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Entangled Extraction:
Informal Miners, Companies, and Competition for Gold in Indonesia

by

Matthew J. Libassi

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Environmental Science, Policy, and Management

in the

Graduate Division

of the

University of California, Berkeley

Committee in Charge:

Professor Nancy Lee Peluso, Chair

Professor Sylvia Tiwon

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Professor Michael Mascarenhas

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Abstract

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Professor Nancy Lee Peluso, Chair

Who controls the underground, how, and with what consequences? National resource management policies worldwide maintain that subsurface resources should be owned by states and extracted by permitted industrial firms. However, a rapidly growing number of small-scale miners across the globe challenge this longstanding governance maxim. They insist that mineral deposits are resources that should be open to direct use by local people. Today, an estimated 134 million people spanning 80 countries depend on this use for their livelihoods. In this dissertation, I examine an increasingly common form of resource conflict that has emerged from this context: the juxtaposition of, and competition between, large-scale and small-scale gold mining.

Drawing on twelve months of ethnographic research, I explore the history, dynamics, and consequences of competing claims to gold between industrial and small-scale mining. I examine the case of Pongkor, a mining region located in upland West Java just outside Indonesia's massive Jabodetabek metropolitan area. In Pongkor, the state-owned mining company, Antam, and thousands of independent, technically illegal, miners have competed over the same gold deposits for more than twenty-five years. Antam insists that it alone holds legal rights to local minerals, but nearby residents have challenged this authority, claiming that informal extraction has benefited the community more than the company ever has. In my analysis, I complicate the outward appearance of this environmental "conflict," showing the many ways Antam and informal, small-scale miners are entangled. Together, they have co-produced Pongkor's overlapping extractive landscape—a space in which competition over gold has transformed livelihood strategies, labor dynamics, modes of governing territory, personal identities, and regional politics.

I describe these processes of transformation and their uneven effects on the people who live and work in Pongkor through five interlinked chapters. I focus especially on two groups of mining workers: Antam's employees and small-scale miners. In Chapter One, I dive into Pongkor's history, arguing that present conflicts between Antam and small-scale miners are rooted in earlier efforts by the state and industrial mining operations to order and extract profit from the region. In Chapter Two, I examine mining labor in Pongkor. I describe the social organization of local gold production, argue that small-scale miners are increasingly differentiated, and demonstrate that insecurities also plague industrial mining workers. I move underground in Chapter Three to examine how the materialities of the subsurface have shaped

competing territorial projects in intersecting small-scale and industrial mining tunnels. By analyzing various ways of accessing, navigating, and knowing the subterranean, I demonstrate the specific, three-dimensional challenges entailed in maintaining and contesting vertical territory. In Chapter Four, I trace the movement of labor, capital, and information between Antam and small-scale miners and detail the interpersonal connections that tie them together. These forms of everyday entanglement blur the boundary between industrial and small-scale mining, undermining the discursive distinction that the state-owned company attempts to construct. Finally, in Chapter Five, I examine the battle over hearts and minds in Pongkor. Though Antam attempts to shape local residents into subjects amenable to corporate extractive development and to steer them away from unlicensed resource use, many have instead become politically active advocates of small-scale mining. I argue that the identities of all miners, both corporate and informal, in Pongkor have been remade in the process.

To my parents,
who continue to teach and inspire me.

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GLOSSARY OF TERMS

Antam	An Indonesian state-owned mining corporation that operates the industrial gold mine in Pongkor. The company is formally known as PT Aneka Tambang Tbk.
Desa	An Indonesian village or small town. This level of government is below <i>kecamatan</i> and above <i>kampung</i> .
Gelundung	The named used in West Java for steel, cylindrical ore mills employed in small-scale gold processing. These rotating mills are used to crush ore and amalgamate encased gold with mercury.
Gurandil	The colloquial name for small-scale gold miners in Pongkor and throughout West Java and Banten. This designation is inclusive and is used for all types of small-scale mining participants.
Halimun	A name commonly used for an upland, forested region in West Java and Banten, including parts of Pongkor. This area is also associated with Mt. Halimun Salak National Park.
Kabupaten	An Indonesian regency. This level of government is below province and above <i>kecamatan</i> .
Kampung	An Indonesian sub-village or hamlet. This informal level of government is situated below <i>desa</i> and is roughly equivalent with a large neighborhood.
Kecamatan	An Indonesian district. This level of government is below <i>kabupaten</i> and above <i>desa</i> .
Krismon	An abbreviation of <i>Krisis Moneter</i> , the Indonesian name for the 1997 Asian financial crisis.
Lobang	In English, “hole.” The term used for a small-scale mining tunnel or pit. Also, <i>lubang</i> .
Onek	An independent small-scale miner who works with little or no capital and collects ore only at very small scales.
Penambang ilegal	Illegal miner. One of several terms commonly used for small-scale miners in Indonesia (see additional terms below). Also, <i>pertambangan ilegal</i> (illegal mining).
Penambang liar	Wild miner. Also, <i>pertambangan liar</i> (wild mining).
Penambang rakyat	Community miner. Also, <i>pertambangan rakyat</i> (community mining).
Pertambangan tanpa izin	Mining without permits. The term most commonly used by Indonesian government officials and police to refer to unlicensed small-scale mining.
Pongkor	The colloquial name for a gold mining region located in mountainous West Java. The name is most commonly used when referring to the

mining activities that take place there. The region has no specified boundaries.

Reformasi

The Reform Era. A period of social and political transition in Indonesia following the resignation of President Suharto in 1998. This period is typically associated with democratic reforms and decentralization of power.

Rupiah

The official currency of Indonesia.

Sundanese

The cultural and linguistic group associated with West Java.

Tong

A term used for both the equipment and process involved in gold cyanidation in small-scale mining. This processing method is the primary alternative to mercury amalgamation. Also, *gentong*.

LIST OF ACRONYMS

APRI	<i>Asosiasi Penambang Rakyat Indonesia</i> (Association of Indonesian Community Miners)
CSR	Corporate social responsibility
CV	<i>Commanditaire Vennootschap</i> (Limited Liability Enterprise)
HGU	<i>Hak Guna Usaha</i> (Right to Cultivate License)
IPR	<i>Izin Pertambangan Rakyat</i> (Community Mining Permit)
NGO	Non-governmental organization
PESK	<i>Pertambangan skala kecil</i> (small-scale mining)
PETI	<i>Pertambangan tanpa izin</i> (mining without permits)
PT	<i>Perseroan Terbatas</i> (Limited Liability Company)
UBPE	<i>Unit Bisnis Pertambangan Emas</i> (Gold Mining Business Unit)
UIP	<i>Izin Usaha Pertambangan</i> (Mining Business Permit)
UN	United Nations
VOC	<i>Vereenigde Oost Indische Compagnie</i> (Dutch East India Company)
WPR	<i>Wilayah Pertambangan Rakyat</i> (Community Mining Area)

NOTE ON NAMES

In order to protect the privacy of my sources, all person and place names provided in this dissertation are pseudonyms. Pongkor, the name of a general region with unspecified boundaries, is the primary exception to this rule. Geographic regions larger than Pongkor, for example, Bogor Regency and West Java are used normally.

When referring to individuals, I follow the naming conventions common in the western part of West Java. I use honorifics typically used in this part of Indonesia, both as an accurate representation of how I might have spoken with these people and to give the reader a sense of the social positioning of these individuals. For example, Bu (Ms.) and Pak (Mr.) are Indonesian terms typically used for non-local, non-Sundanese, or people with whom one does not have a familiar relationship. Mang (younger uncle) and Kang (Mr., or older uncle), honorifics of Sundanese origin, are more typically used for local people. Om (uncle) is used for non-Sundanese people or those who are otherwise from outside the region, such as myself.

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All inadequacies are, of course, my own.

INTRODUCTION

1. Claiming Gold

For the past thirty years, the biggest story in Pongkor has been gold. Newspaper articles and dramatic television clips have made this mountainous region of West Java well-known as both the site of a large industrial mine and one of Indonesia's most dramatic small-scale mining rushes. But, for the people who actually live and work in Pongkor, everyday life revolves around a more pressing question: "Who *should* be able to access and use local gold?"

To Antam, the state-owned corporation that operates the industrial mine, the answer to this question is clear. The company is the exclusive holder of government-issued mining permits in Pongkor, thus local gold is unambiguously theirs to extract. Moreover, they argue that their operations employ "mining best practices" and manage "vital resources" for the benefit of the entire nation. The thousands of small-scale gold miners operating without permits in the same area, however, have developed a series of counter-narratives to stake their own claims. They say that incomes from informal gold are used to feed hungry mouths, pave roads, repair mosques, and otherwise support the community. Others proclaim that Allah has given these resources to people, not nation-states. Local, small-scale extraction of gold, they insist, has done more to promote village and family well-being than the company or government ever have.

The debate in Pongkor is one case of a multitude of political battles being waged in sites of extraction across the world. It calls forth questions that constantly reappear in conflicts over mineral resources: How can minerals be managed more sustainably and equitably? Who can or should be tasked with managing them? And what constitutes a credible claim to the underground? In this dissertation, I examine the case of Pongkor to understand how these questions are being asked and fought over in the context of competition between large- and small-scale mining operations. In doing so, I contribute to the study of resource extraction and, more broadly, the socially uneven effects of environmental use and change. I draw and build on scholarship from the academic fields of political ecology, critical geography, and environmental justice, as well as on analyses of natural resource policy.

The case of Pongkor provides a window into an emergent global environmental justice concern: conflict between industrial and small-scale mining operations. Underground resource extraction is a fundamental society-environment relationship. Nearly everyone participates in the worldwide exchange of minerals and fuels, the removal of which often generates social inequalities, local and global environmental impacts, and political conflict. Conventionally, these resources are managed by states and extracted by industrial firms. However, the dramatic (re)emergence of small-scale, typically informal, actors in mining over the past two decades is reshaping mineral production. Today, over 44 million small-scale miners are at work in more than 80 countries. At least 134 million people work in supporting industries or otherwise depend on the sector for income. While an important source of local livelihoods, small-scale mining has also stimulated conflict over land, pollution, and the tricky questions of who can claim and use mineral resources (World Bank, 2020). Accordingly, this shift raises pressing international concerns about how to sustainably source minerals, support equitable rural development, and govern the subterranean. Governments the world over increasingly recognize that new or revised mining policies will be needed to meet these challenges (see Hilson, Hilson, Maconachie, McQuilken, & Goumandakoye, 2017; Marshall & Veiga, 2017). Yet, the people who participate

in small-scale mining are still poorly understood or outright villainized. And, unlike many mining conflicts, a key question regarding small-scale miners is not *whether* mining should take place, but *who* should be able to participate and receive associated benefits. In this dissertation, I explore how these emerging dynamics are changing what we know about everyday life, politics, livelihoods, and nature in the places where we source gold. I bring this question to Indonesia, one of the world's top ten gold producing countries and home to over one million people who depend on small-scale gold mining incomes (Ismawati, Zaki, & Septiono, 2018). Within Indonesia, I focus on Pongkor—one of the nation's best-known sites of gold mining conflict.

Dominant resource management policies and scholarship often frame the conflict between small- and large-scale mining in terms of binaries or opposition. Policymakers, governance analysts, and corporate interests often envision large-scale, industrial mining as a modern vehicle for development while treating small-scale mining as immoral theft (e.g., C. Aspinall, 2001; Gewati, 2016; see also Tschakert, 2016). In other cases, industrial mining is represented as part of the formal sector, whereas small-scale mining is marked as an “unruly” or “informal” sector in need of regulation (e.g., Marshall & Veiga, 2017; Siegel & Veiga, 2009; Zvarivadza & Nhleko, 2018). Even development and natural resource scholars, who may bring a more nuanced understanding of the (il)legalities of mining and the unequal power dynamics that constitute them, tend to treat small- and large-scale mining operations as interacting, or “interfacing,” entities that are more or less discrete (e.g., Hilson, Sauerwein, & Owen, 2020; Kemp & Owen, 2019; Okoh, 2014).

Following these interpretations, I initially went to Pongkor with the goal of learning more about the “conflict” between two entities: a large-scale mining operation and a community of small-scale gold miners. What I found was a surprise. While the small- and large-scale mining were often visibly and rhetorically distinct—and there is evident conflict between mining groups—I found on closer examination that all forms of mining in Pongkor shaped each other. The conceptual divisions at their foundation, those that shape both scholarship and policy, were dynamic, sometimes shifting, and always blurred. Like gold itself—a malleable precious metal that can be easily shaped into different forms, but is always composed of undifferentiated elemental material—mining in Pongkor coalesces into different configurations, but ultimately cannot be truly disentangled.

In this dissertation, I show the many ways large- and small-scale mining are interconnected, arguing against interpretations of them as distinct. The “two sectors” are dynamically evolving, relationally-shaped manifestations of the same global, gold sourcing regime, more visible when operating side-by-side. I argue Antam and small-scale miners have co-produced histories of mining, gold production practices, local politics, and identities in Pongkor. I employ the term “entanglement” in two senses: first, to foreground the connections between industrial and small-scale mining and, second, to signify the interrelation of the various frames I employ to analyze Pongkor. I consider the case from the lenses of political economy of labor; resource control and resource territories; cultural politics and environmental identities; and resource materiality—a multi-focal and multi-scalar approach I draw from the field of political ecology. Through the chapters that follow, I extend the literatures oriented around each of these conceptual frames. For example, I demonstrate how the particularities of mining labor make it insecure; I argue that the materiality of the underground creates opportunities and constraints for territorialization; and I trace processes of subject formation that have resulted in new mining identities. Simultaneously, I show, in political-ecological fashion, how each of these dynamics,

like large- and small-scale mining, are entangled. Together, they produce Pongkor, the people who live and work there, and the conflicts they are embroiled in.

I collected data through close access to both the small-scale and industrial mining worlds during nearly a year of research in Pongkor. I lived with small-scale miners in two hamlets (*kampung*) and visited small-scale miners living and working in three villages (*desa*) in the region. This enabled me to see and experience the everyday practices and politics of informal mining. I also had extensive access within Antam. I interviewed mine security guards and staff, corporate social responsibility (CSR) officers, environmental specialists, and senior corporate officials. I visited Antam's offices, toured the interiors of their tunnels, observed their interactions with small-scale miners, and collected company documents on their operations and plans for community engagement in Pongkor.

One goal of my research is to humanize small-scale miners. This step is critical to creating more equitable and sustainable small-scale mining management policies, both in Indonesia and the world over. While vital as a livelihood in many gold-bearing regions, small-scale gold mining is dangerous for participants. It is also accused of being the world's leading source of toxic mercury emissions (UN Environment, 2019). The search to resolve these issues has too often led to analysis of small-scale mining that emphasizes the technical at the expense of the human. Instead, I show how the small-scale miners of Pongkor, locally called *gurandil*, are pursuing more than livelihoods. Many are fighting for a way of life. Crafting better policies to manage small-scale mining—vital to supporting both people and environments—will only be possible by recognizing small-scale mining's interrelations with industrial mining and the conflicts, inequalities, and identities that emerge as a result.

2. Mining in Indonesia

2.1. Mining Histories

“Indonesia adalah negara yang kaya.” In English, “Indonesia is a rich nation.” This saying, frequently uttered and heard in Indonesia, is almost always imbued with tension. Often, it is preceded by the word “actually” or followed by “but.” Reference to wealth in natural resources is usually intended. The phrase simultaneously conjures images of Indonesia's history of resource extraction and its unfilled potential, the contrast between contemporary affluence and poverty, and the country's promise for the future. This same tension is ever-present in conversations about and conflicts around Indonesia's mining industry. It is all the more acute in contexts involving informal mining, where unlicensed miners seem to offer a challenge and an alternative to existing, state-legitimated ways of managing and distributing the nation's natural wealth. Understanding the situation in Pongkor, and small-scale mining more broadly, requires a preliminary look at the place of mining in the Indonesian nation.

Historically, economically, and politically, mining is important for Indonesia. The country is a major global producer of coal, copper, gold, tin, bauxite, and nickel and is consistently ranked as a top target for future mining investment (PwC, 2019). Its mineral reserves drew the attention of its Dutch colonizers (ter Braake, 1944; van Bemmelen, 1949), spurred foreign investment and corruption during the Suharto era (Bridge, 2004; Leith, 2002; Robison, 1986), and, most recently, have been the target of renewed resource-nationalist policies that reverse the neoliberal impulse of previous mineral codes (Pedersen et al., 2019; Warburton,

2017).¹ The legal arrangement for managing Indonesia's mineral resources is laid out in Article 33 of the 1945 Constitution. "*Bumi, air dan kekayaan alam yang terkandung didalamnya dikuasai oleh Negara dan dipergunakan untuk sebesar-besarnya kemakmuran rakyat.*" "The land, water, and natural wealth contained therein shall be controlled by the State and used for the greatest benefit of the people." This statement is unambiguous in declaring that the state will manage the country's mineral resources. However, Article 33's second clause offers more opportunity for interpretation. "Indonesia is a rich nation," but critics ask if its resources have been successfully managed for the "greatest benefit of the people."

Historians, social and natural scientists, and activists have taken up this question, examining Indonesia's formal mining sector in terms of the distribution of benefits, labor, land disputes, pollution, and/or human rights. Erwiza Erman has led the charge in examining the mining operations of colonial-era Indonesia, focusing especially on the Ombilin coal mine and Bangka's long-running tin mining operations. Akin to analyses of labor on agricultural plantations in the Netherlands East Indies (Breman, 1983; Stoler, 1995), Erman's work has highlighted how class, gender, and race were deployed for colonial control of the mines, often with differentiated and dire effects for laborers (Erman, 1999, 2010). During Suharto's New Order regime (1966-1998), the government created state-owned extractive companies, including Antam and Pertamina, while tasking the military with securing control of minerals and other resources. Simultaneously, it liberalized mining law and policy and invited many foreign mining corporations to the country. Social scientists and activists critically analyzed the effects of the boom in new, multinational mining operations on local populations. In one of the earliest ethnographic analyses of mining in Indonesia, anthropologist Kathryn Robinson (1986) examined the development of capitalist relations, changing cultural norms, and emergent class divisions around Inco's Soroako nickel mine in Sulawesi in the 1980s. Freeport-McMoRan's massive Grasberg copper-gold mine, located in Papua province, attracted even more attention and controversy. Activists and scholars have been critical of the Freeport-McMoRan's close relationship with the Indonesian military, have alleged violent human rights abuses and environmental damage, cited protests of local Indigenous communities, and pointed out disparities between the mine's extreme wealth and its host province's relative poverty (Ballard, 2002; Ballard & Banks, 2003; Leith, 2002).

Since the late 1990s, which saw both the fall of President Suharto and growth of anti-mining activism worldwide, analysis of mining in Indonesia has expanded and become more varied and particular. Globally, neoliberal corporate self-governance became the model for managing mining conflicts (Jacka, 2018; Newell, 2005; Owen & Kemp, 2013) and, accordingly, more scholars have emphasized themes of the corporation and corporate social responsibility. For example, anthropologist Marina Welker (2014) analyzed how conflicts over the distribution of mining benefits unfold in the context of the Newmont Batu Hijau copper-gold mine on the Indonesian island of Sumbawa. She argues for disaggregated understandings of both corporation and community, showing how divergent interests and particular individuals shape the experiences, expectations, and behaviors of mining communities. Other scholars have

¹ Law No. 4/2009 on Minerals and Coal Mining dramatically changed the mineral permitting system in Indonesia, transitioning away from the "Contract of Work" system that had been in place since 1967. While the Contract of Work system was often seen as favoring foreign companies, the 2009 mining law has several provisions often described as resource-nationalist. These include a requirement for foreign mining companies to slowly divest, transitioning their assets to Indonesian-owned entities, as well as an obligation to process most minerals within Indonesia rather than exporting raw ores.

emphasized the differentiated social and cultural experiences of living around or working at mines in Indonesia. A group of anthropologists at Australian National University, for example, have examined the gendered dynamics of mining operations and their constituent practices (Lahiri-Dutt, 2013; Lahiri-Dutt & Robinson, 2008; Mahy, 2011). Scholars have also documented controversies surrounding land use, the consent of local populations to corporate mining, and around smaller and Indonesian-owned mines in areas such as Halmahera, East Nusa Tenggara, and Yogyakarta (D'Hondt, 2010; Erb, 2016; Yanuardy, 2012).

Other recent analyses have examined new national mining policies. An important focus has been the endeavor to secure more domestic benefits from mining, a shift away from decades of mining liberalization that benefited foreign companies, through the 2009 Mining Law (Warburton, 2017). Among the key provisions of this law are that most minerals dug from Indonesian soils must be processed within the country before export (thereby capturing value-added) and increased divestment requirements for foreign companies, who now must eventually transition to majority Indonesian ownership. These new policies simultaneously signify the Indonesian state's commitment to mining-led development and a retrospective critique of neocolonial modes of extraction. The new policies can be seen as a tacit admission that the state has not always managed subterranean resources "for the greatest benefit of the people," but that it has a plan for doing so now. At the same time, hundreds of thousands of Indonesian miners and their supporters have an alternative answer to this problem: to give control of some minerals directly to the people through small-scale mining.

