the national

government, Bukit Asam, and academic institutions, to contribute to achieving the vision of developing Sawahlunto as a world-class tourism destination.

The post-mine site was developed into a national geopark through a solid collaboration between the Sawahlunto municipal government, Bukit Asam, and the Ministry of Energy and Mineral Resources. At the same time, some mining facilities previously owned by the Bukit Asam have been transformed into city landmarks, one of which was converted into a Mine Training Center. The city's transformation is achieved through the substantial contributions of the CSR programme initiated by the PT Bukit Asam Ombilin Mining Unit (PTBA UPO), which focuses on community empowerment. This effort is complemented by government funds and private-sector investments (Permadi et al., 2021). Bukit Asam contributed over USD 1.1 million through its CSR programme between 2015 and 2019, which resulted in reviving the regional economy that had experienced a significant downturn and outflux of people after the coal mine was closed (Permadi et al., 2021). Among others, the number of tourists visiting has increased from 750,000 in 2013 to 870.000 in 2017. In 2019, UNESCO declared the Ombilin Coal Mining Heritage of Sawahlunto a World Heritage Site (UNESCO, 2019).

Key Drivers

Company's commitment to achieve operational excellence: An important driver is the commitment of a company to adhere to best mining practices and even go beyond compliance. The companies highlighted in this case study not only made this commitment at their highest decision-making levels but also achieved 'translating' this commitment in the field operations to implement activities that may be new to the operational teams. In Ombilin's case, the company's commitment strengthened following the encouragement and support from the national government, including the Ministry of Education and Culture (Permadi et al., 2021) and the Ministry of Mineral and Energy Resource (BPSDM, 2021). Additionally, the nomination of the post-mine site as a UNESCO Cultural Heritage also led to a boost in PT BA UPO's CSR funds realisation between 2018 and 2019 (Permadi et al., 2021).

Company internal capacity: Strong company teams focused on community empowerment, adept in balancing between expectations and demands for quick, visible benefits from the mining operations, and investing in capacity building and community empowerment as a strategy to provide a lasting positive contribution to the region.

Working with local champions to plan sustainable regional development: Irrespective of the phase of a company's operations, it is beneficial to collaborate with relevant stakeholders from the regional government and civil society who harbour genuine interest in sustainable development. Engaging these persons in joint activities, e.g. training to increase technical knowledge or a workshop to develop ideas, served as a good starting point to build relations and trust. Over time, this collaboration can then be expanded based on the collaborative identification of opportunities and local priorities.

Main Challenges

4.1 Mining operation phase – Kaltim Prima Coal

When Kaltim Prima Coal embarked on supporting economic diversification efforts, particularly in agriculture, it encountered notable obstacles:

- Incomes in the mining industry are relatively high, making agriculture a less attractive economic option.
- In addition, agriculture is a riskier business as the result depends on weather and other factors.
- Introducing new agricultural knowledge and technologies takes time, as many farmers may continue to use their 'traditional' knowledge.

The key challenge, common in various mining locations, is the perception that agriculture holds less appeal as an economic pursuit compared to employment with the mining company or one of its contractors. Moreover, land speculation around the mine site, in anticipation of potential mine expansion and consequent high compensation payouts to local landowners, has reduced available land for agricultural purposes.

4.2. Mine closure phase – Bukit Asam Ombilin

The main challenges faced by Bukit Asam in successfully closing its mine were widespread illegal mining activities, accelerating coal reserve depletion, and causing a mismatch in planning and implementing the post-coal economy timeline. Additionally, uncertainty over land ownership after coal production ceased heightened tensions and disputes between the company and local communities. With the introduction of local regulations defining the vision and mission of 'Sawahlunto as a Cultural Tourism Mining Town in 2020', the company gradually transferred ownership of areas like Kandi and Tanah Hitam post-mining areas, and utilised some of its assets to support the local government, such as the Train Museum and Goedang Ransoem Museum (PT BA, 2016). These efforts aimed to achieve the vision while concurrently managing the revitalisation of the remaining assets up to this day.

Further recommendations

With growing momentum for a timely and just transition to a low-carbon energy and economy system, an increase in coal mine closures is anticipated in the near future. Notably, mining companies have begun exploring economic opportunities to repurpose former coal mine sites for renewable energy production. Two potential avenues in this context include cultivating fast-growing trees for biomass power generation and investing in solar energy, which currently may be limited to support reducing the company's direct emissions but in the future can be scaled up. A solar panel farm could be situated on land or floating platforms, especially for former mine pits that are challenging to reclaim otherwise. Crucially, implementing an in-depth assessment (e.g. lifecycle assessment) and robust monitoring system across the alternative energy value chain is vital to prevent unintended consequences (e.g. deforestation of primary forests in the case of biomass use for power generation) and potential backlash.

For post-mining sites that are rehabilitated to enhance ecosystems and recreational values, alongside the crucial step of establishing a representative multistakeholder organisation, companies could also consider establishing a financial structure such as a trust fund to provide additional budget towards long-term management.

Simultaneously, while the mining companies are still operating, it will be essential for the Indonesian government to provide strategic direction during the transition phase to assist in a smooth phasing-out process and efficient resource allocation. The government's role extends to designing an appropriate governance system for effective and transparent reclamation and rehabilitation processes, while also fostering innovative approaches and ensuring legal certainty. Such responsibilities may include improving the ratio of mining inspectors for better supervision and ensuring coherence between mining regulations and other sectoral policies (e.g. environment, forestry, spatial planning, and regional government).

Finally, as the mining companies allocate substantial funds to their CSR programmes, this may provide an opportunity for productive investments that enable job creation and the skills needed for the next industrial development towards renewable energy.

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