2.2. *The Spread of Small-Scale Mining*

Small-scale gold mining is a widespread phenomenon, occurring in at least 80 countries worldwide and accounting for some 20 percent of global gold production (Buxton, 2013). Today, Indonesia is recognized by the United Nations as one of the most significant of these countries in terms of number of mining participants and the volumes of gold produced. Current estimates suggest that more than 300,000 Indonesians are directly involving in small-scale gold mining work, while one million depend on incomes from these activities. These mining activities occur in more than 1,200 "hotspots" spanning at least 30 of Indonesia's 34 provinces (Blacksmith Institute & Yayasan Tambuhak Sinta, 2013; Ismawati et al., 2018). Experts suggest that some 20 metric tons of gold may be produced by informal gold sources in Indonesia each year (Seccatore, Veiga, Origliasso, Marin, & De Tomi, 2014). Additionally, the country is estimated to be the world's third greatest emitter of mercury, a toxic heavy metal frequently used in small-scale gold processing (Spiegel et al., 2018).²

Small-scale gold production has a long history in Indonesia. Sumatra, for example, was previously known by the Sanskrit name *Swarnadwipa*, meaning "Island of Gold," and was cited as the location of numerous gold mines by early Indian and Arab traders (Drakard, 1999). West Kalimantan, likewise, became the focus of extensive gold extraction driven by Chinese migrants and traders in the mid-eighteenth century (Heidhues, 2003). Later, Dutch colonial operations, often following indigenous miners, opened mines in West Sumatra, Bengkulu, Banten, West Java, and North Sulawesi in the late nineteenth and early twentieth centuries (ter Braake, 1944; van Bemmelen, 1949). These early activities served as key historical antecedents to today's small-scale mining sector (e.g., Peluso, 2018; Soemarwoto & Ellen, 2010; Znoj, 1998). People living in

² It is worth noting the number of small-scale miners and the amount of gold they produce are notoriously difficult to estimate.

proximity to these extractive sites developed (or augmented existing) traditions of mining knowledge, practice, and livelihoods. Today, these locations continue to be centers of small-scale gold production and miners from them are often considered by their peers to be the “original” Indonesian miners.



Figure 1: Map of Indonesia with provincial borders and dots indicating the location of historically significant small-scale and colonial gold mining sites.

Beginning in the 1980s, however, small-scale mining grew beyond these historically important sites and has since experienced unprecedented geographic expansion and intensification. At first, in the 1980s and 1990s, this growth paralleled an increase in foreign investment in Indonesia’s formal mining industry. As Suharto-era economic liberalization policies fueled Indonesia’s participation in the global mining “bonanza” (Bridge, 2004), small-scale miners both followed and were followed by new, international gold exploration expeditions (Tsing, 2005; Williams, 1988). The Asian Financial Crisis beginning in 1997 added further fuel to the informal mining sector. The ensuing devaluation of local currency and masses of newly unemployed sparked a flood of new entrants into small-scale mining (McMahon et al., 2000). Dramatic national political changes soon followed. The fall of authoritarian president Suharto in 1998 brought a shift away from decades of brutal policing and new *Reformasi* (Reform Era) decentralization policies produced ambiguities over what level of government was responsible for natural resource permitting, zoning, and taxation. As was the case with other resources (Casson & Obidzinski, 2002), the uncertainties created by these shifts likely opened new opportunities for informal gold mining.

In the intervening decades, Indonesia’s small-scale mining sector has continued to grow. It has expanded in geographic scope, spreading in areas with known gold reserves as well as in previously unexplored regions. Some of the most recent major rushes, such as those in Bombana, Southeast Sulawesi (beginning in 2008) and Gunung Botak, Maluku (beginning in 2011) demonstrate miners’ capacity to mobilize quickly in distant reaches of the archipelago (Erman, 2015; Male, Reichelt-Brushett, Pocock, & Nanlohy, 2013). Supporting industries have also grown in Indonesia. One example is the recent and dramatic rise in domestic mercury production and trade (including cinnabar mining, refining, and sale of the resultant mercury), an informal industry aimed exclusively at supplying small-scale mining with mercury for gold amalgamation

(BaliFokus, 2017; Spiegel et al., 2018).³ There is tremendous diversity of small-scale mining practices across Indonesia. Dredge-based and hydraulic operations are common in Kalimantan, whereas hard rock tunneling predominates in many parts of Sumatra and Java. In West Papua, some informal mining communities work entirely on industrial mine tailings flowing downstream from the massive Freeport-McMoRan Grasberg mine (Schulman, 2016). While the material character of local gold deposits and their geological contexts are major factors in producing these differences, gold mining practices cannot be understood simply as technical or environmentally determined. Rather, as this dissertation repeatedly demonstrates, informal gold production and the lives of workers and dependents connected to gold are shaped by a multi-scalar interplay of political-economic forces, geological conditions, local socio-natural histories, and cultural contexts.



Figure 2: Locations of small-scale gold mining sites throughout the Indonesian archipelago. Data compiled from various sources (see above), accurate as of 2013 (source: Blacksmith Institute & Yayasan Tambuhak Sinta, 2013).

2.3. "Wild Mining" and the Fetishism of Mercury

The expansion of small-scale gold mining has, by and large, been met with concern and critique. Popularly, small-scale mining is often called *pertambangan liar*, wild mining, or, for actual sites of extraction, *tambang liar*, wild mines. The word *liar* (wild) captures much of the typical connotation small-scale mining carries in Indonesia. Government policy and popular

³ Indonesian authorities claim that police have halted these mercury production activities. However, the presence of cinnabar ore (from which mercury is produced) in Indonesia, alongside local knowledge of how to refine it, ensure that domestic sourcing of mercury will always be a possibility.

media rhetoric depict it as uncontrolled, deviant, and spontaneous—somehow an activity that has no history, cause, or context. Many people, including officials in Indonesian ministries, gave me a simple explanation for “wild mining.” “*Ada gula, ada semut*” or, “where there is sugar, there will be ants.” This conceptualization frames small-scale mining as both inevitable and disconnected from the social world; a product of geology and instinctual human nature, rather than socio-cultural dynamics, political-economic shifts, or deeper histories. Moreover, this framing presents small-scale mining participants as greedy rather than needy, unruly rather than ordered, and opportunistic rather than a compelled by circumstance.

Within this broadly negative perception of small-scale mining, more precise critiques are made by particular actors and in particular contexts. Corporate mining advocates and mining policymakers bemoan the challenges that small-scale mining presents for formal extraction operations. National and local government organizations, especially police, claim informal mining is illegal and participants are no more than thieves pilfering the nation’s wealth. Environmental activists, community NGOs, and international organizations call for attention to social, ecological, and health concerns associated with mining, particularly those related to mercury release. National and local media reinforce many of these narratives via dramatic depictions of mining booms and policing crackdowns (e.g., Gewati, 2016). Alongside “wild mining,” these narratives depict informal, small-scale mining as fundamentally *different* from formal, industrial mining—a distinction that, we shall see, is regularly deployed by Antam in Pongkor. Troubling these narratives—first, that small-scale mining is “wild” and disconnected from broader social contexts, and second, that it is distinct from the formal mining sphere—is a key goal of this dissertation.

These negative public perceptions are mirrored by national government policies that mark small-scale mining as deviant. This centers around two forms of illegality. First is the absence of formal permitting. In government spheres, informal mining is often referred to by the acronym PETI, *Pertambangan Tanpa Izin* (Mining Without Permits). In theory, a pathway for legal small-scale mining exists through a nested permitting system involving two types of permits: *Wilayah Pertambangan Rakyat* (WPR, Community Mining Areas) and *Izin Pertambangan Rakyat* (IPR, Community Mining Permits).⁴ In practice, however, WPR and IPR permits have rarely been allocated. This is especially true in the case of gold mining, which is seen as more environmentally damaging and politically contentious than, for example, sand or gemstone mining. In the few cases where WPR are in place for gold mining, these permits have been provided by local or regional government authorities without approval from the national government (e.g., Gumelar, 2016).⁵ Virtually no small-scale gold mining operations have full, legal recognition from the national Ministry of Energy and Mineral Resources. The lack of permits for small-scale mining also means participants fall afoul of other legal requirements, such as for environmental impact assessments or taxes on mineral production.

The second illegality is the ubiquitous use of toxic, banned substances in small-scale gold processing. Mercury, a neurotoxic heavy metal, has been used for centuries in sites around the

⁴ See Indonesian Law No. 4/2009 on Mineral and Coal Mining. There is some ambiguity about the appropriate translation of these phrases—“*pertambangan rakyat*” is variously translated as community mining, small-scale mining, people’s mining, or smallholder mining. In this text, I use the phrase “community mining,” which is commonly used by both government ministries and small-scale mining advocacy groups.

⁵ This situation is the result of ambiguities over which government institutions (local, district, provincial, or national) have authority to grant these permits as well as what the proper processes for managing and granting them are. See Law No. 22/1999 on decentralization, Law No. 4/2009 on Minerals and Coal Mining, and Law No. 3/2020, a mining law amendment.

world to capture gold from the sediments that encase it. The liquid metal readily amalgamates with gold, binding with it immediately upon making contact, providing a relatively easy way to collect and consolidate small particles of gold. After creating a gold-mercury amalgam, miners can refine it into relatively pure gold (or, often, gold-silver) bullion by simply vaporizing excess mercury with a torch. Today, this method dominates gold processing in small-scale gold mining areas throughout the world. In Indonesia, it is frequently deployed using a rotating cylindrical mill, called a *gelundung* or *tromol*, that grinds and mixes gold ore with a small amount of mercury. In other cases, small-scale miners use more sophisticated but expensive gold cyanidation technology to extract gold from surrounding sediments (see Chapter One for more details). This technique mimics the processing technology utilized in most industrial gold mines today, including Antam's, but at a smaller scale and in a simpler form. However, both mercury and cyanide are controlled substances in Indonesia. They can only be used in a select set of industries and by companies with permits to buy and use these chemicals granted by the Indonesian government. Any small-scale mining that uses these technologies, therefore, is automatically illegal.

The use of mercury in small-scale gold mining has become a heated focal point of international environmental governance initiatives. Mercury pollution is environmentally persistent and circulates globally via atmospheric currents, waterways, and animal tissues in which it accumulates. Both acute and chronic exposures to mercury can be dangerous to humans, particularly to fetuses and children with developing neurological systems. The greatest public health concerns involve exposure to the heavy metal in its organic form, methylmercury, typically through the consumption of large fish. Initiatives to eliminate mercury emissions worldwide have ramped up in recent decades, spearheaded by the 2013 United Nation's Minamata Convention, to which Indonesia is a signatory. Small-scale gold mining has been identified as the largest single source of global mercury emissions, and Indonesia has been labeled the third largest emitter in the world (Spiegel et al., 2018; UN Environment, 2019). The country is therefore under great pressure to manage its small-scale mining activities with the explicit goal of eliminating mercury releases. This has resulted in multiple governance changes at an institutional level. For example, in 2015 new divisions were created within the Ministry of Forestry and Environment specifically to manage environmental damage in small-scale mining sites. Later, in 2017, Indonesia's president, Joko Widodo, outlined a seven-point plan for addressing mercury's use in mining (Prasetyo, 2017). Enforcement in actual mining sites has also changed. For example, the government carried out highly publicized crackdowns in Pongkor, West Java (2015) and Gunung Botak, Maluku (2017), with concerns over mercury used as a justification for these large-scale policing actions. Most recently, beginning in 2019, the Indonesian government has partnered with planetGOLD, a UN and Global Environment Facility (GEF) initiative, to reform the country's small-scale mining activities and eliminate the use of mercury in gold processing (UNDP, 2019).

The lens of mercury has become a primary way of viewing small-scale gold mining in Indonesia and throughout the globe—a preoccupation I call the fetishization of mercury. Without any intention of dismissing the critical importance of improving public health conditions in small-scale mining areas, I argue it is important to understand how the focus on mercury has affected the way small-scale mining communities are viewed, engaged with, and studied. I find that this fetishization often closes down opportunities for reform and has largely written miners out of their own story.

Pongkor offers one example of this phenomenon. Due to local mercury releases, media often portray the region as a direly polluted place. It has even been the focus of tourist-activist “toxic tours.” In these envisionings, both the place and its population are exoticized as embodiments of pollution, warnings of what everyone else doesn’t want to become. Damage narratives are imposed over the people, contexts, and diversity that actually shape life in the community (see Tuck, 2009). In the process, they alienate (and create new fears among) the very people they claim to help. Mercury reduction efforts are composed of strange bedfellows—environmental NGOs, public health authorities, and mining companies join forces to “educate” local populations. These outside experts serve as authority and arbitrator, whereas miners and their families are awkwardly posed as both victim and perpetrator. Their complex characters and livelihood choices are reduced to depictions of greed, backwardness, and hopelessness. This not only sucks the humanity out of mining, but also promotes an undifferentiated understanding that leaves little room to find the “levers” that might be “pulled” to actually improve mining practices.

2.4. *Community Mining, a Decentralized Extractive Future?*

In contrast to conventional popular and policy perspectives on small-scale mining—typically channeled, as described above, through the lenses of “wild mining” or the fetishization of mercury—I reframe mining in order to make forms of engagement more inclusive. I follow recent political-ecological literatures that have emphasized the need to find opportunities through the embrace and understanding, rather than rejection, of contamination (Masco, 2015; Murphy, 2017; Povinelli, 2016). I contextualize this contamination as a by-product of global capital and ask what possibilities might still lie in the resultant ruins (Stoler, 2013; Tsing, 2015). To this end, a goal of this dissertation is to transcend the omnipresent focus on legality and mercury in scholarship and policy on small-scale mining. I keep my analytical lens trained on Pongkor’s miners as people, rather than on the permits they possess or the mining techniques they use.

In contrast to the volumes of scholarly and journalistic ink spilled cataloguing the problems of small-scale mining, this dissertation supposes that an understanding of small-scale mining’s history, structure, and milieu are prerequisite to any potential “solution.” Such an approach can deepen our understanding of the specific mechanisms through which informal mining has emerged, persisted, and expanded. Establishing these connections works to demystify small-scale mining—removing it from the realm of the “wild” and exposing the limitations such a perspective imposes. Moreover, it can help us to extend broader theories about resource access and use and contemporary trajectories of rural development.

In doing so, I build on the work done by both critical scholars of small-scale mining and the miners themselves. While many in Indonesia view small-scale mining as deviant and “wild,” people who live and work in mining communities often understand it as a corrective to the country’s long history of colonial-, state-, and then corporate-controlled resource extraction. The record—whether from history, activist activities, or even the Indonesian state’s new resource-nationalist policies—is clear that many of the people most proximate to industrial mining operations have benefited the least. To small-scale mining advocates, the alternative is obvious: allow local people access to local resources, and if possible, formalize and legalize it. This notion is increasingly taking hold in gold mining regions and with it many miners are using new rhetoric—rather than *pertambangan liar* or PETI, they refer to their work as *pertambangan rakyat*, “community mining.” Advocacy networks, such as APRI (*Asosiasi Penambang Rakyat*

Indonesia, or The Association of Indonesian Community Miners), have reached tens of thousands of people throughout the archipelago and are increasingly frequently invited to serve as stakeholders by state ministries and other policymakers. Giving use of minerals directly to “the people,” (*rakyat*) they argue, is the way to ensure Indonesia’s resources are used “to the greatest benefit of the people.” Gradually, regional governments are also getting onboard. Provincial and district level leaders in areas such as West Kalimantan and North Sulawesi have shown support for legalizing small-scale mining (Putri, 2021; Tololiu, 2021). This is an acknowledgement that many of their constituents already depend on these livelihoods, but also likely an illustration that small-scale mining can be a political-economic force, with lobbyists and advocates, in its own right. To the central government agencies and the formal mining sector, however, recognizing the small-scale mining sector remains a hard sell. In 2018, a senior administrator in the Ministry of Energy and Mineral resources insisted to me that even engaging small-scale mining communities was a dangerous form of “giving our blessings to an illegal activity.”

Without advocating for small-scale mining formalization in the same way, a small but growing group of researchers has fought, counter to more dominant technical assessments, to humanize the people who live and work in small-scale mining communities. Analysis of African contexts have been most numerous, with anthropologists and political-economists demonstrating, among other things, the importance of miner career identities, of the interrelation between agriculture and small-scale mining, and complex dynamics between the formal and informal mining spheres (Bryceson, Fisher, Jønsson, & Mwaipopo, 2014; Hilson et al., 2017; Jønsson & Fold, 2011; Luning & Pijpers, 2017). Latin American countries have also featured prominently in the literature (e.g., Cleary, 1990; Cohen, 2014; Graulau, 2008; Hook, 2019). Similar to this project, some scholars of gold mining in Latin America have problematized the conventional focus on mercury, arguing that the problem of mercury emissions is as much social and political as it is technical (Diaz, 2021; Rubiano-Galvis, forthcoming). In Asia, where perhaps the least research has been completed, Kuntala Lahiri-Dutt has led the way in reframing small-scale miners by, for example, conceptualizing them as “extractive peasants” and highlighting gendered experiences of mining (2011, 2018b). Boris Verbrugge, through his analysis of mining in the Philippines, has pushed forward a more differentiated understanding of mining participants by outlining the importance of capital interests in small-scale mining and the vulnerability of employed workers, among other contributions (Verbrugge, 2014, 2016).

Small-scale mining in Indonesia has also attracted scholarly attention, though arguably not proportionate to the great number and diversity of miners in the country. Erwiza Erman, the country’s resident expert on the social dynamics of mining, has described political-economic dynamics in two of Indonesia’s key small-scale sectors, tin and gold (2007, 2015). Mary Somer Heidhues, a scholar of Chinese-Indonesian history, provides a historical anchor for the long running gold extraction activities in West Kalimantan (2003). Political ecologist Nancy Peluso has brought analysis of this region into the present, examining, among other things, how small-scale miners have come to fill the “smallholder slot” once filled by farmers and how small-scale miners produce non-state resource territories (2015, 2017, 2018). Others have contributed directly on the question of small-scale mining governance, suggesting that Indonesia’s management of its small-scale miners has been haphazard, produced inequalities, and perhaps missed opportunities for development (Langston et al., 2015; Spiegel, 2012). In Pongkor, the case study at the heart of this text, early government sponsored research documented cases of small-scale mining conflict, including between small-scale mining groups and with companies

(Zulkarnain, Pudjiastuti, & Karomah, 2003). Other early scholarship on Pongkor and gold mining in the broader West Java region has been vital to triangulating the historical details of my research and reaffirms the intense socio-cultural rootedness of small-scale mining in the region (Lestari, 2007, 2011; Soemarwoto, 2015; Soemarwoto & Ellen, 2010).

This dissertation brings together analysis of the topics above—on Indonesia’s extractive history, on the dynamics of mining corporations and communities, on narratives and critiques of small-scale mining, and on the emergent scholarship bringing a more human face to interpretations of informal mining—connecting each to the story of Pongkor.

3. Context: Pongkor

My research is situated in Pongkor, an upland region in West Java shaped by the contradiction of being simultaneously central and peripheral. Pongkor is located adjacent to the social, political, and economic heart of Indonesia. It is perched in the mountains on the far outskirts of the massive Jabodetabek metropolitan area that sprawls from Jakarta. It is less than 100 kilometers from the capital city and less than 50 kilometers from the city of Bogor. Pongkor, thus, has never been far from the influence of Indonesia’s urban or administrative centers. However, a dramatic transformation happens in traveling the kilometers, winding up and up, to Pongkor. Villages become slightly less dense, rice fields appear and then give way to agroforestry, and eventually the road meets a nearly impenetrable rainforest, one of the last intact in Java. This green, mountainous boundary space, sandwiched between dense forest and peri-urban sprawl, is Pongkor.

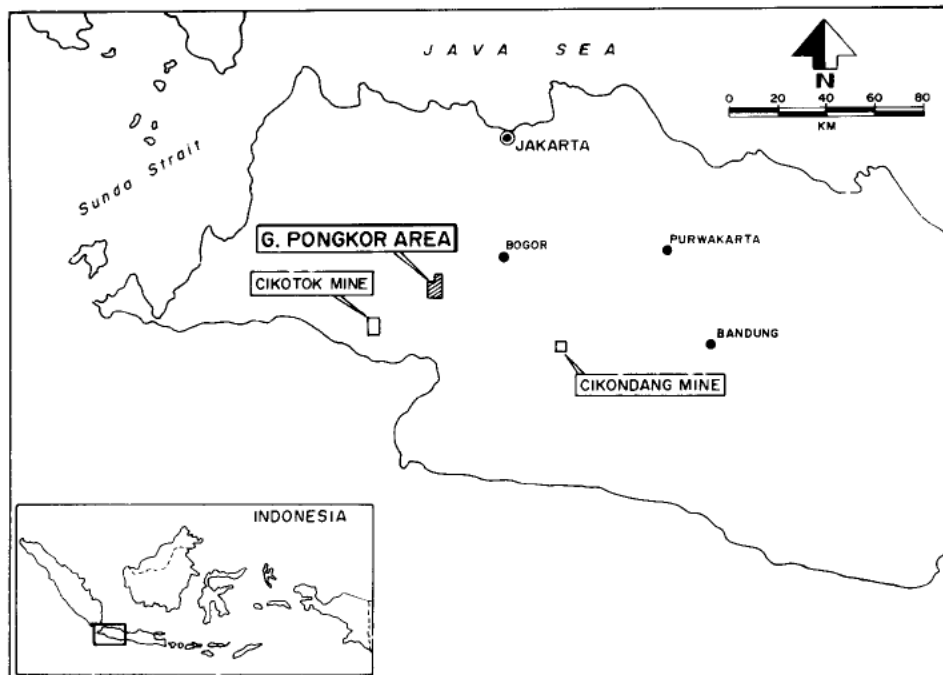


Figure 3: Map of the location of the Pongkor region relative to major cities in West Java and two other mining locations (source: Basuki, Sumanagara, & Sinambela, 1994).

To speak of Pongkor is to speak of gold. The region is home to Java's largest gold mine and is one of Indonesia's most notable and notorious small-scale mining locations. However, the area that contains these mining activities in fact goes by several names. Local residents often refer to the area simply as Bogor (in reference to the encompassing regency, *kabupaten*) or Bogor Barat (West Bogor). Local government officials or other bureaucrats may refer to the region as Nanggung, the administrative name of the district (*kecamatan*) that contains many of the gold mining areas. Finally, environmental scientists, activists, and ecotourism advocates often call the general area Halimun, the name of a nearby mountain and the national park that encompasses it. I choose to use the particular designation "Pongkor" in this dissertation because it foregrounds the importance of gold—the term is almost always used in reference to the area's mining activities. Broadly, "Pongkor" can refer to several things, including a small, local mountain or Antam's industrial mining operation (officially known as PT Antam UBPE Pongkor). Its most common usage, and the one I employ here, is for a rough area in which gold mining influences local people's everyday lives. Geographically, this includes Antam's industrial mining concession and the villages (*desa*) that overlap with and surround it. The influence of gold mining is strongest in the villages that border the concession, but extends throughout communities in the adjacent mountains and down to the regional city of Leuwiliang in Bogor Regency.

Pongkor is also synonymous with Antam's flagship gold mine. Antam is the acronym and colloquial name for an Indonesian state-owned enterprise formally called PT Aneka Tambang Tbk. Antam was created by the 1968 merger of several state-owned mines, most of which were colonial mines nationalized after Indonesian independence.⁶ Today, the company is responsible for managing many of the Indonesian state's metals mining operations. In addition to gold, the company produces nickel, bauxite, silver, and, through a subsidiary company, coal. Antam also provides Indonesia's only official precious metal refining services through its Logam Mulia refinery. The refinery processes gold from the Pongkor mine, from its smaller mines, as well as from third parties.⁷ The company also sells finished products, including gold bars and jewelry, to businesses and the general Indonesian public.

Antam is a state-owned company that works closely with Indonesian government agencies and, in the places where it operates mines, serves as a representative of the Indonesia state. At the same time, Antam presents itself as a modern, neoliberal business, separate from the bureaucracy of government and distinct from the famously corrupt state-owned enterprises of the New Order era.⁸ Though it has a slightly different mission, it considers itself a peer to transnational mining companies and, like them, is a publicly listed company. Sixty-five percent of Antam's ownership shares are held by PT Indonesia Asahan Aluminum (Inalum), a

⁶ Antam was originally established as Perusahaan Negara (PN) Aneka Tambang by Government Regulation No. 22/1968 through the merger of the State General Mining Company, the State Bauxite Mining Company, the Tjikotok State Gold Mining Company, the State Precious Metals Company, PT Nickel Indonesia, and the Diamond Project (PT Aneka Tambang, n.d.).

⁷ While the Pongkor mine is Antam's flagship gold mine, the company also produces gold from its smaller Cibaliung mine in Banten and through a 25% ownership in the Gosowong mine in North Maluku. The Logam Mulia refinery processes gold and silver from the Pongkor and Cibaliung mines as well as from smaller gold producers and from gold scrap. The refinery is Indonesia's only major gold refiner and is the only one accredited by the London Bullion Market Association (LBMA). The complete list of entities that supply Logam Mulia with gold is not public, however it is audited by the LBMA.

⁸ See Rudnyckyj (2009) for an analysis of the neoliberalization of state-owned enterprises in Indonesia following the New Order era.

government-owned holding company that oversees all state mining assets. The remaining thirty-five percent of shares are listed on the Indonesian and Australian stock exchanges. Major American and European banks, insurance firms, index funds, mutual funds, and other financial instruments are among the largest shareholders (PT Aneka Tambang, 2021).⁹ The tension between Antam's nationalistic and private business elements can be felt in Pongkor. Many local residents I encountered questioned whether the company truly represented Indonesian interests, suggesting that foreigners were often seen around the mine and that it was owned by the United States, France, or other non-Indonesian entities.

Antam's mine in Pongkor is formally called Antam UBPE Pongkor.¹⁰ However, following convention in Pongkor, where the local mine is always referred to as Antam or "*perusahaan*" (the company), I use the more general company name throughout this dissertation. Except in the rare instances where I explicitly discuss the company at a national level, the name "Antam" refers specifically to the gold mining operations in Pongkor. Antam began intensive exploration activities in Pongkor in 1988, secured a mining license for the area in 1992, and commenced production in 1994 (see Chapter One for a more in-depth history). The mine operates twenty-four hours, seven days a week, working in underground tunnels using a "cut and fill" mining technique (described further in Chapter Three).

⁹ Schroders, JP Morgan Chase, Citibank, Blackrock, and Prudential financial products all list in the top 20 shareholders.

¹⁰ UBPE stands for *Unit Bisnis Pertambangan Emas* or, in English, Gold Mining Business Unit.



Figure 4: Sign that is posted outside the entrance to Antam's gold mining operations in Pongkor.

Since its arrival in Pongkor, the company has had a dominant presence in the region. It holds a 6,047-hectare mining concession, juxtaposed partly over national park lands and several pre-existing villages, but its influence also extends into adjacent communities inhabited by tens of thousands of residents.¹¹ Even the main thoroughfare through Nanggung district (*kecamatan*) was constructed to facilitate Antam's activities and is aptly named Jalan Raya Antam (Antam Highway). The company is aware of its influence on the people of Pongkor and other adjacent regions. It employs about 1,200 people (including permanent staff and contractors), but only few, relatively low-level jobs go to local residents. Instead, Antam carries out community development and broader CSR activities with the stated goal of supporting the communities proximate to it (further discussed in Chapter Five).

While Antam holds the legal right to all gold reserves in Pongkor, they are far from the only claimants to local gold. For nearly thirty years the company has contended with small-scale miners who make a living extracting local gold, often within the boundaries of Antam's concession. Small-scale mining began in Pongkor in the late 1980s and early 1990s, coinciding with the arrival of Antam. By the late 1990s, these activities had grown into a full informal mining boom and, in 1999, more than 26,000 informal miners were estimated to be working in

¹¹ As one potential measure, the population of Nanggung, the district that contains much but not all of Antam's activities in the region, was estimated at 93,319 people in 2018.

Pongkor (McMahon et al., 2000). This rush led to the first major conflicts with Antam, which, with the support of government security forces, implemented a crackdown on small-scale mining activities in 2000 (see Chapter One for a more detailed history). Since then, the relationship between Antam and small-scale miners has been tense, oscillating between periods of more or less intense conflict. Small-scale miners have continued to sneak onto Antam's concession to collect gold ore while the company has attempted to prevent them or catch them in the act—a dynamic that Pongkor residents call a *permainan kucing dan tikus*, a game of cat and mouse.

Today, this game of cat and mouse goes on. Although not as numerous as during the late 1990s, thousands of people continue to participate in Pongkor's informal gold production activities. Small-scale mining remains the most important livelihood activity for residents in the villages that border Antam's concession. Thousands of migrants, most from adjacent areas of West Java and Banten, also come to Pongkor to find work in this sphere. Many local people say that informal gold mining is the economic engine for the entire administrative district, a region with a population of approximately 100,000 people. Interviewees often told me that the economic well-being of everyone in the district—measured by the availability of work, the number of goods sold by local shops, or the quality of food put on the table—ebbs and flows with the amount of gold being produced by small-scale miners. And, while other factors like declining gold reserves undoubtedly contribute, Antam's restrictions on access to local gold are cited as the primary reason for any constriction of this production.



Figure 5: Left, a small-scale miner working outside his group's tunnel. Right, a hammer and chisel, the tools typically used for digging small-scale mining tunnels and removing gold ore.



Figure 6: Small gold discs, the product of small-scale mining, being purchased by a local gold buyer.

Pongkor's small-scale mining activities, as well as the people who participate in them, are incredibly diverse (Libassi, 2020b). Almost all extraction activities occur on the grounds of Antam's concession. However, these activities range from simply gleaning stones from the surface to digging tunnels that may stretch for hundreds of meters underground. After gold ore has been collected from the concession, it is transported back to residential villages where it is processed using either mercury amalgamation or cyanidation. The resultant gold amalgams are then typically further refined using a blowtorch or stove. The final product, a small, grey or dull-yellow ball or disc, is then brought to a local gold buyer who assesses its purity, purchases the product, and then sells it on to larger buyers in cities such as Bogor, Sukabumi, and Jakarta. In some cases, all of these processes are completed at a small-scale by a single individual. In others, they are worked on by larger teams, with potentially dozens of laborers, usually financed by one or more mining "bosses." In these cases, labor is usually divided, with workers specializing in one process, such as digging tunnels, hauling sacks of ore, or processing ore. Many types of people participate in Pongkor's informal gold economy. Although young men typically do most of the extraction and tunneling work, women and older men are often involved in the labor of transporting or processing ore. Miners also operate at various socio-economic levels. The poorest

typically glean stones independently or work as laborers for others. The wealthiest own their own mining tunnels, organize and finance laboring teams, or operate gold purchasing shops.¹²

Antam, government analysts, and popular media often frame these informal miners as opportunists or thieves (as described in section 2.3.). However, small-scale miners typically frame themselves in a different way. They understand mining as more than a temporary livelihood. They see it as a skilled career, a community, and a way of life. In Pongkor, this multi-faceted package is encapsulated in the colloquial term for small-scale miners: *gurandil*.

Gurandil is a word with no definitive origin or history. Today it is used only in the context of small-scale mining.¹³ It is used primarily in West Java and Banten Provinces, both regions with significant amounts of small-scale mining, and is derived from the local language, Sundanese. While miners in Pongkor will sometimes use more conventional terms in Indonesian, like “*penambang kecil*” (small miner), or more specific job descriptions, such as “*tukang pahat*” (chisel worker), the word *gurandil* captures something more expansive. It is an inclusive term, a label that can be used for anyone involved in small-scale mining, whether as a tunnel digger, a financing boss, or an ore porter. It denotes not just a type of worker, but the character of the life they live—the daily gamble of striking it rich or returning empty-handed, the family members worrying at home, the adventure of traveling to a distant mining site, and the masculine camaraderie of struggling together on the mountain. The term carries both a sense of pride and a tinge of shame; small-scale miners know their work is illegal, is dirty, and is often barely more than scraping by, but it is also a signal of independence, drive, and ingenuity. On my first day in Pongkor in 2016, a man fresh from a mining pit and still covered from head-to-toe in mud, grabbed my shoulder and pulled me near to pose for an unsolicited photograph. Half-asking, half-proclaiming, he shouted, “So the *bule* (white guy) wants to meet the famous *gurandil*?”

Another indication of the cultural package that *gurandil* references is the fact that this word is only one example of a broader specialized vocabulary found in Pongkor. For example, the word “*gunung*,” the mountain, is ubiquitously used to refer to small-scale mining areas (no matter how high or low in elevation). Local people can frequently be heard saying things like “Let’s go to the mountain” or “I started going to the mountain when...” In response to my question, “What do you do for a living?” I would often get the simple response, “I go to the mountain.”¹⁴ As with other words in Sundanese, the word *gurandil* can, and often is, made into a verb, such as in the phrase “*Ayo ngurandil!*” meaning “Let’s go mining!” Other words serve more particular purposes: *gelundung*, a cylindrical mill for processing gold ore; *gebosan*, equipment used for purifying gold amalgams; *danlob*, a lookout and manager who sits at the mouth of *gurandil* tunnels; *ngebok*, to dig a hole; *onek*, a poorer, independent miner. The list goes on. This linguistic context is such that even the simple words “*ini*” (this) or “*itu*” (that) are frequently used, with no other specification, to refer to mining, to gold, and to *gurandil* work in Pongkor. It is not merely active mining participants who converse in this way, but their wives, mothers, children; the school teachers, the clinic workers, the religious leaders. It is the language of Pongkor.

¹² See Chapter Two for a more detailed description of the organization of informal gold production in Pongkor.

¹³ The one additional usage is for a type of snack found in Java.

¹⁴ In other parts of Indonesia people may similarly use the word “*gunung*” to refer to other activities, such as unirrigated rice cultivation (*ladang*) or agroforestry, in forested or hilly areas. In Pongkor, this term always refers to small-scale mining. This indicates how gold is the assumed subtext in conversations in Pongkor—it need not be referred to directly.

Struggle is understood as part and parcel of gurandil life. Miners struggle to break bare rock with just hammers and chisels in the hot, humid, close quarters of underground tunnels. They struggle with the uncertainty, promise, and inevitable failures of their livelihood. And they struggle with the fear of being hurt or killed, or of loved ones being hurt or killed, as they navigate the unstable underground. Finally, they struggle with the law.

In Pongkor, this takes on a specific form. The immediate presence of Antam, both a competing mining operation and an agent of the state, means that small-scale mining cannot be pursued as freely as many places in Indonesia. Antam's mining concession is patrolled by security guards and trespassing small-scale miners are ejected or arrested. The company's senior staff ultimately hope to completely eliminate small-scale mining in Pongkor, both by policing their activities and advocating for transitions to alternative livelihoods, such as in tourism or agriculture (see Chapter Five). But gurandil have other ideas. Many local people argue that it is unjust that Antam should be allowed to benefit from Pongkor's gold reserves, whereas they cannot. As one small-scale miner told me, "We know Antam owns the mountain. But we just want to feel our homeland, to have just a little taste of what it contains." Therefore, in Pongkor, the small-scale miner struggle is also an existential struggle, a struggle with the state, and a struggle with the corporate entity that claims exclusive use of local resources. This feeling of struggle was best encapsulated by a young man who, at the conclusion of a long and expansive Islamic prayer session, shouted "Long live gurandil!" (*Hidup gurandil!*). It was a declaration that Pongkor's small-scale miners should strive to continue their way of life, despite the myriad challenges they face.

However, much as conflict does occur between Antam and gurandil, this is not the complete story of gold mining in Pongkor. As I detail throughout this dissertation, the lenses that have conventionally been applied to resource conflicts, to formal and informal "sectors," and even to the "interface" between large- and small-scale mining (Kemp & Owen, 2019) fail to fully capture dynamics in Pongkor. Rather than understanding small- and large-scale mining simply as competing resource claimants, as distinct economic sectors, or as interacting parties, I show how Antam and gurandil are internally related, co-producing mining practices, identities, and politics in Pongkor.

4. Political Ecologies of Extraction

4.1. Two Entanglements

I use the metaphor of entanglement to frame my analysis of large- and small-scale mining. This term is popular in anthropology literatures, where it has been used to describe shifting human practices (i.e., ethnographies of globalization) as well as relations between humans and non-humans (i.e., archeology, material culture, and more-than-human anthropology) (e.g., Giraud, 2019; Hodder, 2012; Roberts, 2017; Thomas, 1991). Recently, it has also been used to describe social change in the context of industrial mineral extraction (Bainton & Owen, 2019; Stead, 2013), to examine shifting local resource management practices (Lau, Cinner, Fabinyi, Gurney, & Hicks, 2020), and to analyze the production of small-scale mining territories (Peluso, 2018).

Accepted definitions of entanglement are difficult to pin down. What they have in common is an understanding that people and things are constituted by relations, that these relations are multiple and emergent, but often uneven. Essential is the understanding that agency

or influence flows in multiple directions. Differences are not subsumed within an abstract whole, but form contours that shape patterns of interrelationship. In Stead's (2013) description, "a metaphor of entanglements recognises that [different] forms of social relations can exist coterminously, in ways that are uneven, incomplete and shifting. Within entanglements there are points of clash but also negotiation, gaps and overlaps; new forms of relations weave their way into and throughout existing ones, pushing them out of the way or bending to accommodate them" (p. 19). In this sense, entanglement shares commonalities with other understandings of interrelationality and co-becoming, be it science studies' co-constitution, forms of Marxian dialectics, or Tsing's friction (2005). In this dissertation, I use the term entanglement to signify two key dynamics I found in Pongkor.

First, I use entanglement to describe and foreground the messy, multi-dimensional set of interrelations that tie large- and small-scale mining together. In the chapters that follow, I repeatedly demonstrate that Antam and Pongkor's gurandil share common histories, are separated only by blurry boundaries, and have dialectically shaped each other. This is not to say that they are undifferentiated—socially and organizationally, Antam and gurandil often appear in distinct forms. I also do not mean to suggest that these relationships are even or power-neutral. Antam, which is backed by the Indonesian government, large amounts of capital, and state security forces, holds much more power than informal miners. Rather, I argue that Pongkor and its miners, both corporate and small-scale, must be understood through the lens of co-production. Who these miners are and what they do is a reflection of this underlying entanglement.

This is a corrective to popular and policy narratives that rely on, and reproduce, a clear distinction between industrial mining (framed as good, normal, clean, modern) and small-scale mining (framed as bad, deviant, dirty, backwards). These binary narratives have material consequences. They facilitate the criminalization of small-scale miners and relieve industrial miners of any culpability in generating the social and environmental concerns often associated with small-scale mining. One goal of this dissertation is, thus, to empirically demonstrate the interconnection between large- and small-scale mining and to argue that this interconnection—rather than currently dominant binary narratives—should be the basis of future mining policies.

I also use this first understanding of entanglement to advance existing research on the extractive industries. Influential scholarship on mining sometimes reproduces the dichotomous narratives described above by categorizing mining into distinct "legal" and "illegal" or "formal" and "informal" spheres (e.g., C. Aspinall, 2001; Siegel & Veiga, 2009). However, most geographers, anthropologists, and other field-based researchers today recognize that these categories must serve heuristic purposes only (e.g., Guha-Khasnobis, Kanbur, & Ostrom, 2006). They understand that, legal or illegal, formal or informal, mining operations of various types, scales, and forms are often interrelated and interacting. Correspondingly, a small subset of the literature on mining has focused on relationships between small- and large-scale operations. Most commonly, these studies have highlighted conflict or forms of antagonism produced by overlapping industrial and small-scale mining (Geenen, 2014; Hilson & Yakovleva, 2007; Jønsson & Fold, 2011; Okoh, 2014). Other scholars have demonstrated these relationships are more diverse, sometimes including dynamics of peaceful co-existence or even cooperation (Aubynn, 2009; Bansah, Dumakor-Dupey, Stemn, & Galecki, 2018; Luning & Pijpers, 2017).

Recent research has further complicated the relationship between large- and small-scale mining. Bainton, Owen, Kemp, and their colleagues Kenema and Burton, have published a series of articles, primarily focused on mining in Papua New Guinea, that argue interactions between corporate miners, small-scale miners, and community groups are best understood through the

lens of “interfaces.” Kemp and Owen (2019) propose the term “interface” to “characteris[e] the many points at which LSM [large-scale mining] and ASM [artisanal and small-scale mining] intersect at the asset level” (p. 1091). They argue that conflicts between large- and small-scale miners cannot be understood from either “position,” but only by examining these points of contact. The authors then offer a typology of “interface scenarios, configurations, and dilemmas” to facilitate comparison between cases (p. 1098). Bainton and Owen (2019) and Bainton et. al., (2020) push this analysis further, suggesting that mining locations contain a multiplicity of interfaces and arguing that industrial mining companies are often culpable in co-producing the challenges small-scale miners face. As part of a critique of scholarship that is aligned with the critics of corporate mines (specifically, anthropologist Stuart Kirsch), they employ the term “zone of entanglement”¹⁵ to signify that mining sites are relational and that mining groups (i.e., companies, small-scale miners, local communities) cannot be described in binary terms.¹⁶

Geenen and Verbrugge (2020) tackle a related set of questions from a global perspective. They frame small- and large-scale gold mining as part of one “global production network,” arguing that current dynamics in both formal and informal mining are driven by the same underlying social, political, and geological constraints. I build on the work of these scholars by further blurring the boundary between overlapping large- and small-scale mining activities. I go a step beyond demonstrating the relationality of mining sites, the importance of “interfaces,” or mutual underlying factors that shape large- and small-scale mining—I argue that these groups are co-producing mining conflict, mining practices, and mining identities.

My second usage of entanglement is much broader and more conceptual. I use the term to highlight, and hold together, the interrelation of the various analytical frames I employ to examine the competition over gold in Pongkor. In each of the dissertation’s chapters, I prioritize one or two conceptual lenses. Chapter Two, for example, focuses on the political economy of labor, Chapter Three on governance of resource territories, and Chapter Five on cultural politics and miner subjectivities. Each lens offers a different way of examining the entanglement between Antam and gurandil. Each shows an additional dimension of co-production in Pongkor—be it in the dialectical emergence of the social organization of gold production, in interrelated processes of territorialization and counter-territorialization, or in the co-constitution of miner identities. Simultaneously, these multiple historical, political-economic, cultural, and material dynamics are interrelated. They, too, are entangled.

Bringing these various analytical lenses together is an approach I draw from political ecology. Political ecology is a loosely defined field that “combines the concerns of ecology and a broadly defined political economy” (Blaikie & Brookfield, 1987, p. 17) and “seeks to unravel the political forces at work in environmental access, management, and transformation” (Robbins, 2011, p. 3). One strength of political ecology is its attention to the intersection of dynamics that might be studied in isolation in more conventional disciplines. For example, political ecology research might combine modes of analysis from political economy, from study of the materialities and agencies of nature (e.g., ecology, geology), and from post-structural social theory. Additionally, political-ecological analyses are attentive to how these different forces are

¹⁵ I use the term “entanglement” in a slightly different way. Whereas Bainton and Owen describe mining sites and conflicts as relational and co-produced, I go one step further, arguing that small- and large-scale miners are co-producing each other.

¹⁶ There is some tension in this scholarship. While Bainton and Owen’s analysis tends towards relationality, their use of a typology of “interfaces” also suggests that large- and small-scale mining can be understood as discrete entities.

interrelated across temporal, geographic, and institutional scales. Research on these intersections has often been described as “conjunctural,” a concept derived from Marxian analysis but used most visibly in recent decades by anthropologist Tania Li (2011, 2014). In this dissertation, I do something similar with entanglement. Whereas scholars use the “conjuncture” to emphasize moments of intersection, I use entanglement to emphasize the historical and present inseparability of these influences. The phrase highlights how various political-economic, cultural, and geological forces—sometimes brought forward in my analysis, and sometimes allowed to temporarily remain in the background—are influential in shaping all of the topics I address in the chapters, from labor to resource governance to subjectivities. Similarly, I use entanglement to tie all of the individual chapters together. In this sense, I contribute to the broader political-ecological project of analyzing resource conflicts, rejecting commonplace explanations that rely on environmental determinism or scarcity in favor of attention to the “dialectic of Nature-Society relations” (Peluso & Watts, 2001, p. 25).

Peluso’s (2018) analysis of gold mining in West Kalimantan, Indonesia provides a more condensed example of what I aim to do—to show how the interrelation of particular dynamics, including those typically examined in isolation, together constitute the lifeworld of extractive communities. Peluso argues that “small-scale gold mining constitutes an emergent and specific form of territorialization that takes place within resource frontiers.” These territories are created by the “combined effects of [gold mining] practices, claims, and secrets on their social and biophysical environments—where territorial governing shapes the mining territory subjects that are coming into being” (p. 401). She brings together varied types of analysis—property institutions, embodied labor practices, economic exchanges of informal “taxation,” and cultural beliefs about gold’s occurrence—to show how they produce governance in the absence of state authority. In this dissertation, I take a similarly “entangled” approach. I combine analysis of history, labor practices, modes of territorialization, and processes of subject formation to understand how large- and small-scale mining have co-produced mining life, politics, and conflict in Pongkor.

In the sections below, I situate this dissertation among other contributions to political ecology, giving particular attention to research on resource extraction. I consider a sample of scholarship that I draw on and extend along the primarily analytical contours of this dissertation: political economy of mining livelihoods; resource control and resource territories; cultural politics and mining subjectivities; and mining’s materialities. Through this dissertation, I make contributions to each of these areas of study as well as demonstrate the ways they are in entangled in Pongkor. More in-depth discussions of the relevant literature are provided in each of the dissertation’s chapters.

4.2. Political Economy: Informal Mining, Labor, and Livelihoods

This dissertation contributes to the political-economic study of natural resource access and use, a core segment of political ecology scholarship. One of the key questions addressed in this literature is how peoples’ lives and livelihoods are affected by nearby resource extraction. For example, in her classic ethnography of Bolivian tin miners, Nash (1979) employed Marxian theory to analyze how Indigenous peasants struggled through and against the process of becoming laborers in one of global capitalism’s emerging extractive peripheries. Using a similar approach, Robinson (1986) argued that the development of a foreign-owned nickel mine in a rural area of Indonesia led to new capitalist relations, social differentiation, and a transformation

of the domestic sphere in the local community. Many other researchers have described conflicts in mining sites—often due to dispossession, environmental degradation, or struggles over the distribution of mining benefits—as well as the social movements that have emerged to critique them (e.g., Ballard & Banks, 2003; Bebbington et al., 2008; F. Li, 2015). I take these insights about community transformation and conflict in the context of industrial mining and build on them by examining Pongkor, a mining region that hosts not only industrial, but also small-scale mining.

To that end, I draw on scholarship on the political economy of informal, small-scale mining. Early research on the topic, led largely by the UN and World Bank from the 1970s through the 1990s, framed small-scale mining as an entrepreneurial activity requiring broad national-level policies to encourage its development and formalization, typically as a sector separate from industrial mining (for a review, see Hilson, 2016; Hilson & McQuilken, 2014). Cleary (1990) brought a different approach with his analysis of gold mining in the 1980s Brazilian Amazon. He examined the political economy of mining communities from the inside out, describing the social organization of gold production and specific labor relations within it. In the decades since, numerous researchers have built on this legacy (e.g., Bryceson & Geenen, 2016; E. Fisher, 2007; Graulau, 2001). Below, I highlight those that are most important to the analysis in this dissertation.

Lahiri-Dutt (in India, Indonesia, and elsewhere) and Peluso (in Indonesia) have examined mining labor practices, livelihood dynamics, and social relations with particular attention to links between mining and agriculture. Peluso (2015, 2017), for example, argues that informal miners in West Kalimantan, Indonesia have come to occupy the “smallholder slot,” a discursive position historically held by small farmers. Lahiri-Dutt (2018b, 2018a), with the term “extractive peasants,” opts instead to compare small-scale miners to the political-economic position of peasants in the agrarian change literature. My case draws on their insights, examining how the organization of informal gold production, labor practices, and miner discourses affect their social and political-economic position (see especially Chapter Two). My case differs from Peluso and Lahiri-Dutt’s research contexts, however, with farming being a marginal livelihood in Pongkor even before the beginning of mining in the region. Instead, I examine small-scale miners primarily as laborers. This approach is similar to that of Verbrugge, who has researched the dynamics of informal gold mining in the Philippines. Verbrugge’s (2014, 2015) work is notable for pointing out the importance of “capital interests” in the expansion and persistence of small-scale mining. This is in marked contrast to arguments that poverty is the main driver of these activities (e.g., Hilson, 2010). Simultaneously, Verbrugge (2016) and Verbrugge and Besmanos (2016) have argued that the growing power of small-scale mining elites has also meant the increasing marginalization of laborers. I observe similar dynamics in Pongkor, where the organization of informal gold production appears more capitalistic than in the cases previously described by Cleary, Peluso, or Lahiri-Dutt. However, unlike Verbrugge’s primary cases (2014, 2017), industrial mining continues to be present and in conflict with small-scale mining in Pongkor.

By examining Pongkor, I build on scholarship described above through a case with key differences to those researched previously. I ask how gold mining—conducted by *both* industrial and small-scale operations—has affected local lives, livelihoods, and broader political-economic dynamics. And, as the theme of entanglement implies, I emphasize how their interrelation is shaping these changes.

4.3. Resource Control and Resource Territories

Political ecology scholarship has also analyzed modes, mechanisms, and actors involved in natural resource control. Among other questions, this line of research asks how control over resources is produced, institutionalized, legitimated, enforced, and contested. Territory is a key concept in this literature, as exemplified by Peluso and Vandergeest's research on political forests (e.g., 2001, 2011; 1995). This body of work highlighted the material and discursive ways that states consolidate control over people and space within their national boundaries through natural resource management, for example, through the common goals of scientific forestry and counterinsurgency projects (Peluso & Vandergeest, 2011). Scholars have expanded on this theme (Rasmussen & Lund, 2018), exploring other resource sectors as well as diverse actors involved in territorialization, such as conservation NGOs (Corson, 2011), corporations (M. Watts, 2012), or even small-scale miners (Peluso, 2018). I build on this research by examining how resource control, resource territories, and resource conflict differ when the resources in question are underground.

Braun (2000) was among the first scholars to bring analysis of territory to the underground. He argued, drawing on Foucauldian understandings of governmentality, that late 19th century advances in geological science enabled the creation of "vertical territory" in Canada. These new ways of "seeing geologically" produced subterranean nature in ways that facilitated a new political rationality oriented towards mineral development. Elden (2013), a scholar of territory more generally, expanded upon the concept of vertical territories, suggesting that height, depth, and volume are all dimensions states and non-states employ to assert power. More directly on mining, Bridge's follow-up article (2013) reflects on the three-dimensional role of volumes and flows in subterranean resource extraction. Together, these authors have worked to reconceptualize territory as vertical and volumetric and highlighted that the material and representational characteristics of the underground shape the way it is governed. I join a wave of newer scholarship (e.g., Frederiksen, 2013; Goldstein, 2019; Marston, 2019) in extending these insights in different directions and contexts. Whereas much of the literature has, following Braun, examined the historical production of underground state territory, the case of Pongkor lends itself to a different set of questions: how are underground territories contested? And, how do states enforce and reproduce their subterranean territorial authority when faced with contestation?¹⁷ I examine competing modes of territorialization between Antam and gurandil, in spaces above and below ground as well as in attempts to govern Pongkor's residents.

4.4. Cultural Politics: Environmental Governance, Subjects, and Identities

Political ecology scholarship has demonstrated that resource conflicts are not simply about political-economic or institutional power, but also about cultural politics (e.g., Braun, 1997; Lowe, 2004; Peluso, 2009). Struggles over resources are also struggles over meaning. Discourses, narratives, and identities can be as potent in these struggles as law, capital, or brute force. I build on this scholarship by examining how discourses about mining, governance of extractive subjects, and emergence of miner identities have shaped conflict in Pongkor.

In their analyses of resource territories, Peluso, Vandergeest, and Braun, among other scholars, have highlighted how environmental governance often also entails governance of

¹⁷ See Chapter Three for a more complete examination of this question.

people. They draw on Foucault's concept governmentality (1991), understood as strategies to render subjects governable through the "conduct of conduct." This idea has been influential in political ecology research examining how people relate to the environment, whether employed to facilitate state-preferred forms of development (T. M. Li, 2007) or to shape environmentally friendly subjects (Agrawal, 2005). Recently, scholars have utilized governmentality and related concepts to understand how industrial mines attempt to manage the communities that live around them. Welker (2014), examining an American mining corporation operating in Indonesia, argues that the mine's CSR programs are attempts to shape local residents; to transform them from patrons of the mine into independent development subjects and defenders of the company. Frederiksen and Himley (2019) describe this process more generally. They argue that extractive operations rely as much on the "soft" powers of persuasion, seduction, and manipulation as the "hard" powers of coercion to manage local populations. They coin the term "extractive subjects" for the people whose lifeworlds are reshaped by these processes. I build on this work by analyzing how Antam attempts to shape subjectivities and govern conduct in Pongkor. However, my case differs in several ways from previous research. First, in Pongkor the people targeted by governmental efforts are not simply local residents, but also competing small-scale gold miners. Second, these small-scale miners draw on their own identities, discursive strategies, and cultural politics to make competing claims over local resources.

In exploring this second particularity, I connect with social theory and political-ecological scholarship that has examined the links between environment, identity, and contestation. Whereas I employ Foucault's ideas to analyze the government of subjects, I think with Gramscian concepts to understand the emergence of subjectivities from within individuals and communities. In this sense, I follow cultural theorist Stuart Hall (1986) and political ecologists, such as Moore (2005) and Li (2000, 2007), inspired by him. For example, Li (2000), speaking about indigenous identities in Indonesia, argues that "a group's self-identification as tribal or indigenous is not natural or inevitable, but neither is it simply invented, adopted, or imposed. It is, rather, a positioning which draws upon historically sedimented practices, landscapes, and repertoires of meaning, and emerges through particular patterns of engagement and struggle" (p. 151). In this dissertation, I bring similar issues of identity and identity-based claims to resources to small-scale mining. While Antam labels small-scale miners as criminals, Pongkor's gurandil articulate themselves as local people with rights to local resources, as agents of community development, and as organized, career miners. Ethnographies of small-scale mining have pointed to the emergence of new and differentiated identities in mining communities (e.g., Lahiri-Dutt, 2011; Peluso, 2017; Spiegel, 2017). Bryceson and her colleagues (Bryceson et al., 2014; Bryceson & Geenen, 2016; Bryceson & Jønsson, 2010), in particular, have argued that small-scale miners are transformed through their work. They suggest that the experience of mining labor not only produces skilled, career miners with shared identities, but also the conditions for democratic miner self-governance. I take and combine these insights about mining identities to analyze how Pongkor's gurandil understand themselves and their relationships with Antam, the underground, and the Indonesian nation.

4.5. Mining Materiality and the Underground

As described in the above sections, human factors—whether historical, political-economic, or cultural—shape modes of resource use, access, and control. However, resources themselves are also determinative. Their "nature" may constrain, enable, or disrupt human

action. Analyzing the materiality of resources, the “agency of nature,” or “the difference nature makes,” alongside social dynamics is one of the most common objectives of political ecology scholarship (e.g., Bakker & Bridge, 2006; Peluso, 2012; Richardson & Weszkalnys, 2014). I use the case of Pongkor to examine how the specific material qualities of gold, its local geology, and the underground more broadly affect resource use and associated conflicts.

Recently, literature on the materiality of nature has expanded in a new direction with a proliferation of interest in the geological and the subterranean (e.g., Erb, Mucek, & Robinson, 2020; e.g., Goldstein, 2015; Squire & Dodds, 2020). For example, Yusoff (2013) argues for a “geological turn” in scholarship, claiming that during the Anthropocene humans must understand ourselves as both geological forces and “geologic life” with “a corporeality driven by inhuman forces” (p. 779). Similarly, Clark (2017) reconceptualizes geological strata as both the object and source of much socio-political life. I extend these insights to the case of Pongkor, examining how the particularities of local gold mineralization have informed, enabled, and constrained ways of living, exercising power, or claiming territory.

With respect to small-scale mining, I build on two recent studies. First, Luning and Pijpers’ (2017) analysis demonstrates how the varied occurrence of gold in a mining site in Ghana can enable the co-existence of large- and small-scale mining. In their case, the industrial mining company targets deeper, richer gold veins, while the small-scale miners exploit less concentrated ores closer to the surface. This is only partially true in Pongkor, with Antam and gurandil sometimes pursuing the same gold ores (see Chapter Three). Second, Marston (2020) describes how the variable quality of tin ores, generally corresponding with depth, has reinforced pre-existing social inequalities among Bolivian *agro-mineros*. Similarly, I examine how the quality of gold ores often corresponds with miner’s social position (see Chapter Two). In doing so, I contribute to the broad political-ecological project of showing the “matter of nature,” in this case for gold, while building more specifically on the growing scholarship associated with the “geological turn.”

5. Research Methods

One objective of this research is to examine gold mining with its participants at the point of focus. While political ecologists, anthropologists, and geographers have increasingly highlighted the people involved in mining (e.g., E. Fisher, 2007; Klein, 2020; Soemarwoto & Ellen, 2010), much of the most influential (in terms of policy) and best-funded research continues to render mining, mining conflicts, and especially small-scale mining technical and abstract. Such analyses see typologies of stakeholders, examine gold recovery rates, calculate median miner incomes, or fetishize mercury emissions rather than reflecting on gold miners, their families, and their neighbors as whole, individual people (e.g., Esdaile & Chalker, 2018; Seccatore et al., 2014; Teschner, Smith, Borrillo-Hutter, John, & Wong, 2017). To that end, this text is necessarily rooted in ethnography, a research method that allows me to keep the people I encountered at its center. I collected the stories, observations, and data that I present as empirical evidence during two trips to Indonesia. For two months during the summer of 2016, I visited Pongkor as well as several other regions experiencing mining conflict in Indonesia. Then, in 2017-2018, I spent ten months focusing exclusively on the mining communities in Pongkor. In addition to these periods of primary field research, I draw on three years of preparatory training and research at the University of California, Berkeley, as well as one year of prior experience living, teaching, and studying in Indonesia (2013-2014). I conducted all of my interviews and

research activities in the Indonesian language (*Bahasa Indonesia*), or, where appropriate, using my basic training in the Sundanese language (*Bahasa Sunda*).

During 2017-2018, I conducted ethnographic research while living in two of the villages most proximate to Pongkor's industrial mining concession. Both villages are inhabited by people who rely mostly on small-scale mining as a source of income and who have relatively frequent interactions with Antam and its staff. In the first village, I lived with a family of low-income small-scale miners; in the second, I stayed at a small Islamic boarding school (*pesantren*) that has served as an organizing force in the local community. Living in these contexts provided me with close and continuous engagement with the world of informal mining. I learned as much from my formal interviews as by sitting around drinking late-night cups of coffee with neighbors; as much from visiting mining tunnels as by listening to mothers' habitual worries about their tunnel-working husbands and sons. Every morning and afternoon, I saw small-scale miners returning home from "the mountain" and joined in as they chatted about their exploits and challenges. I watched, too, as miners and their families processed the ore they collected in their backyard *gelundung* throughout the subsequent day. I shared meals with young men eager to strike it rich and with others desperate to find another way to make a livelihood. Along with my neighbors in the villages, I attended marriage and circumcision celebrations, volunteered my labor in community projects, and napped the day away while fasting during Ramadan only to head to the mountain, at night, to "work." With this ethnographic approach, I sought to understand the contours of everyday life in Pongkor.

Additionally, I used purposive sampling methods to solicit formal and informal, semi-structured interviews from small-scale mining participants, their families, and local community leaders. I tried to capture the diversity of mining life and work in Pongkor by inviting interview participants from various backgrounds and positionings. For example, I interviewed small-scale miners from all parts of the informal gold production process, such as tunnel workers, ore haulers, gold processors, mining financiers, and gold buyers (see Chapter Two for further details on labor roles). I also interviewed miners of different socio-economic levels, genders, ethnic and cultural backgrounds, and ages, as well as local and non-local mining participants. Although small-scale miners are mostly men, and some roles such as tunneling are restricted to men, I spoke with dozens of women who, as mothers, wives, or miners themselves, had practical expertise in gold and local affairs. I also oriented my research to try to understand potential spatial differences. I focused my interviews and observations on three villages (*desa*) that border Pongkor's industrial mining concession. Within these villages, I visited many different sub-villages (*kampung*) each with slightly differing characteristics (e.g., density, proximity to mining areas, proximity to forest, amount of agriculture, amount of local vs. non-local people). Additionally, I visited and conducted interviews in several downhill villages in Nanggung district (*kecamatan*), including officials in the administrative center, as well as in a few villages in adjacent districts. In addition to gurandil, I interviewed formal and informal village leaders (i.e., *kepala desa* and *tokoh masyarakat*), local police officers, religious leaders, farmers, public health workers, community organizers, and shopkeepers. My interview questions varied based on the type of respondent, but always included a personal life course history (focused primarily on livelihoods) and questions about interactions with Antam.

I paired this ethnographic look at small-scale mining life with interviews from inside Antam, the state-owned mining corporation. Although getting permission to visit Antam's local offices was challenging, I was ultimately able to speak with many different members of their staff. I also became familiar with company's offices, came to understand something of their

corporate culture, and toured one of their underground mines. I spoke with Antam Pongkor executives, senior security officials, corporate social responsibility and community development officials, environmental experts, mining technicians, security officers of various types, contractors, and administrative staff as well as many former Antam employees. From them, I tried to learn about Antam's staff's perspectives on gurandil, about their current and historical approaches to managing unlicensed mining on the concession, about the company's community engagement programs, and about their own mining operations. Additionally, I was able to visit and conduct interviews at Antam's former mining site in Cikotok (where I also conducted interviews with small-scale miners). In these two locations, I was provided with company materials that provided further details about Antam's history, their mining operations, their security challenges and achievements, and their CSR programs.

Finally, I complemented the research methods described above with collection of primary and secondary data outside of Pongkor. To better understand the national context in which Pongkor is situated, I interviewed officials from several government agencies in Jakarta, including the Ministry of Energy and Mineral Resources and various segments of the Ministry of the Environment. I also interviewed leaders and staff from several NGOs that work on mining policy, environmental activism, mercury reduction initiatives, and small-scale mining advocacy. To the extent possible, I triangulated my primary data with secondary sources from historical accounts, local news articles, policy documents, NGO publications, and corporate reports.

In my research and throughout this dissertation, I do my best to stay true to the objective I describe above; to keep my focus close to the people who live with mining and to describe their stories, feelings, hopes, and fears as they told them to me. Nevertheless, I recognize research always entails ethical questions and admit that, often, I can only respond to these questions with serious reflection rather than definitive answers. I try to always keep in mind the power inequities inherent in research. For example, I understand there is undeniable privilege in conducting ethnographic work with communities that I can choose to, and will inevitably, leave. This positional difference is magnified when working with populations, such as those in Pongkor, that are economically, educationally, and politically marginalized. Furthermore, my position as a foreign researcher in Indonesia inevitably carried implicit power dynamics that affected all of my interactions, whether in Pongkor's villages or Jakarta's government offices. During my fieldwork, I tried to remain aware of my positioning and always be honest, kind, and conscientious with my interlocutors. I expressed and continue to feel deep gratitude for their participation in my research. If nothing else, I hope that my heartfelt participation in everyday life in Pongkor brought them smiles and some memories. Beyond that, I hope that my presentation of their experiences and sentiments here will lead to greater support for mining communities in the future.

Though I would like to attribute thanks to the many people who offered their stories and help, I leave them anonymous in this dissertation. I use pseudonyms for all person names, village names, sub-village names, and other local places. This is both to protect individuals' personal privacy and to prevent any potential legal repercussions for small-scale miners, who are all technically engaged in illegal activities.

6. Chapter Summaries

I examine the relations between large- and small-scale mining in Pongkor through this dissertation's five chapters. Each contributes to the overall goal of elaborating a different angle

of gold mining entanglement. In Chapter One, I explore the historical production of Pongkor's contemporary extractive landscape. I highlight five periods in Pongkor's trajectory, tracing the dialectical interrelation of Antam and gurandil and situating it in broader historical context. (1) In the first period, I describe Pongkor's history before the discovery of gold. (2) In the second period, I explore the region's emergence as an industrial and informal gold mining site in the mid-1990s. I demonstrate how, to a substantial degree, Antam itself stimulated a flow of small-scale miners to the location of its new Pongkor mine. (3) In the third period, I examine the boom in small-scale mining that followed the 1997 Asian financial crisis. This rush led to violent conflict, both amongst small-scale mining groups and between gurandil and Antam, and a dramatic increase in policing activities. (4) In the fourth period, small-scale miners responded to increased policing not by ceasing their activities, but by reconfiguring the spatial and labor practices of gold production. Alongside the introduction of cyanide-based gold processing techniques, these changes contributed to a second informal gold mining rush in the late 2000s. (5) The final period begins with Antam leading an oppressive crackdown of small-scale mining in 2015, initiating a new series of uncertainties for gurandil and the broader community. This historical trajectory makes clear that large- and small-scale mining have been entangled since the discovery of gold in Pongkor. Together, Antam and gurandil have, through moments of conflict and the transformations that followed, given shape to the extractive practices and politics present in Pongkor today.

In Chapter Two, I examine work in formal and informal gold production. I describe different laborer positionings in Pongkor's mining economy (both within and between these two broad groups) and highlight their similarities and differences. I argue that, contrary to narratives of golden riches and mining development, labor experiences in both large- and small-scale mining are extremely uneven. I begin by diving into the contemporary configuration of small-scale mining labor in Pongkor, highlighting a diversity of labor processes, arrangements, and relations. I draw on rural political economy and development studies to demonstrate that gurandil are analytically akin to industrial workers, but with some attributes similar to peasants or petty commodity producers. Ultimately, though gurandil livelihoods are flexible, small-scale mining is increasingly differentiated, hierarchical, and insecure. Only elite mining bosses and a subset of laborers maintain opportunities for accumulation, while many other participants are stuck mining at "subsistence" levels. Next, I move to formal mining, demonstrating how work with Antam is not so different. Employment with the company is divided into two classes: permanent positions largely beyond the reach of local residents and a rotating set of temporary laborers. Furthermore, the casualization of Antam's workforce, including an increasing number of subcontractors, has made employment at the Pongkor mine more precarious than at predecessor gold mines. This insecure work even encourages some employees to leave and pursue small-scale mining. The comparable power structures in formal and informal mining labor are thus another mode of their entanglement.

In Chapter Three, I examine the question: What does territorial contestation look like underground? In Indonesia, as in most countries, subsurface resources are the domain of the state. The cataloguing and permitting of extraction of these resources comprise one element of state territorialization of the subterranean. A growing literature on vertical territories has highlighted the processes and histories of the production of this territory. Few scholars, however, have examined how states and allied companies respond to the obstacles they encounter in enacting these territorial arrangements. I use the case of Pongkor to demonstrate how, like all processes of territorialization, state control of the underground is always incomplete. I highlight

the techniques by which Antam attempts to assert its territorial control over the mining concession and the ways small-scale miners circumvent this authority to enact their own subterranean claims. First, I describe the historical processes involved in producing Pongkor's underground as state territory and a "vital national object." Next, I show how this underground territory is contested by small-scale miners and constantly reinforced by Antam. I highlight how the material concerns of accessing, navigating, and knowing three-dimensional subterranean spaces shape the ways resource claims are enacted and defended. For example, small-scale miners use the unknowability of underground passageways to dig their way into Antam's tunnels. Antam, meanwhile, uses a slurry to "backfill"—reoccupying emptied underground space—to prevent unauthorized access.

In Chapter Four, I trouble the narrative of binary conflict in Pongkor by showing the many mundane, everyday ways that small- and large-scale mining are entangled from the bottom up. Despite insistence from Antam that legal and illegal mining are different, contradictory ties between them tell a more complicated story. I first examine the promotion of narratives of legal and illegal, licit and illicit, produced by Antam and allied state actors. These insist on a dichotomous view of mining wherein small- and large-scale mining are entirely separate. Then, I demonstrate how forms of everyday entanglement pervade mining in Pongkor, undermining the company's narratives. Small-scale miners and corporate mining employees are often enmeshed in the same interpersonal networks, sometimes even living in the same household. Moreover, personnel, money, and information regularly move back and forth between the two scales of mining. Geological technicians employed by Antam one year become small-scale mining bosses the next. Likewise, petty mining laborers find themselves working for Antam, putting their knowledge of unlicensed mining practices to work as security field agents for the company. Wages from Antam become capital for digging small-scale tunnels, while elite mining bosses use their accumulated profits to open businesses that contract with Antam. Having demonstrated these interconnections, I argue that scholarship on small- and large-scale mining must shift focus from examining interactions between different types of mining to analyzing their internal relations.

In Chapter Five, I examine how debates over gold have shaped two types of "extractive subjects" in Pongkor: the small-scale miner and the corporate mining employee. Existing conceptualizations of extractive subjectivity describe how mining operations manage relations with nearby communities not simply through coercion and dispossession, but also by reconstituting local populations through "softer" forms of power. I expand on these ideas through the case of Pongkor, arguing that subjects both inside and outside of mining operations are relationally produced by competing projects of territorialization and discipline. I analyze how Antam has attempted to end informal mining by remaking local people as more amenable development subjects, emphasizing particular nationalistic, economic, and moral values. For example, informal miners caught on the concession are forced to recite passages from Indonesia's constitution or the Qur'an, while CSR initiatives in the village promote alternative livelihoods. Simultaneously, Antam has pursued internal reforms. Corporate employees are taught a sharp delineation between "good" and "bad" mining and work surrounded by artifacts that enact the company as a responsible steward of vital national resources. In response, small-scale miners have reimagined themselves, too. Increasingly, they articulate a new politics, declaring themselves "community miners" with the right to advocate for legal recognition. This case demonstrates that subject creation occurs both in support of and in resistance to corporate

claims over resources. Furthermore, it is not simply a top-down process, but one in which new extractive subjectivities are co-created inside and outside of companies and communities.

CHAPTER ONE: EXCAVATING AN ENTANGLED HISTORY

1. Introduction

On September 19, 2015 more than 2,000 uniformed security personnel descended on Kampung Ciemas, a village that, for a time, was the focal point of small-scale mining in Pongkor. This multi-unit policing mission, code-named Operation Humanity (*Operasi kemanusiaan*) aimed to eradicate the small-scale gold mining activities present there. Police sources claimed the village was the “basis of the largest cartel in Indonesia”—the hub of illicit, and criminally organized, resource extraction activities that were not only illegal, but also environmentally damaging and morally corrupt. Furthermore, Ciemas was an enclave community, situated within and surrounded entirely by Antam’s mining concession, and the company had exclusive rights to all gold in the region. Over the course of two days, the Operation Humanity task force dismantled equipment and burned structures, ultimately leaving large portions of Ciemas under rubble. They carefully recorded their progress—22 people arrested, 1,126 structures disassembled, 241 illegal tunnels closed—and declared the policing effort a success.

I arrived in Pongkor for the first time just eleven months later. I was there for a short visit, the last stop on a summer of preliminary field trips to multiple sites of mining conflict throughout Indonesia. I had not yet heard about the dramatic raid on Ciemas, but my hosts were intent on sharing it with me. Almost immediately, they took me to view the wide stretches of debris the police operation had left behind. Scraps of woven plastic bags, bits of burnt wood, and piles of litter filled open, muddy terraces surrounding the village—the last remnants, village residents told me, of a neighborhood of mining structures razed the year before. Yet, despite this destruction and Operation Humanity’s declaration of success, it was clear that small-scale mining continued in and around Ciemas. I visited a small-scale mining hole, operated by my hosts, not far from the village rubble. I witnessed other miners, some just emerging from tunnels and covered from head-to-toe in mud, on my walk to the village through the forest. My hosts even offered an optimistic vision of a future where small-scale miners operated freely in Pongkor. They had a plan; a written proposal for Pongkor to become a WPR (Community Mining Area), where small-scale mining could operate legally under the management of a local cooperative.

I left with a series of questions: How had it come to this? Why was a massive policing force deemed necessary to tackle Pongkor’s unlicensed mining activities? And how had Gurandil persevered in spite of this offensive? My initial trip to Pongkor gave the impression of two clear, conflicting sides: Antam and small-scale miners at war. But digging further, I found that Pongkor’s large- and small-scale mining were inseparable parts of the same story. The first step in explaining this complex, intertwined relationship is an excavation of Pongkor’s history, of the events that led up to the 2015 raid on Ciemas.

In this chapter, I explore the historical production of Pongkor’s overlapping extractive landscape. Drawing on this trajectory, I argue that formal and informal gold mining have been entangled from the outset. I demonstrate that local small-scale mining is, to a significant degree, a reflection of large-scale mining. Gurandil mining practices have, throughout time, changed in

response to Antam's extractive and policing activities. Along the way, small-scale mining has become ingrained in the everyday lives and identities of Pongkor's people.

In making this argument, I draw on and contribute to political ecology's tradition of critically analyzing resource conflicts. Rather than understanding conflict between Antam and Pongkor's gurandil as simply a competition over a fixed amount of gold (i.e., a resource scarcity argument) or the outcome of divergent legalities, I examine the conflict as historical, context-specific, and relational. I follow Peluso and Watts (2001) in understanding "violence as a site-specific phenomenon rooted in local histories and social relations yet connected to larger processes of material transformation and power relations" (p. 5). In particular, I emphasize the internal relations between Antam and gurandil and understand the historical sequence of conflicts and changes in Pongkor as dialectical. In other words, I trace how Pongkor's present is a product of the ongoing interrelation of large- and small-scale mining. Past modes of formal and informal mining erupted into crisis and conflict, the latest encounter being the raid on Ciemas, leading to successive transformations in the social organization of gold production. In this sense, I build on Marxian political ecology and geography scholarship that emphasizes dialectical relationality to analyze the production of uneven development and resource use (e.g., G. Hart, 2004, 2018; Mann, 2009).

Using this approach, I offer alternatives both to scarcity-oriented explanations of resource conflict in general, and to interpretations of informal mining persistence in particular. Other scholars have attributed the persistence of mining informality to poverty (Hilson, 2010), to capital interests (Verbrugge, 2015), or to cultural or identity factors (Lahiri-Dutt, 2018a). I add another dynamic to this list rooted in the dialectical relationship between large- and small-scale mining. In short, Pongkor's small-scale mining economy is robust not in spite of industrial mining, but because of it.

I tell this story across five periods of Pongkor's history: (1) Pongkor prior to the arrival of gold mining; (2) Antam's company history and its initiation of mining in the region in the late 1980s; (3) Pongkor's first small-scale mining boom and a subsequent crackdown in the late 1990s; (4) the reorganization and technological revamping of the informal mining economy throughout the 2000s; and (5) the 2015 Operation Humanity police raid and its aftermath. Examined together, these periods depict how gurandil activities dialectically emerged and transformed through interrelation with Antam's operations. Each moment involves the reorganization of the informal mining economy, including the incorporation of new gold property regimes, new divisions of labor, new spatial practices in gold production, and new technologies. This sequence displays how the small-scale gold economy overcame obstacles, how gurandil activities became a part of everyday life, and how informal gold production intensified, with both benefits and consequences for its participants.

2. Pre-Gold Pongkor

Most people in Pongkor agree that gold mining is relatively new to the region. Unlike some parts of Indonesia, such as West Sumatra, West Kalimantan, and even nearby Banten (Heidhues, 2003; ter Braake, 1944; van Bemmelen, 1949), Pongkor has no history of colonial era industrial extraction nor claims to ancestral artisanal gold mining. Though the region's early inhabitants likely found and used small quantities of gold, the precious mineral only became a major feature of life in Pongkor beginning in the 1980s (see Section 3). How gold mining has taken hold in Pongkor, however, has everything to do with the history that preceded it.

Pongkor has a history of being both a periphery and a crossroads. The region is perched on the misty slopes of Mt. Halimun, looking down onto the basin that stretches to urban Bogor and then Jakarta and backed up against dense, mountainous rainforests that reach to nearly 2,000 meters above sea level. In pre-colonial socio-cultural terms, it sits at the juxtaposition of the Pajajaran Kingdom to the north, the Priangan highlands to the southeast, and the Banten Sultanate to the west. Today's administrative boundaries, too, reflect Pongkor's status as a boundary place. It is situated almost perfectly at the intersection of Bogor, Sukabumi, and Lebak regencies, and on the border of West Java and Banten provinces. Additionally, the Kasepuhan, a recognized traditional group, continue to live according to customary practices on the other side of Mt. Halimun. Pongkor and its residents have been influenced by all of these places and peoples. However, today many residents today identify most strongly with "West Bogor," a name for the less-developed region stretching west from the city of Bogor.¹⁸

In the 18th and 19th centuries, the VOC and Dutch colonial government targeted highland areas of West Java for coffee and other plantation commodity production. The Mt. Halimun area around Pongkor was no exception. In the early 19th century, a 4,200-hectare tract with an estimated 4,218 residents in Pongkor was sold to the Nirmala (Java) Plantation and Lands Company for tea plantation development.¹⁹ In 1906, the Dutch colonial government re-purchased much of this land, though a 970-hectare segment remains under plantation tea cultivation to this day (Galudra, Sirait, Ramdhaniaty, Soenarto, & Nurzaman, 2005).²⁰ Around this time the Dutch East Indies administration shifted its objective from allocating land around Pongkor for plantations to managing it as state forest. Following the 1865 forestry laws, the Agrarian Law of 1870 (*Domeinverklaring*) administratively transformed all untilled land in the Dutch East Indies into state territory (Peluso, 1992). Later, upland regions like Pongkor were designated as forest reserves intended to maintain hydrological systems. Around Mt. Halimun, six policies were enacted between 1905 and 1930 that decreed various areas as state forest. The last was in Nanggung, encompassing much of the area called Pongkor today. As elsewhere in Java, much of this land was likely still inhabited and used by local people, despite its transformation into state territory (Galudra et al., 2005).

Following Indonesian independence, forests in Java were managed by regional governments until the passing of the Basic Forestry Law, No. 5/1967, which transferred control of all Dutch-designated state forest lands to the national government. In 1978, the forest land around Pongkor was put under control of Perhutani, a state forestry company. Subsequently, in 1979, a 40,000-hectare portion was carved out of Perhutani forest to be managed as a nature reserve by the Natural Resources Conservation Agency (*Balai Konservasi Sumberdaya Alam*). In 1992, this segment was given status as national park land and later, in 2003, all state forests in the region—a total of 113,357 hectares—were redesignated as Mount Halimun Salak National Park (Galudra, Nurhawan, Aprianto, Sunarya, & Engkus, 2008; Galudra et al., 2005). The various steps of producing state forest land around Pongkor were fraught with conflict, with state authorities wrestling with local residents to consolidate control over land and resources. To this day, land-use conflicts persist, including over access to national park lands for traditional agroforestry practices and use of former corporate plantation land (Galudra et al., 2005; Hidayati,

¹⁸ Though currently a non-official designation, West Bogor (Bogor Barat) is slated to become its own regency in the coming years, splitting off from Bogor Regency.

¹⁹ Part of the *Particuliere Landerijen* system, which sold large landholding leases to plantation operators.

²⁰ This plantation, operated by PT. Nirmala Agung Tea Plantation is a subsidiary of the popular Sariwangi Indonesian tea brand owned by Unilever.

2004; Lund & Rachman, 2017; Siscawati, 2012). This process of producing state territory also laid the groundwork for the creation of Antam's mining concession, which was carved out of state forest land.

Residents' memories of Pongkor echo and fill in these broader historical outlines. I conducted life course history interviews with dozens of miners, their family members, and local leaders. These interviews reinforced the image of Pongkor as a place perpetually on the upland periphery, but always intimately connected to urban centers below. In the middle of the 20th century, most people in Pongkor made a living off of the land. They were not, however, primarily subsistence-oriented peasants. This fact is vital to unraveling a contemporary critique of small-scale mining in Pongkor. Both Antam officials and anti-mining activists often declare that gurandil should stop their extractive work and "return to farming." But an idyllic peasant past is almost certainly a fiction. Rather, many of Pongkor's residents have long worked as various kinds of laborers. Most interview respondents described themselves, their parents, or their grandparents as "*kuli*" or "*buruh*" (laborer) rather than "*petani*" (farmer).

Some laborers worked on plantations, part of the enduring legacy of colonial plantations in Java. In the first half of the 20th century, much of the Pongkor region was tea plantation. For example, Haji Asep, a local village head in his 60s, described his family's involvement in a tea plantation he called "Kontrak Pongkor." This plantation was initiated by the Dutch and, following independence, continued to operate at smaller scales through the 1970s. Haji Asep's grandfather worked with the Dutch, managing a small factory that processed the tea before it went to market. At the time, the plantation was the major economic activity in the village and nearly all residents were employed as laborers in tea production. Haji Asep remembers taking the tea to market himself in the 1970s, walking it all the way down to the city of Sukabumi using water buffalo. In the second half of the 20th century, large agricultural plantations became a less prominent part of the Pongkor landscape. Following Indonesian independence, local people occupied colonial plantation lands and, in the 1980s, there was a formal National Land Agency program to distribute land titles to a portion of residents (Lund & Rachman, 2017). Nevertheless, smaller plantations continued while the commodities grown on them shifted away from tea. For example, rubber plantations became a significant source of employment in the 1980s. Though local people maintained their own gardens for household consumption, most people continued to work primarily as plantation laborers or "*buruh tani*" (farm laborers) on land owned by local elites rather than as independent smallholders.²¹

For other residents, the forest was the major source of livelihoods. Some communities used state forest lands to grow food and medicinal crops for their own use. More significantly in economic terms, many people made a living from the extraction of timber from the forests. Interviewees told me some local people were involved in the felling of trees and buying and selling of timber, but work as "*pikul kayu*," or wood haulers, was by far the most common livelihood. This logging, sometimes recognized by interviewees as illegal, was coordinated by "bosses" at the local market, with most local people joining as informally employed laborers. Men in the villages would wake up in the middle of the night and trek up into the forest. They tried to arrive early, getting in a long queue of laborers who hoped to be given a tree to carry all the way back down to the market. This work was physically exhausting, but the worst-case scenario was arriving too late—there would be no timber left and they would simply make the

²¹ Banana production may have been one exception to this rule. In the decades prior to Antam's arrival, local people had some success selling bananas to local markets. Otherwise, it appears people of the Pongkor area had little opportunity to sell their own food crops, with only plantation commodities having genuine access to markets.

long trip home empty handed. Beginning in 1978, management of the forest was transferred to Perhutani and restrictions on forest use tightened.²² The previous forms of logging were no longer permitted and formerly widespread livelihoods as *pikul kayu* became impossible. These informal logging livelihoods foreshadowed Pongkor's future informal gold economy. Both activities share questionable legalities, extraction in the forests and processing in the villages, and similar labor practices (detailed further below and in Chapter Two).

In the 1980s, with plantation opportunities dwindling and local people shut out of forests, Pongkor's inhabitants increasingly turned to work in the city. Nearly every man I interviewed who was above the age of 40 (and therefore of working age in the 1980s and 1990s) had a story about trying their luck in Bogor, Jakarta, Sukabumi, or Serang. Many worked as vendors, selling fruit, vegetables, snacks, ice, or small toys from a cart or motorbike. Others worked on construction projects, as trash pickers, or in small factories, making garments, tofu, or other simple products. For most, this work involved cyclical migration. The men would spend a week or a month in Bogor, for example, and then return back up the mountain to Pongkor for a few days' rest. Some pursued this work for a year or two, while others spent a decade or more living part-time in the city. Young women of this era also frequently went to work as housemaids for families in the cities. Though some of Pongkor's residents remember this period fondly, most people suggest that they preferred staying in the village. Working in the city was uncomfortable and travel at the time, before the main road was constructed, was arduous. When income opportunities emerged in mining—both in formal and informal gold production—in the mid- and late-1990s, most people welcomed the opportunity to return home and start a new livelihood.

Pongkor's early history set the scene for what unfolded after gold was discovered. The Indonesian government had previously established state territory in the region in the form of national forests. These landholdings paved the way for the subsequent creation, both institutionally and practically, of Antam's mining concession. Pongkor's inhabitants, far from provincial peasants, were primarily wage laborers with longstanding ties to cities throughout West Java and Banten. Few had sufficient land or access to markets to maintain an agricultural livelihood. On the contrary, many had relied on cash wages for nearly a century. Some even worked as *pikul kayu*, illicitly extracting timber in ways very similar to the unlicensed mining activities that would follow. One needs to stretch back to at least the 1800s to envision a Pongkor without a territorial state presence, without resource extraction, or without cash-based livelihoods. In short, Pongkor's pre-gold history laid the foundations for what was to come and visions of a quaint past are mostly fiction.

3. Antam's Arrival, 1981-1997

Antam, one of Indonesia's state-owned mining companies, is entangled with the colonial past and early history of the Indonesian nation-state. Following independence, the newly formed state assumed control of colonial mining operations, re-envisioning them as engines that would drive the fledgling nation into modernity. One of the most important of these appropriated colonial mines was the Cikotok gold mine. The Cikotok mine, located in present-day Banten province, was opened by the Dutch company N.V Mynbouw Maatschappij Zuid Bantam in 1936. Following the conclusion of the Indonesian National Revolution in 1949, the Cikotok mine came

²² Most respondents described a dramatic transition, in which Perhutani planted and closely guarded pine trees and prohibited most other forms of forest land use (see also Siscawati, 2012).

under direct control of the new Indonesian government, and, in 1961, its operation was reorganized in the form of the Tjikotok State Gold Mining Company. In 1968, this company was merged with several other state-owned mining companies to form Antam—an umbrella company that would manage all of the state’s non-tin mining operations and that today operates the Pongkor mine.

At around the same time, the Indonesian state was reimagining its role in mineral extraction under the control of a new president. In 1967, founding president Sukarno was ousted amidst a wave of anti-communist violence and a power grab by the Indonesian army, with support from the United States and other Western nations (Bevins, 2020; Roosa, 2006). Military general Suharto, an architect of the takeover, assumed power as the head of state. Suharto’s “New Order” swapped the preceding doctrine of national economic self-sufficiency with an invitation for foreign direct investment. Before Sukarno had even formally resigned, Suharto’s administration passed the 1967 Foreign Investment Law. This policy reversal immediately affected the mining sector, a key attraction for foreign investment. The first company to utilize the 1967 law was the Freeport Sulphur Company, known today as Freeport-McMoRan. This American corporation opened and continues to operate the Grasberg mine in Papua Province—by some measures the world’s largest gold mine and second largest copper mine and easily the most contentious mining operation in Indonesia. As with many other postcolonial states of the period (Bridge, 2004), the Indonesian state retained ownership of underground resources but largely outsourced extraction to foreign companies, who would provide much-needed capital as well as a steady stream of royalties and taxes. Even as the Indonesian state gave up direct control over minerals, mining policies at the time retained one important nationalistic exception—mining on the central island of Java was reserved for domestic companies (Basuki, Sumanagara, & Sinambela, 1994).

In this context, Antam’s Cikotok mine—situated on the west end of Java—became a nationalist symbol. While foreign-operated mines, like Freeport’s, quickly became the largest and most profitable in the country, Cikotok could be held up as a symbol of Indonesia’s sovereignty and progress into modernity. Learning about the Cikotok mine even became enshrined in the compulsory, standard curriculum for every Indonesian child. Through the 1990s, New Order classes designed to cultivate nationalism taught students to understand Cikotok as not only Java’s most significant gold mine, but also an example of Indonesia’s use of modern technology and science, its development of rural regions of the country, and proper national stewardship of natural resources. In the 1980s, after over forty years of operation, reserves at the Cikotok mine began to dwindle. Antam set out to find a new deposit that would serve as Java’s prime source of gold and the company’s flagship mine. This search ultimately led them to Pongkor.



Figure 7: A commemorative display located on the grounds of the Cikotok mine. Artistic reliefs on either side of the display celebrate Cikotok's contributions to the Indonesian nation, including one bearing President Sukarno's signature certifying the mine. Cirotan is the name of one of the first tunneling areas targeted by mining operation.

Antam's activities in the Pongkor region began with exploration surveys, initially targeting lead and zinc, in the 1970s and 1980s. In 1981, these surveys demonstrated potentially significant gold mineralization in the area. With the Cikotok mine nearing exhaustion, this led to a more extensive gold exploration program between 1988 and 1991. In 1992, the company had secured a mining license for the area and, by 1994, had begun production (Basuki et al., 1994).

Most people in the region agree that Antam was the first to recognize that local gold occurred in sufficient concentrations to be mined. Although reports of sporadic informal mining from the late 1980s exist, most trace the beginning of the small-scale mining economy to the mid-1990s. Pongkor's gurandil thus cannot claim gold mining as a "traditional" livelihood in the way miners in other areas can. Company officials use this history to bolster their claim to an exclusive right to mine in the region, labeling informal miners as opportunistic thieves in the process.

While informal miners agree that they were not first to mine in Pongkor, they frame the early relationship between themselves and Antam as one of coordination, not theft. They contend that Antam "showed" them gold mining, a framing best exemplified by stories about the "open-pit." In the mid-1990s, before Antam began underground mining, a small amount of production occurred via extraction at the surface. As they had been with timber, local people were employed

(possibly informally) to haul ore in sacks on their shoulders along paths through the forest to the industrial mine's processing center. Once underground mining began, these workers were released from their jobs. With no other work, many simply continued the process Antam had begun. Today, some informal mining still resembles the "open-pit" mining done then—at the same location, by the same techniques, following the same paths. Antam's role in jumpstarting informal mining in Pongkor is evident in stories such as these.

Local people in Pongkor began to extract gold ore almost immediately after Antam's entrance, but they initially lacked the equipment and knowledge to process it themselves. Instead, they sold ore to collectors, who transported it to neighboring regions with longer histories of small-scale mining and established processing facilities. In many cases, such as in Banten and Jampang, these communities had acquired knowledge of rudimentary gold processing techniques from previous colonial and corporate mines.²³ As word spread about discovery of gold in Pongkor, miners and small investors from these regions arrived and set up operations locally. They hired local people in Pongkor as laborers, who eventually learned how to identify gold veins, construct tunnels, and process ore using mercury themselves.

Antam also played a role in facilitating this transfer of knowledge. They sourced a large portion of the industrial mine's workforce from the company's Cikotok mine in Banten, which was about to be closed. However, shifting labor from Cikotok to Pongkor had an unexpected consequence: as formal mining employees moved, they brought informal miners with them. The Banten region had hosted industrial gold mining since 1936, when the Dutch colonial operation that preceded Antam initiated digging in Cikotok. In the intervening decades, communities in Banten developed a robust tradition of small-scale mining. Many people in the region attribute this to knowledge acquired from industrial operation. It is clear that Antam employees in Cikotok had, and have, connections with informal mining. For example, when I visited Cikotok, a retired Antam employee told me that many of the (now adult) children of his former colleagues today make their living in small-scale mining. In transferring staff from Cikotok to Pongkor, Antam also transferred these connections, traditions, and knowledge. Indeed, many of the *gurandil* I met in Pongkor learned their trade from individuals originally from Cikotok. Thus, although Antam was first to extract gold in Pongkor, it stimulated the rapid spread of small-scale mining with which it would eventually conflict and compete.

4. Gurandil Boom and Bust, 1997-2000

By the mid-1990s, informal gold mining was already common in Pongkor. However, it took a contingency of global proportions—the Asian financial crisis of 1997, called *Krismon* (the Monetary Crisis) in Indonesia—to transform the mining in Pongkor into a full-fledged gold rush. By the early 1990s, as described above, most local livelihoods in Pongkor were in decline. Small farmers struggled to turn profits, and forest use, previously a major source of incomes, was restricted by the creation of Mt. Halimun Salak National Park in 1992 and its expansion in 2003. As a result, many residents (especially men) engaged in circular migration to the nearby metropolitan centers of Bogor and Jakarta, where they worked in small factories or as street

²³ For example, small-scale miners in Banten have used mercury to process ore in *gelundung* since at least the 1980s and perhaps much longer. When I visited the Cikotok region, local interviewees suggested that their fathers and grandfathers had participated in small-scale mining activities for decades, with several speculating that this began alongside Dutch gold mining in the 1930s and 1940s. When asked how people learned to use mercury to collect gold, most people suggested this knowledge had spread from the industrial mining company.

vendors. When the Financial Crisis struck in 1997, these workers and countless others were ejected from the urban economy. As others struggled to be “reabsorbed” by rural villages around Indonesia (Breman & Wiradi, 2002), the migrants returning to Pongkor found immediate opportunities in the fledgling informal gold mining economy. In fact, *Krismon* made gold mining extremely profitable. The value of the Indonesian rupiah plummeted while the international price of gold remained stable, essentially multiplying the local price of gold. One gurandil told me, “We didn’t even feel *Krismon* in Pongkor. While everyone else in Indonesia was getting poor, we were getting rich.” As a result, informal gold production quickly went from being simply an alternative livelihood to a major opportunity for investment. Urban labor and capital followed the returning migrants, flooding Pongkor. Government estimates at the time suggested that as many as 26,000 informal miners may have worked on Antam’s concession during the ensuing rush (McMahon et al., 2000).

The flood of miners to Pongkor following *Krismon* created new conflicts in mining areas as well as between migrants and local residents (see also Pudjiastuti, 2005). Interviewees often described the late 1990s to me as a time of “*hukum rimba*,” or “law of the jungle.” Many newcomers did not respect local norms, mining claims were insecure, and disagreements sometimes resulted in violence. Furthermore, the gold rush strained relations between Antam, small-scale miners, and the local community (see also Zulkarnain et al., 2003). As riots rippled across Indonesia in the midst of national political upheaval associated with *Reformasi*,²⁴ the tense atmosphere in Pongkor also erupted into conflict. In December 1998, a local small-scale miner was allegedly shot in the leg by concession security. In response, a large group of small-scale miners demonstrated at Antam’s offices, angry both that the man had been shot and that, as one company employee told me, “Antam controlled the mountain and its gold.” The demonstrators drove Antam’s employees from the offices and set fire to the buildings, eventually burning them to the ground.

Further violence followed in May 1999. This time, the struggle occurred between different small-scale mining interests, one group aligned with local residents and other with migrant miners from Banten. Many residents still refer to this conflict as the “*perang antara kampung*” or “*perang antara provinsi*,” the war between villages or provinces. The conflict began when a group of local elites from Pongkor became frustrated with mining entrepreneurs from Banten who were operating profitable shops (*warung*) catering to small-scale miners near the concession border. The elites insisted this land was theirs to use and destroyed several of the shops to make room for their own. In response, the Banten mining entrepreneurs assembled a large group of men from Banten and attacked the central residential village (*kampung*) where these elites lived. As local residents fled to the forest, the Banten attackers burned down and

²⁴ *Reformasi* refers to the era following the fall of President Suharto in May 1998. Suharto’s grip on Indonesia began to slip in the 1990s, with domestic critics increasingly emboldened to protest the authoritarian government, its corruption, and its human rights abuses. This tense atmosphere was exacerbated by *Krismon* in 1997 and, by the late 1990s, protests and other forms of conflict had spread throughout the country. In Jakarta, students led demonstrations to demand change from the government but more sinister riots and looting also broke out, often characterized by anti-Chinese sentiments. This unrest ultimately led to the resignation of Suharto on May 21, 1998 (E. Aspinall, Feith, & van Klinken, 1999). Subsequent governments, headed by B. J. Habibie (1998-1999) and Abdurrahman Wahid (1999-2001) introduced a spate of democratic and decentralizing reforms. Among them was the Regional Autonomy Law, which included a devolution of resource control to regional governments (Casson & Obidzinski, 2002; McCarthy, 2004). Many reforms were part of an increasing neoliberalization of Indonesia. For state-owned enterprises, like Antam, this also meant a shift towards more Western, neoliberal styles of corporate management (see Rudnyckij, 2009).

looted many structures in the village. The mob from Banten also stopped a public minibus (*angkot*) and insisted all the passengers leave the vehicle and show their state-issued identity cards. They found one man had an address in the targeted village and murdered him (see also Lestari, 2011).

These conflicts proved intolerable for government and corporate authorities. In 2000, the central government instituted a new policy, Presidential Instruction No. 3/2000, specifically aimed at “overcom[ing] problems of unlicensed mining.” In Pongkor, Antam and the government coordinated to prevent future unauthorized access to the mining concession. They attempted to root out corruption within their own ranks through wholesale changes in security personnel and implemented new policies that emphasized consistent punishment, including potential jail sentences, for violations. In theory, this was meant to end informal mining in Pongkor. In practice, the reforms ushered in a new era in which informal gold production adapted, becoming more disciplined and difficult to police.

5. Reorganized Extraction, 2000-2015

5.1. Reordering Space and Labor

As the number of informal miners in Pongkor swelled in the late 1990s, government and company forces responded by instituting new measures to police the concession. This crisis led to a transformation in Pongkor’s small-scale mining economy. Small-scale miners attempted to navigate new securing practices and, in the process, reorganized informal gold production. Below, I describe the multiple forms that this reconfiguration entailed. Spatial practices of gold production were dramatically altered to circumvent policing. This new geography, in turn, spurred the consolidation of particular labor arrangements and new political-economic constraints and opportunities.

First, *gurandil* (a term that refers to all small-scale miners in Pongkor) changed where they mined in order to avoid being caught by Antam security. Small-scale mining takes place in multiple named locations (usually called *lokasi* or *blok*) throughout the hillsides and valleys of Pongkor’s concession. After 2000, the richest and most popular of these locations was forcibly vacated so that Antam could construct their own tunnel. Today, it remains intensively policed and is forebodingly referred to as the “*zona merah*” or “red zone.” Many *gurandil* are afraid of straying too close to Antam’s operations and, as a result, shifted mining activities to other parts of the concession. Some work in areas that have relatively little gold content (often adjacent to residential villages) that have effectively been deprioritized by Antam security forces. Others have found gold and developed tunnel systems in the corners of the concession furthest from the company’s installations.

Second, new policing practices severely limited the scope of gold production activities that could be completed within the concession. Prior to 2000, *gurandil* constructed camps directly adjacent to their tunnels or next to nearby rivers on Antam’s concession. They would extract gold ore and do most processing on the spot.²⁵ For example, a mining crew might dig a tunnel into a hillside and have a set of cylindrical ore mills, called *gelundung*, constructed alongside a river at the hill’s base. The miners would place ore collected from the tunnel into the *gelundung*, add mercury, and then rotate the mills (to grind the ore and mix it with mercury)

²⁵ As is the case with many other small-scale mining locations within Indonesia and around the world.

using the flowing water. After several hours of milling, the miners would collect the gold amalgam produced during the mixing process and then return to the villages, carrying only the amalgam, to sell their product. Following 2000, more systematic policing of the mining area made this impossible. Antam security could easily find and destroy any small-scale mining structures or equipment left on the concession. In response, gurandil moved their processing activities from the concession to the villages. They collect ore on the concession, pack it into sacks, and then transport it (first on foot and then by motorbike) back to residential areas. There, they process the ore using electricity-powered *gelundung* located on private property. The journey of transporting heavy ore is substantially more difficult than carrying a small gold amalgam ball, but it reduces miner's exposure to policing. Gurandil must be cautious on the concession, but can work in the village with less fear.



Figure 8: A very large array of *gelundung* (ore mills) set up in a warehouse located in a village outside of the mining concession.

This change had multiple knock-on effects. Previously, informal miners working in camps on the concession had shared responsibilities spanning the full gold production process. The work was largely unspecialized. Now, with extraction and processing spatially separated, a new division of labor emerged. For example, workers were needed to transport ore from the mouths of tunnels to villages, a task that often takes an entire day. Today, there are many laborers who specialize in this task. Ore porters (*tukang pikul*) haul ore sacks on their shoulders

over dirt paths on the concession and, after meeting the road, hand off the sacks to motorbike drivers (*ojek*) who transport them to a processing destination.²⁶ Other gurandil work primarily on extraction from tunnels, such as chisel workers (*tukang pahat*), packers who stuff ore into sacks (*tukang tarik*), or tunnel guards and supervisors (*danlob*). Finally, some laborers focus on ore processing in the villages, such as those who operate *gelundung* equipment (*pengolah*) or crush ore (*tukang numbuk*). While some gurandil continue to do multiple, or even all of these, labor processes individually, it is more common for the tasks to be divided among multiple laborers. All of these types of workers are considered gurandil, a broader collective identity for Pongkor's small-scale miners. However, in contrast to the past, this division of labor is a key component of the social organization of gold production.

As these tasks became more differentiated, the ways they are incorporated into the production chain also became more diverse. Tunnel workers often work in a group for a financing boss, tying them to a particular patron, work schedule, and location. Transportation and processing roles, on the other hand, most often work independently, making deals for their labor on the spot. This division of labor also resulted in new compensation arrangements. Tunnel workers, involved directly in extraction, are paid in sacks of ore—a share of their product (see a recent exception to this below). Most commonly, these workers divide 40 percent of the produced ore, while the remaining 60 percent is given to the financiers. Transportation and processing laborers, typically operating independently of ore producing groups, are paid cash in amounts corresponding to relatively stable price norms. The distinction between these forms of compensation is particularly important in informal mining economies, where access to shares of production is more closely associated with upward socio-economic mobility (Cleary, 1990). I discuss these labor processes and arrangements in more depth in Chapter Two.

Additionally, with gold processing now done in villages, mining has become more deeply entangled in everyday life throughout the community. For example, women, children, and the elderly at home can help crush ore, run processing equipment, or make gold sales. Sometimes, village residents conduct this labor as a job, offering their services to other gurandil in return for a fee. However, at least as often, these tasks have become another uncompensated form of labor imposed on the domestic sphere (see Federici, 2004). For example, while a man is collecting ore on the mountain, his wife might be at home crushing the previous day's haul, in addition to completing other domestic labor. In these various ways, Pongkor's spatial reconfiguration also entailed a reorganization of labor. A new, more highly specialized division of labor emerged and a segment of workers (transportation and processing) was severed from product-sharing arrangements, all while casual mining labor became a pervasive feature of village life.

The strategy of transporting ore from the concession to the villages is effective for navigating policing, but it is also expensive. One effect of this added expense is that poorer miners who lack the capital to pay for ore porters are limited to mining in the areas closest to the villages. As mentioned previously, these tend to be areas with low-quality ore. Groups with significant financial resources, in contrast, can afford to sink tunnels in more distant, lucrative areas of the concession.

Another result has been the growing importance of the neighborhoods closest to the concession, which often correspond to lower transportation costs. The village Kampung Ciemas,

²⁶ The processing destination depends on the owner of the ore. For example, a small-scale miner may process the ore using *gelundung* at their own home. If they do not own *gelundung* or other processing equipment, they may process the ore at a friend's or financier's home. The instructions for where to deliver ore are passed down from miner, to ore porter, to motorcycle driver.

later subjected to the Operation Humanity raid, is an extreme example of this. Ciemas is an enclave village. It is located entirely within the boundaries of the mining concession and is perched just above Antam's operations, giving it great proximity to some of the best gold ores in Pongkor. Because of this proximity, the cost of transporting ore from tunnels to Ciemas is less than that of any other village. Ore porters needed to travel a comparatively shorter distance and thus could be paid a lower wage. As a result, Ciemas became the most cost-effective village for gold processing and subsequently became the focal point of gurandil activities. This spatial reorganization was so successful in mitigating policing pressures that it enabled a second gold rush in the early 2010s, with an estimated 15,000 miners visiting this village.²⁷ As I describe later, police forces eventually responded with a raid on the village in 2015 and have closely monitored it since.

5.2. The Cyanide Revolution

Another transformation in Pongkor arose from the introduction of cyanide-based ore processing technology. In contrast to cyanidation, most informal gold extraction in Indonesia is conducted using mercury amalgamation. Mercury amalgamation is an easy method for separating gold from other minerals which requires relatively little equipment or capital. In the case of Pongkor, this is typically done by crushing ore in rotating cylindrical mills (locally called *gelundung*) in combination with mercury for approximately six hours. Such methods have been common in Pongkor since the mid-1990s. Though its use is widespread, mercury amalgamation is inefficient. It only captures 30 percent of the gold present in crushed ore, leaving the remainder behind in tailings. Gold cyanidation techniques, in contrast, typically achieve a recovery rate of 70 percent (Veiga, Maxson, & Hylander, 2006), but also entail greater technological and capital requirements. Following cyanide's introduction, the differences between these two gold processing methods added new layers of complexity to local gold production processes with significant social and political-economic effects.

Cyanide technology, colloquially referred to as *tong* or *gentong* after the common name for the large, cylindrical vat in which the processing is done, arrived in Pongkor around 2007.²⁸ Narratives about its introduction vary in terms of who was first responsible—a Chinese or Korean businessman in some accounts, migrants from Sulawesi (who potentially learned the technique from miners in the nearby Philippines) in others—but all articulate a similar chronology. First, it was brought in by a small number of outsiders. Second, its sudden introduction created a tremendous business opportunity for early adopters. These *tong* operators bought tailings from other miners and reprocessed them using cyanide, squeezing out gold that less efficient mercury processing had left behind. Initially, tailings (often simply called *lumpur*—mud) were considered worthless. *Tong* owners could buy mass quantities relatively cheaply and, after reprocessing, accumulate great profits. Even better, these profits could be made without the legal, safety, and financial risks involved in extraction of underground ores on the concession.

²⁷ A suite of other factors, including the introduction of cyanide processing (discussed in section 5.2) and a spike in the international price of gold, also helped produce this rush.

²⁸ An alternate, but locally less common, type of cyanide operation involves “soaking” in a tarp-lined pit in the ground. This type of operation is called *rendaman*.



Figure 9: Left, buckets with tailings mud (*lumpur*) and, right, a cyanidation vat (*tong*) used to extract additional gold from the tailings.

Eventually, as competition among *tong* operations increased, the price of tailings rose and returns from reprocessing them fell. Nevertheless, a parallel market and set of gold production processes—focused on tailings rather than raw ore—has continued to flourish. Today, there are tailing traders and fixers,²⁹ *tong* rental services, purveyors of cyanide and other necessary chemicals, and even specialists who consult on the use of cyanide. Unlike most of the mining roles that predominated before cyanide’s introduction, the people involved in these activities never need to set foot in the mining concession.

Before long, some miners involved in primary ore extraction adopted cyanide processing, too. The benefits to this are obvious. Miners can reprocess their own tailings and, in some cases, cyanidation can be used on ore without undergoing a first round of mercury processing. This allows them to capture considerably more gold than with the mercury method alone. However, there are several obstacles to small-scale miners adopting this technology. First, its equipment and chemical inputs are significantly more expensive than those used in mercury processing. Second, cyanidation is typically done on a larger scale than mercury processing, thus necessitating a greater quantity of ore or tailings as inputs. Third, cyanidation techniques require specialized knowledge—a mistake in processing might not only ruin a batch, but also expose the operator to immediately lethal fumes. For these reasons, the use of cyanidation has largely been limited to those who specialize in processing tailings (described above) and well-off mining

²⁹ One tailings trader exemplified the degree of specialization involved in this work, describing how he could identify the source, and thus potential quality, of tailings simply by smelling them.

bosses. The vast majority of local small-scale miners, many of whom own their own *gelundung* (mercury amalgamation equipment), simply cannot afford to operate at the level required for cyanidation.

The adoption of *tong* by wealthier mining bosses has dramatically intensified their operations. In addition to increasing current yields, the higher efficiency of cyanidation has made lower quality ores—worthless with mercury processing—profitable. This has led to the opening of new mining tunnels in previously unutilized areas, expanding the geographic scope of local mining. In a handful of cases, these areas are located outside of Antam’s concession, allowing the mining there to proceed without the threat of policing. In such locations, gold extraction and processing can be done in the same site—avoiding the additional costs and challenges brought by needing to transport ore. Some mining bosses, incentivized by the larger scale of cyanide processing, have utilized this opportunity to bring the various steps of the production process “in-house.” These operations will process all produced ore in a batch, rather than divide it following extraction.



Figure 10: Mining outside of the concession requires more sophisticated, capital-intensive equipment, such as that depicted above. Only wealthier mining bosses using cyanide-based processing are able to mine in these circumstances.

This intensification has affected relations between mining laborers and their employers. In the most common form of labor organization in Pongkor—a product of the dialectical

reorganization following stricter policing methods in the early 2000s—gurandil involved in tunneling work in groups for financing bosses, while most downstream labor is done on an individual basis. Tunnel workers are paid with a share of the group’s unprocessed gold ore, which they then process themselves. Workers in downstream roles, like transportation, are generally more independent, contracting with others in ad-hoc fashion, and are paid in cash. The use of cyanide, however, has recently promoted the consolidation of these labor roles “under one roof.” Not just tunnel workers, but also porters, ore crushers, and processing technicians work for bosses, often in standardized, daily shifts. While this arrangement provides a regular income for workers (something not always true of product-sharing), most gurandil consider these jobs among the least preferable in Pongkor. Many miners employed by these larger, more consolidated operations live in laborer barracks, have strict schedules and little autonomy, and are reliant on their bosses. Their work, often menial tasks such as crushing rocks, is typically arduous and repetitive.

The transformation of labor relations extends even further in operations where ore is batch-processed using cyanide. In such cases, tunnel workers receive their compensation in cash, rather than through a share of ore.³⁰ This money allegedly represents a “share,” but laborers must trust they are being compensated fairly. Many gurandil worry that being paid in cash allows financiers to obscure the actual value of ore the laborers collected. In operations where large volumes of low-grade ore are batch-processed—a form of production only possible with cyanide—miners receive predictable incomes and now express their compensation as a wage (an amount of cash per daily shift) rather than a share.

Cyanidation technology has thus resulted in a dramatic, but distinctly uneven, transformation of gold production in Pongkor. The technology has allowed gurandil to expand and intensify their mining operations, despite slowly dwindling reserves and increasing policing pressures. However, it has also changed the way mining participants are positioned within the informal gold economy. While wealthier miners have benefited from increased efficiencies, poorer participants are stuck using mercury and find themselves increasingly dependent on mining bosses.

6. Operation Humanity and its Aftermath, 2015-Present

August 2015 proved another turning point for Pongkor. Small-scale mining in the region was reaching a second peak. A new spatial order of extraction, a more specialized division of labor, and new, more efficient cyanidation processing technologies enabled informal gold production to return following the crackdowns in 2000. The enclave village of Kampung Ciemas was at the center of this resurgence, materially and symbolically. Nominally, the village has around 200 registered households, but Antam security officers estimate that 10,000 to 15,000 miners were regularly working there in the years before the raid. The community served as a gold processing center, with company officials estimating it housed 57,007 *gelundung* barrels and 204 *tong* tanks in 2014. Informal miners generally agree with this representation. They liken the Ciemas of this era to a capital city rather than a village. You could meet groups of miners who had come to work from all around West Java and Banten and even from as far as the island

³⁰ In product-sharing arrangements, actual ore is split among the mining participants. They return home not with money, but with gold ore that they can process themselves. In some cyanide-based operations, all of the ore collected is processed as one batch, making compensation through ore impossible. Generally, payments in ore are seen as preferable than cash in Pongkor.

of Sulawesi. According to one miner, 250 minivans (*angkot*) served the route to Ciemas, shuttling these miners to Ciemas from nearby villages as well as regional cities. Small-scale miners remember the ease of working and making money in this context. Antam employees, on the other hand, emphasize different aspects of this lively time and place. Pak Basri, a senior Antam security official, told me, “It was like Texas [the Wild West], whoever was strongest ruled. There were drugs, alcohol, marijuana, meth, there were prostitutes, karaoke bars. The river was polluted, the color of milk coffee. It was all about money, about illegal business. It was a wild mining cartel.”³¹

Retrospectively, Antam staff reflect on this period with regret and deflection, ashamed that small-scale mining could have thrived in Ciemas right under their noses. Asked how things in Ciemas—which, being located inside Antam’s concession, can only be accessed via Antam’s road—got out of hand, Pak Basri blamed his predecessors, saying I had “to ask those who came before us.” He added that it “was a question of both ability and will. There was a lot of pessimism that illegal mining could not be stopped, that they were ‘backed up’ by strong forces.” He implied that some of those “strong forces” had connections inside the company. However, between 2013 and 2015 there were several senior leadership changes in Antam. Pak Basri suggested these changes facilitated a new determination within the company to do something about the small-scale mining activities in Ciemas. Then, in August 2015, several key incidents served as the straw that finally broke the camel’s back.

On August 4th, five *gurandil* were caught by Antam security inside the concession’s “red zone,” where trespassing is strictly prohibited. Then, on August 7th, two additional small-scale miners were caught, disguised in company uniforms, inside Antam’s Level 600 tunnel.³² During both instances, local community members assembled to intercept the security vehicles carrying the miners before it reached the local police station. They blocked the road, hoping to persuade the Antam security workers to be lenient with the captured *gurandil*, a strategy that had worked in the past. On August 24th, four more unlicensed miners were found committing the same crime, this time with ten bags of ore in their possession. Again, the Pongkor residents staged a demonstration against the arrests, now with even more participants (Rizal, 2015a). One miner at the protest told me there were hundreds of people in attendance, some placing obstacles in the road and many others lined up along it. Antam documents note that the crowd, including many women and children, was successful in blocking the company road for nearly two days. In response, the regional police were called in. Some 500 officers from Bogor regional police, assisted by West Java special operations police, arrived to “secure” the area. They used a water cannon to disperse the crowds and threatened to arrest any individuals who remained. This encounter was the first deployment of a new agreement between Antam and regional police, now cited as vital to the company’s security, which aimed to end demonstrations in Pongkor by arresting individuals involved in road blockades.

Although the August 2015 arrests were not due to “typical” *gurandil* activities—only the most daring small-scale miners attempt to enter Antam’s “red zone” or active tunnels—they triggered a heightening of Antam’s rhetoric about small-scale mining in general. The mine’s general manager claimed that the company was losing up to 1 trillion rupiah per year because of

³¹ It is worth noting that it is in Pak Basri’s interest to describe the prior state of Ciemas in this way. Depictions of the social ills in Pongkor’s mining camps always seemed hyperbolic to me.

³² Antam’s tunnel entrances are constructed at different elevations and are named according to their height (in meters) above sea level. The Level 600 tunnel, thus, is the tunnel that extends beyond the tunnel opening located 600 meters above sea level. See Chapter Three for more details on Antam’s tunneling system.

unlicensed mining, and that the problem had gone on long enough (Kusmayadi, 2015). On August 26th, the police held an official meeting with the leaders of all the local villages, warning them that demonstrations would no longer be tolerated. On September 3rd, Antam officials and the police held another meeting for the public and some 2,000 community members joined. They told the community that small-scale mining was over in Pongkor and that gold operations in Ciemas would be dismantled in one weeks' time (Rizal, 2015a). By September 7th, the police arrested another 11 people for buying and processing illicitly sourced gold (Bempah, 2015). All of these events served simply as the prequel to an even bigger police operation, the “cleaning” of Kampung Ciemas.

At 8:00am on September 19th, 2015, Operation Humanity began. A joint task force of 2,376 personnel descended on Ciemas with the goal of dismantling the infrastructure and equipment which had made the village a hub of informal gold processing. The task force counted among its numbers 577 regency-level police, 540 West Java special forces police, 180 West Java riot police, 100 members of the Indonesian national armed forces, 300 municipal police, 20 military police, and 500 Antam security guards and other employees, as well as smaller groups from public health units, Perhutani (the state forestry corporation), the national electric utility company, the ministry of environment, and the nearby national park. On September 19th and 20th, this team worked to rid Ciemas of all traces of small-scale mining. They confiscated or destroyed equipment like *gelundung* or *tong*, dismantled huts, buildings, and other structures used for mining activities, and closed gurandil mining holes located nearby on the concession. For three further days, from September 21st and 23rd, the task force conducted additional clearing activities in Ciemas and the surrounding mining areas. They carefully documented this process, detailing where and when they accomplished these tasks. In total, they destroyed 1,314 buildings, closed 465 unlicensed tunnels, dismantled 149 *tong*, and confiscated 3,277 *gelundung* and other pieces of mining equipment.

The raid is dramatically chronicled in an 11-minute video, made and posted on YouTube by the Bogor regency police. Heart-pounding cinema score music plays as the film opens with scenes of dozens of police and military vehicles arriving in Pongkor. Briefly, an overhead shot of Kampung Ciemas, a dense cluster of roofs surrounded by forested ridges, appears. Under it, red text reads, “Dozens of hectares of state land are controlled by wild miners” (*Puluhan hektar lahan negara dikuasai para penambang liar*). The shot moves to the head of Bogor regency police giving a booming speech to assembled members of the task force. We hear him forcefully recount the key arguments for the police operation—the August arrests, the trillions of rupiah stolen from state and company, and pollution in the river—as the video cuts to shots of the community meetings, of buildings being dismantled and burned, of police marching, and of piles of confiscated ore and equipment. As the speech concludes and the dramatic music finally fades, the film returns to an aerial shot of Ciemas. This time the red text below it reads “Kampung [Ciemas], basis of the largest cartel in Indonesia, is now history” (*Kampung [Ciemas] basis kartel terbesar di Indonesia kini tinggal sejarah*). The Indonesian national anthem, *Indonesia Raya*, begins to play. As the line “Land where my blood was shed,” is heard, the “before” shot of Ciemas transitions to an “after” shot. Where there were once tightly packed structures all that remains is smoldering piles of debris. As the national anthem plays out, the film concludes with shots of newspaper clippings celebrating the police raid and footage of children playing in a supposedly clean river.

If this YouTube video provides a glimpse into police perspective on the operation at Ciemas, residents of Pongkor typically offer a different take. Following the public meetings

between Antam, the police, and community members, most non-local small-scale miners hurriedly left Ciemas in a mass exodus. Mining bosses, financiers, and processing entrepreneurs took what equipment they could with them, leaving behind the structures that would soon after be destroyed. Most mining laborers packed their things and returned to their homes outside the enclave village. Ciemas's local families spray-painted their own homes, shops, and shacks, with the word "*warga*" (resident), hoping that the policing force would spare the buildings.³³ Many then watched from the edges of the village as the key infrastructure of the informal gold economy, where many had worked and made a living, was burned.

For both Ciemas's inhabitants and the broader residents of Pongkor, this outcome was a mixed bag. Many local people agree that things in Ciemas had gone too far, and especially that the people benefitting most were outsiders. Memories of the 1999 violence with migrant miners from Banten reminded them of the value of local people being in control. Yet, nearly everyone I spoke with also understood the raid as excessively forceful. They felt there was no reason for Antam's and the police's displays of violence and performances in authority. Worse, local people and poorer *gurandil* were seen as collateral damage. If local laborers benefitted relatively less than non-local mining bosses when Ciemas was at its peak, now they did not benefit at all. Small shops had no customers, rented laborer dormitories were empty, and many people had no opportunities for work. *Gurandil* frequently offered me the number 70 percent. The markets, livelihoods, and overall economic well-being of all people in Pongkor had been depressed 70 percent since Ciemas had been shut down. This was not just at the villages (*desa*) closest to the mining concession, but through all the villages in Nanggung District and even down to the nearby city of Leuwiliang.

Quietest of all Pongkor's locales is, of course, Kampung Ciemas. This is not simply because of the dramatic reduction of mining equipment in Ciemas, but because Antam has severely tightened its control over access to the enclave village. Whereas hundreds of *minivans* (*angkot*) previously passed Antam's mine on the way to Ciemas, the road is now closely monitored with a layer of gates and a multi-level inspection. The only people allowed past these gates are those with Kampung Ciemas addresses on their state-issued identity cards. Visitors are only allowed with advanced notice and a reason deemed accepted to Antam. Moreover, locals and visitors alike are only allowed to pass Antam's gate during three prescribed hours each day: 6-7am, 12-1pm, and 6-7pm. Ciemas residents must time their visits to work, school, or the market around this schedule, and a cluster of waiting travelers can often be seen accumulating at the shops just below the gate in the hours before they are allowed through. Antam frames these restrictions as necessary to keep Ciemas from getting out of hand once again. Furthermore, they view the gate as their door, the road as their private thoroughfare, and the concession as their land—managing visitors is framed as a safety and security imperative for company and nation. To the people of Ciemas, these strict rules are another example of local, often economically marginalized villagers suffering due to Antam's small-scale mining eradication plans. In the immediate aftermath of Operation Humanity, use of the road became an intense focal point of public protest. In May 2016, residents of Ciemas responded to Antam with their own set of public meetings. Regional politicians and village leaders gave passionate speeches before a crowd in Ciemas, after which Antam's general manager was offered an opportunity to make an unlikely rebuttal. Despite this effort, Antam continues to maintain strict control over the gate, road, and access to Ciemas. These restrictions even made it nearly impossible for me to visit the

³³ In at least some cases, this strategy appears to have worked. See Chapter Four for additional details.

village during my field research. As one gurandil told me, being in Ciguha is now “like being a bird in a cage” (*seperti burung dalam sangkar*).

With the raid and these changes, Antam and the regional police declared victory over Pongkor’s small-scale miners in the aftermath of Operation Humanity. Pak Basri, the senior Antam official, even boasted to me about their success. Sitting in his office, Pak Basri took down an aerial photograph of Ciemas from his wall. Pointing to the barren spots where structures had previously stood, he said “We’ve done something no one has ever done before. Pongkor should be used as a model for all other mines. You [referring to me] and I should write a book together about how to get rid of small-scale mining. We are the example of how to remove illegal miners until they don’t exist anymore!”

Yet, Antam officials should know this is simply not true. They have their own evidence that gurandil activities started up again almost immediately after the raid. Just two months later, in December 2015, Antam security found small-scale miner bridges, shacks, and tunnels in operating condition inside the concession. By January 2016, they had made another 41 arrests of gurandil caught in action and closed nearly 300 additional unlicensed tunnels. When I first visited Ciemas, in August 2016, informal mining was much diminished but by no means gone. My hosts even shared with me an optimistic plan for advocating for legal small-scale mining in Pongkor. When I returned for a year of fieldwork in October 2017, the plan for legalization had died, but the *gelundung* rolled on. Gurandil activities continue throughout the broader Pongkor area, too. The gold economy is depressed, consistent mining work opportunities are scarcer, and gold-based incomes are lower, but nearly everyone I spoke with agreed: in Pongkor, for better or worse, it’s still all about gold. Some respondents suggested that 70 percent of local men still work in mining, though often in combination with other types of work. As many of these miners say, this work is ultimately “*soal perut*”—a matter of the stomach—and they “*tidak ada pilihan lain*”—don’t have any other choice.

Despite the destruction of Kampung Ciemas, small-scale mining continues in Pongkor. Just as they did following the crackdowns in the late 1990s and 2000, gurandil have found—or been forced to find—ways to continue to make mining livelihoods work. The subsequent chapters of this dissertation continue to excavate this entangled aftermath.

7. Conclusion

Digging into Pongkor’s history demonstrates how the region’s mining present is a product of Antam and gurandil’s interrelated past. This excavation offers a different, more political-ecological, explanation of the structure and persistence of informal mining in Pongkor, as well as a more specific understanding of the conflicts that have occurred there. Indonesian policymakers often explain away small-scale mining as uncomplicated, the inevitable outcome of human greed and the high price of gold. As they told me, “*Ada gula, ada semut*,” “Where there is sugar, there will be ants” (see the Introduction). This sentiment echoes the deterministic explanations of resource conflict that political ecology scholarship has often worked to dismantle (see, for example, Le Billon, 2012; Peluso & Watts, 2001). Examining the case of Pongkor, I offer another example of why resource use and resource conflict are not simply “natural;” they are the outcome of specific historical contexts and processes.

Where Pongkor differs from other cases is in the opportunity to examine the relations between a large-scale, formal extractive enterprise and small-scale, informal resource use. I find that it is particularly this interrelation—another form of entanglement between Antam and

gurandil—that has shaped mining practices and conflict in Pongkor. The story of gold in Pongkor is dialectical, with the overlap of large- and small-scale mining generating successive moments of co-existence, conflict, and transformation. Thus, while Antam’s Operation Humanity was successful in reducing small-scale mining around Kampung Ciemas, it should be no surprise that gurandil activities continue. Pongkor’s small-scale mining activities are not, and never were, simply an illicit aberration, an inconvenience that could be cleanly excised from the community and its economy. Rather, gurandil, their lives, and their livelihoods are part and parcel of the gold economy that Antam itself helped produce.

Pongkor’s pre-gold history illustrates how Antam and small-scale miners emerged from entangled contexts. Dutch colonial and early Indonesian state land expropriations in the region, first as plantations and then as state forest, laid the institutional groundwork for the later creation of a mining concession for Antam, the state-owned mining company. Simultaneously, these enclosures created a working class in Pongkor. By Antam’s arrival in the 1980s, most local people were working as wage laborers, not farmers. Additionally, they had a history of using, and at times fighting with government entities over, resources located on state territory, such as the unlicensed extraction of timber. These previous histories articulated with a new context when gold was discovered in Pongkor. Transitioning to work as gurandil, thus, was not opportunistic or greedy, but part of a broader pattern of livelihoods for Pongkor’s people. Antam facilitated this transformation after it arrived in the region. The company signaled the availability of gold in the region and, by employing residents as temporary laborers, showed local people key mining sites. Antam also shifted large parts of its labor force from its closing mine at Cikotok to the new mine at Pongkor. In the process, it also brought small-scale mining knowledge from Cikotok, a region which has a long history of artisanal mining.

Following the 1997 Asian financial crisis, small-scale mining boomed in Pongkor. While the value of the Indonesian rupiah plummeted, international gold prices remained stable and labor made surplus elsewhere by the crisis flooded to the region. This demonstrates that small-scale mining activities are not isolated, but phenomena entrenched in larger political-economic spheres. A flood of new informal miners to the region tipped the relationship between Antam and gurandil into crisis, and following violence in 1998 and 1999, the company implemented a policing crackdown. However, this did not spell the end of small-scale mining in Pongkor. Rather, in dialectical fashion, it contributed to a spatial reconfiguration of informal gold extraction, a new organization of small-scale mining labor, and the integration of gold mining into everyday village life. Among other outcomes, this relocated some small-scale mining labor practices from concession camps to the household. Contrary to its goal, this may have made Pongkor’s informal mining economy more resilient to intervention. These transformations highlight the flexibility of informal mining economies, signal the ineffectiveness of common management strategies, and suggest interventions must be wary of unintended consequences.

New technologies like cyanidation, initially spread from industrial mining elsewhere,³⁴ also had a transformative effect on informal gold production in Pongkor. This type of change underlies many proposed technoscientific interventions which aim to reform the sector by introducing more efficient and more environmentally friendly gold processing methods (Siegel

³⁴ Gold cyanidation has been used in industrial mining since the late 19th century, but has only recently been employed in small-scale mining. In Indonesia, cyanidation techniques were likely first used by small-scale miners in the early 2000s in North Sulawesi, later spreading to West Java and other regions in the mid-2000s. The technology seems to have spread to North Sulawesi from the Philippines, where small-scale miners learned to use cyanide from industrial miners in the 1980s (Verbrugge, Lanzano, & Libassi, forthcoming).

& Veiga 2009; Veiga, Angeloci-Santos, & Meech 2014).³⁵ For example, an Indonesian government agency is experimenting with using cyanidation technologies to reduce the use of mercury in small-scale mining (Sulistiyono 2018). However, the case of Pongkor demonstrates how these technologies can have unpredictable and uneven effects. Rather than replacing mercury, cyanide is used in combination with it. This has had the effect of increasing the efficiency of the informal gold economy, which now operates on both raw ore and tailings. Furthermore, cyanidation has opened new, low-grade areas to exploitation (sometimes off the concession and therefore without the threat of policing), allowing miners to reconceptualize the scarcity of gold in the region. Both processes made it easier for gurandil in Pongkor to navigate policing pressures and contributed, along with other factors, to the rise of Kampung Ciemas as the focal point of Pongkor's gurandil activities.

As these confrontations and subsequent changes allowed small-scale mining to persist in Pongkor despite Antam's presence, they also reconfigured gurandil livelihood opportunities and constraints. With each step, Pongkor's informal gold economy has become more unequal. While some small-scale mining operations have become technologically sophisticated and capital intensive, other gurandil activities have remained rudimentary and poorly financed. There has thus been an increasing differentiation among mining participants, including the disempowerment of mining laborers relative to financiers or employers. When informal mining began in Pongkor in the mid-1990s, small-scale mining was accessible to almost anyone willing to learn the trade. It was conducted in small groups and, because camps could be constructed on the concession, required relatively little capital. Then, following the 1997 Asian financial crisis, migrants poured into Pongkor, contributing to new conflicts over gold. Authorities responded to the rush by implementing stricter policing methods in the early 2000s. This resulted in a spatial reorganization of small-scale gold production and a new division of labor. More capital was required to access quality gold reserves while wage labor replaced compensation through shares of gold ore for some labor roles. The introduction and adoption of cyanidation methods in the late 2000s dramatically exacerbated these trends. More expensive than common mercury processing, cyanide granted new gold extraction efficiencies but only to those who could afford it. Furthermore, it facilitated the consolidation of gold production processes in the most highly capitalized operations (i.e., all the labor processes occur under "one roof"), undercutting poorer miners and increasing laborer dependence on wealthy mining bosses.

In 2015, with gurandil activities at a second peak, Antam and regional police implemented Operation Humanity, a raid that intended to eliminate small-scale mining activities in the village of Ciemas. This operation was successful in dramatically reducing informal mining in Pongkor, but this success was not absolute. Antam officials declared that gurandil had been eradicated when in fact evidence of their persistence is clear. Just as crisis dialectically led to transformation following the 2000 crackdowns, Pongkor's gurandil are again reconfiguring their modes of informal extraction. Just as old forms of informal mining sprouted alongside formal mining, today's new forms of gurandil production are emerging through and in response to Antam's own mining and security operations. In this way, they are part of the 21st century's "flexible frontier-makers" (Zhu & Peluso, 2021, p. 345). Rather than responding to resource booms, Pongkor's flexible small-scale miners are often acting and reacting in relation to large-scale mining. These processes of response and change—political-economic, technical, and cultural—as well as the outcomes for small-scale mining participants fill the remaining chapters

³⁵ This includes mercury retorts, various forms of ore concentrators, and cyanide processing, among other technologies.

of this dissertation. For now, it is sufficient to say that contemporary Pongkor is the product of the dialectical interrelation of large- and small-scale mining, of Antam and gurandil.

CHAPTER TWO: INEQUALITY, INSECURITY, AND MINING LABOR

1. Introduction

Mang Jajang was one of the many kind people in Pongkor who made my research possible. We would walk through local villages together and he would introduce me to his neighbors along the way. Jajang would often use these introductions as an opportunity to crack one of his favorite jokes. After sharing the name of his friend, he would look at me, open his eyes wide, and say in a deadpan, “*yang ini, dia bos besar*”—“this one, he’s a big boss.” After a few moments of silence, everyone would burst into laughter. Though Jajang did know some miners of means, most often we were speaking with a person who clearly was not. Many were laborers still at work, covered from head-to-toe in tunnel mud or struggling with a heavy sack of ore on their shoulder. Ironic use of the word “*bos*” is common in Indonesia, but in Pongkor—where the aspiration to become a gold boss is a widespread, but increasingly unlikely goal—the joke reverberated with much more intensity. To me, this humor seemed a way of communally acknowledging the conundrum of gold mining. In Pongkor, a lucky strike can make a man rich in one day, but ultimately the cards seem stacked against those on the bottom.

Mang Jajang’s joke points to the increasingly hierarchical nature of local small-scale gold mining. In Pongkor, incomes from gold have propelled some individuals to wealth and positions of power, whereas other miners continue to struggle to make ends meet. Despite this reality, two seemingly contradictory representations of gurandil work persist: as a backstop to dire poverty and a launching pad to riches. In this chapter, I go beyond these characterizations by examining the social organization of production in Pongkor’s gold economy, as well as the structures and practices that constitute it. I identify heterogeneous, and differently positioned, forms of labor, and show how these hierarchies generate variable experiences of mining work. Ultimately, these features mean that small-scale mining is an increasingly differentiated and insecure livelihood.

In conducting this analysis, I engage with other scholarly attempts to interpret, categorize, and compare small-scale mining relative to other forms of livelihoods (e.g., Cleary, 1990; Hilson, 2010; Lahiri-Dutt, 2018b; Peluso, 2017; Verbrugge & Besmanos, 2016). I use conceptual tools from critical developmental studies, rural political economy, and agrarian change to outline processes of accumulation and marginalization present in Pongkor. Whereas informal miners have been likened to small-agriculturalists (Lahiri-Dutt, 2018b; Peluso, 2017) or entrepreneurs, I argue that Pongkor’s gurandil are most like industrial workers or petty commodity producers. I unpack dynamics of differentiation that have contributed to class formation among small-scale miners in three categories: relations between laborers and mining bosses, among different types of mining laborers, and with Antam and police. Simultaneously, I highlight forms of flexibility that allow gurandil laborers to navigate challenges and maintain their mining livelihoods, but seldom at more than a “subsistence” level. More broadly, my analysis highlights how the incorporation of small-scale producers into global mineral commodity chains is experienced unevenly.

Antam, which holds the legal rights to all gold in Pongkor, shapes small-scale mining livelihoods in surprising ways, curtailing them in some places and inadvertently spreading them elsewhere. The company contrasts its activities with those of small-scale mining, portraying itself as a key purveyor of legitimate employment in mining. If gurandil livelihoods are

precarious, senior Antam staff might argue that work with the company—by nature of being legal and professionally managed—holds more opportunity. But, as I describe in section 5, work in the formal mining sector is not so different from gurandil livelihoods. It contains even stricter hierarchies than those in small-scale mining and employment for laborers on the bottom is increasingly insecure. While small-scale mining has become, like industrial mining, more hierarchical, industrial mining livelihoods have become, like small-scale mining livelihoods, more precarious. The comparable power structures embedded in gold production and mining labor are thus another way in which large- and small-scale mining are entangled.

2. Characterizing Small-Scale Mining Labor

2.1. Opportunity or Exploitation?

What type of livelihood is small-scale gold mining? Is it a golden opportunity or a poverty trap? As in many countries, popular and policy depictions of small-scale gold miners in Indonesia have predominantly been negative.³⁶ In addition to describing concerns about illegality and pollution, the media has frequently described small-scale mining as a theft from the nation's mineral coffers (e.g., Gewati, 2016). In these depictions, small-scale miners are an undifferentiated group driven by greed; opportunists willing to break the rules to enrich themselves at the expense of others.

Counter to these broader narratives, gurandil in Pongkor often center the ambivalence of mining livelihoods. Mining work is hard and gold is never certain. Nevertheless, many still view mining as their best bet for getting ahead. For some, it is a gamble worth taking; for others, there are simply few other livelihood options. Like Mang Jajang, many gurandil cope and connect with each other by joking about their livelihood. One, laughing, told me gold miners are “*cepat kaya, cepat miskin, cepat dipenjarakan*”—“quickly rich, quickly poor, quickly put in jail.” Luck is part of the game and the chance of getting a good strike, albeit rare, is enough to keep dreams alive. But, residents of Pongkor also recognize that there is a structure to mining fortune. Many use the familiar refrain “*Yang kaya makin kaya, yang miskin makin miskin*,” “the rich get richer, the poor get poorer,” to describe the uneven benefits seen from small-scale mining.

From the outside, this inequality is not always so clear. Scholars and development practitioners have often extolled small-scale mining for its low barriers to entry. Laborers with little other than a hammer and chisel, it seems, can participate. This virtue has been cast as one of the key arguments in promoting small-scale mining as a vehicle for rural development (Buxton, 2013; Corbett, O’Faircheallaigh, & Regan, 2017). More broadly, scholarly accounts have lauded small-scale mining for its potential to alleviate poverty (E. Fisher, Mwaipopo, Mutagwaba, Nyange, & Yaron, 2009), generate surpluses and enable socio-economic mobility (Cleary, 1990; Peluso, 2017), and promote broader community development (Langston et al., 2015).

Other scholarship has been more reserved about small-scale mining livelihoods, pointing to forms of marginalization. Fisher (2007) critiques Tanzanian formalization efforts for their potential to institutionalize pre-existing forms of inequality within the small-scale mining industry. Social identity (particularly, gender, age, and disability) and socio-economic class, she argues, correspond to “exclusion” from or “adverse incorporation” into mining economies, ultimately producing relations of dependence and exploitation. Verbrugge and Besmanos (2014;

³⁶ See this dissertation’s introduction for a more detailed discussion of these narratives.

2016) have further explicated the differentiated nature of informal mining in the Philippines through a focus on socioeconomic class. They signify the importance of “capital interests” in propelling the sector and highlight “a growing differentiation between a class of ASM-entrepreneurs and a massive workforce” (2016, p. 136).

2.2. *Mining Peasants, Entrepreneurs, or Workers?*

I advance this research by analyzing mining labor in Pongkor through concepts from agrarian change and development studies. These fields examine the social and political-economic transformations that accompany the spread of capital to rural areas. An early focus of the associated literature was on the differentiation of agricultural peasantry into working and capitalist classes. However, decades of empirical research has made clear that processes of rural class differentiation are not uniform and rarely ever complete (Bernstein, 2010; G. Hart, Turton, & White, 1989). Instead, researchers interpreted the muddying of this transition in a variety of ways, elaborating concepts such as heterogenous classes of labor, petty commodity production, and flexible livelihoods (Bernstein, Friedmann, van der Ploeg, Shanin, & White, 2018; Harriss-White, 2012; Zhu & Peluso, 2021).

Miners in Pongkor are experiencing a similar unevenness. In this section, I consider which political-economic concepts are best for understanding the contradictory experiences of opportunity and exploitation in Pongkor’s gold economy. Small-scale mining is an important “new rurality,” a term used to describe non-agricultural livelihoods and lifestyles that are an emerging focus of agrarian change scholarship (Fairbairn et al., 2014; Hecht, 2010; Kay, 2008). However, small-scale miners do not easily fit within the conventional categories of rural political economy. Nevertheless, various scholars have attempted to situate mining livelihoods within conceptual categories deployed in this literature, for example comparing them to agricultural peasants, capitalist entrepreneurs, or industrial workers. I discuss these below, beginning with miner-farmer comparisons.

Pak Gatot is the founder and chair of APRI (*Asosiasi Penambang Rakyat Indonesia*), the nationwide Association of Indonesian Community Miners. If there is any single person who serves as a recognized representative of and advocate for small-scale miners in Indonesia, it is him. One strategy Pak Gatot deploys in advocating for small-scale miners is to liken them to small farmers. Several times, he rhetorically asked me, “Why should we be called ‘illegal miners’? Why not ‘small miners’ (*penambang kecil*)? Indonesia is a nation of ‘small farmers’ (*petani kecil*). Can’t we have ‘small miners,’ too?” Put slightly differently, he was asking, if Indonesia’s people are encouraged to make their livelihoods from the soil, why not the subsoil? Gurandil in Pongkor often agreed. Though they typically felt mining was quite different from farming, they nevertheless wondered why small farming was considered a legitimate form of resource use, while small mining was unequivocally not. Elsewhere in Indonesia, small-scale miners make similar comparisons. One of Nancy Peluso’s interlocutors in West Kalimantan put it even more directly, “We [miners] are the small farmers (*petani kecil*) now” (2017, p. 834).

Researchers have taken miner-farmer comparisons to heart, with many highlighting the connections between mining and farming. Observers point out that many miners are also farmers pursuing one or the other livelihood seasonally, that mining practices may mirror farming relations, and that mining can be related to processes of both de- and re-agrarianization (Banchirigah & Hilson, 2010; R. Fisher et al., 2019; Hilson, 2016; Lahiri-Dutt, 2018a; Maconachie, 2011; Marston, 2020; Pijpers, 2014). Other scholars ask deeper questions about

these livelihoods: Do small-scale miners *behave* like agriculturalists? And, what is the political-economic position of miners in agrarian transitions and rural development? Jeannette Graulau (2001) was among the first to pose these questions through her Marxist-ecology interpretation of women in Brazilian small-scale gold mining as peasant-like development actors. Kuntala Lahiri-Dutt (2018b) has extended this work, positioning small-scale miners as “extractive peasants” seen “as neither fully resisting nor succumbing to fetish of the commodity” (p. 9). Peluso (2015, 2017), examining small-scale gold miners in West Kalimantan, Indonesia, takes a slightly different approach. Her “gold farmers” occupy the “smallholder slot.” In other words, miners have taken the political and economic position of agricultural smallholders, but do not necessarily have the same constraints associated with the peasantry (as described in agrarian studies literatures) implied by Graulau and Lahiri-Dutt.

Other observers see small-scale miners as less rooted to the land, instead interpreting them as one or another type of economic opportunists. In many popular accounts, this figure takes the form of the greedy criminal. Miners in this view are taking advantage of lax enforcement, crooked officials, or ignorant local people to reap unearned rewards. These interpretations often center wealthy mining bosses, corruption, and uninvited migrants imposing mining on unprepared communities. An alternate version celebrates the mining opportunist as a pioneer or entrepreneur. This is an old idea, with similar analyses describing the emergence of social order, law and property, and (some forms of) prosperity in the 19th century California gold rush (Clay & Wright, 2005; Umbeck, 1977). Today, many development scholars and practitioners, as well as some government agencies, have recycled these ideas. They hope that small-scale miners—equipped with the right tools, appropriate forms of regulation, and access to capital—will produce new sources of revenue, create jobs, and uplift otherwise economically marginalized communities (e.g., Siegel & Veiga, 2009). Some *gurandil* in Pongkor contribute to this narrative, too. Wealthy mining bosses, especially, describe how gold from their mining holes has fed impoverished families, paved roads, and rebuilt mosques. Whether criminals or entrepreneurs, the view of small-scale miners as economic opportunists assumes that gold livelihoods are relatively uncomplicated. Miners are imagined as relatively autonomous, “low barriers to entry” mean just about anyone can participate, and, given the right conditions, gold revenues are there for the taking.

Finally, another subset of the literature has reflected on small-scale mining laborers as workers. Counter to understandings of miners as free-floating opportunists, these perspectives emphasize the relationality of mining livelihoods. The ability to benefit depends on one’s particular position in the local gold production process. David Cleary’s (1990) work on Brazilian gold mining in the 1980s provides an early example of this. He describes various positionings in Amazonian mining camps, including employers who provide capital (*donos*), workers who earn shares of production (*porcentistas*), and workers who earn a wage (*diaristas*). This social structure has a clear hierarchy and differentiated degrees of opportunity, but Cleary remains optimistic that socio-economic mobility persists—that workers can someday become bosses. Verbrugge (2014), along with colleagues Besmanos and Buxton (2016; 2014), similarly look at the stratification between workers and employers in small-scale gold production, but with a more pessimistic conclusion. Verbrugge (2014) views capital accumulation, rather than livelihood demands, as driving the expansion of small-scale gold mining in the Philippines. There is increasing differentiation between capital providers and the many types of workers they employ, and profits rely on the exploitation of this labor force (Verbrugge, 2015; Verbrugge &

Besmanos, 2016; Verbrugge et al., 2014). Unlike miners as farmers or miners as entrepreneurial opportunists, understanding miners as workers means a prime focus on labor relations.

Pongkor is home to small-scale miners who could be deployed to bolster any of these framings. Many gurandil engage in both farming and mining, and—although you clearly cannot eat gold—some miners collect gold for the purpose of social reproduction, rather than accumulation. For the small portion of gurandil with capital, mining can appear as a sort of entrepreneurial experiment in small-scale extraction. For many more, mining work is taken up when and where it is offered by those who possess capital, as laborers compensated through product sharing or cash wages. These different positionings go some way to explain the divergent experiences of miners—some have genuine opportunities for socio-economic mobility where others do not. In other words, there are various classes of small-scale miners in Pongkor. Or, as Marston (2020) puts it for Bolivia’s *agro-mineros*, “geo-social hierarchies” lead to uneven experiences of mining.

Below, I examine empirical data on small-scale mining labor arrangements in Pongkor to explain how these hierarchies have been produced. In doing so, I heed Lahiri-Dutt’s (2018b) calls for further research on extractive “peasant differentiation and the constitution of different classes within the mining communities” through analysis of “the variety of roles, occupations and activities” that constitute informal gold economies (p. 13). I frame Pongkor’s gurandil through the lens of labor. Most are like industrial workers, though with some similarities to peasants and petty commodity producers. The small remaining portion are capital-rich bosses, who employ others as laborers and wield a disproportionate amount of power in the small-scale mining economy. Mining laborers face social and political-economic structural challenges, leading to processes of marginalization and differentiation. In general, the laborers are exploited by the mining bosses. Simultaneously, there are differentiating factors within the gurandil working class, structurally privileging some laborers over others. Miners often find ways to navigate these challenges. They change the positioning and terms of their livelihoods, sometimes being more independent (using strategies similar to a peasant or petty commodity producer) and sometimes working as an employee. However, this flexibility seldom affords gurandil laborers more than needed to survive. In this sense, I understand the flexibility and fragmentation of gurandil labor as part of what Bernstein (2004) calls the “agrarian question of labour,” described as “a crisis of employment” in which “labour pursues its reproduction in conditions of increasingly insecure and oppressive wage employment combined with a range of likewise insecure ‘informal sector’ (‘survival’) activity, typically subject to its own forms of differentiation and oppression” (p. 204-205).

3. Small-Scale Mining Labor Arrangements

Small-scale mining in Pongkor is highly diverse, comprising myriad forms of labor and ways of integrating this labor into gold production. Never was this more evident than the night I visited Haji Deden’s tunnel. The mining boss had opened his private tunnel to the public during Ramadan. For the duration of the holy month, anyone could mine the gold inside, paying just a small share to the tunnel’s supervisors. However, I quickly found that this tunnel was not the only draw to this corner of the mountain. Workers of all kinds had gathered, seeking to make a living from local gold in a diverse set of ways.

Small teams of miners crowded around the Haji’s tunnel, waiting for their turn to enter the 200-meter-deep web of underground passageways. A set of supervisors authoritatively

managed the miners, counting men entering the tunnel and collecting a portion of ore as they exited. Other miners came to work in an adjacent hole privately operated by another mining boss. They arrived in shifts, one team six hours after the last. Other men didn't enter tunnels at all. They sat below the holes, washing and sorting sediments that had been discarded by tunnel workers above. As dawn broke, a cluster of older women joined them, hunched over, carefully selecting castoff stones. At odd intervals, other men came by equipped with a set of short wooden rods. They quickly brokered deals with tunneling miners fresh from underground and hoisted the product of a night's work, a 60-kilogram sack of ore, on their shoulders before beginning the arduous journey back to the village. Following them on the hike back, we saw the eventual destination for some of these sacks. Several large, crudely constructed buildings sat nestled among terraced rice paddies to our left. The sounds of hammers and clang of steel-on-steel told us that workers inside—some crushing ore, others churning it in large, cylindrical mills—were at work processing gold.

This snapshot—all from one night, in one small corner of the mining concession—captures just a small example of the diverse forms of mining labor in Pongkor (see also Libassi, 2020b). Too often, this heterogeneity is obscured in analyses of small-scale mining, with participants lumped together in an undifferentiated category.³⁷ The materiality of gold itself might lend to this homogenization. For example, Pongkor's gold shops buy gold from many different types of gurandil, but these source details are inevitably concealed as the buyers amalgamate the metal into solitary, yellow discs of bullion. Below, I attempt to reverse this process, disaggregating the various forms and arrangements of labor involved in informal gold production. This is the first step in analyzing the inequality and insecurity that characterizes mining livelihoods.

3.1. Gurandil Labor Processes and Jobs

Pongkor's gold is mainly found in underground veins, a form of primary deposit. Thus, local informal gold production more closely resembles other hard rock mining locations (e.g., Langston et al., 2015; Soemarwoto & Ellen, 2010) than alluvial mining sites in other parts of Indonesia (e.g., Erman, 2015; Peluso, 2018; Spiegel, 2012). Local small-scale gold production typically involves three broad steps: ore extraction, transport, and processing. Each of these steps appear in multiple forms and are often further divided into more specific tasks. In the most common arrangement, this proceeds in the following order. First, a narrow tunnel is dug in a location deemed promising. At the leading end of the tunnel, gold-bearing quartzite veins are carefully selected and removed using hammer and chisel. The ores chiseled out of the veins, ranging from small chips to fist-sized rocks, are separated from waste rock and packed into large, woven-plastic sacks. These sacks are then carried out of the tunnel, a journey that can involve steep climbs, swimming through pools of water, and distances up to several hundred meters. At the surface, each sack of ore, commonly weighing 50-70 kilograms, is wedged between two flat sticks and hoisted upon a porter's shoulder. The porter carries this load from the tunnel to one of several spots where the local villages border the mining concession.³⁸ This trip can take several

³⁷ It is not so much that scholars (especially anthropologists, geographers, and others who do field-based research) do not know about or acknowledge heterogeneity, but that it is obscured by other analytical priorities.

³⁸ As described in Chapter One, ore cannot be processed near the tunnels because policing of the mining concession makes the construction of camps impossible. Instead, all ore must be removed from the mining area and brought to private spaces in the village where the ore can be processed more discreetly.

hours, restricting most porters to one trip per day. From here, the ore is transferred to motorbike transporters who balance up to four sacks on their vehicle and deliver them to the owner's home or a designated processing center.



Figure 11: The primary entry point to Haji Deden's tunnel. This tunnel, with its wood-reinforced structure and hose for blowing cool air from the surface, is typical of mines that are operated by a wealthier mining boss.

The ore is then emptied from each sack and crushed using a hammer until it is fine gravel. This process typically takes three hours per sack, though varies with the hardness of the rock in which the gold is embedded. A dining plate is used to roughly measure one portion of the crushed ore, which is then poured into a cylindrical, steel drum, locally called a *gelundung*,³⁹ along with water and a small amount of mercury. Excess mercury from previous batches is reused, so new mercury is only added as needed. The *gelundung*, commonly arranged in arrays of two to six (but sometimes many more) drums, are attached to a belt and an electric motor, which rotates the drums for five to six hours. During this rotation, steel rods placed within each cylinder further grind the ore, thereby facilitating the amalgamation of the encased gold and added mercury. Once this process is complete, the contents of the *gelundung* are washed out with water. The loose, muddy mixture contained within separates according to density as it flows into two or three sequential pools. The densest material, a silvery puddle of combined mercury and

³⁹ In eastern Indonesia, this device is more commonly referred to as a *tromol* (trommel).

gold, can be easily collected. It is then squeezed through a fine cloth, which removes some mercury and results in a small, malleable amalgam ball. Subsequently, the ball is heated with a blowtorch to remove additional mercury.⁴⁰ Finally, this product is taken to a local gold shop and hammered into a disc. There, it is weighed, its purity assessed, and sold. The tailings accumulated from multiple rounds of *gelundung* processing are stored in pools. They typically contain residual gold and can later be sold to specialists who operate separate, larger-scale, cyanide-based gold processing operations.⁴¹



Figure 12: Laborers crush chunks of ore (right) into a fine gravel (left) using a hammer.

⁴⁰ This process is sometimes, but not always, conducted with an attempt to capture the resultant mercury fumes, such as by using a fume hood, retort, or plastic film.

⁴¹ For more details on gold cyanidation and related changes in gold production in Pongkor, see Chapter One. For a broader discussion of social and political-economic effects of cyanidation in small-scale gold mining, see Verbrugge, Lanzano, and Libassi, forthcoming.



Figure 13: Left, a rotating set of gelundung. These ore mills are used to crush ore and mix it with mercury. Right, a small amount of mercury is added to each gelundung barrel, within which it will amalgamate with the gold content of the ore.

Though typical of almost all informal gold production in Pongkor, the division of labor involved in the process can vary. For example, each of these steps can be carried out (typically on a small scale) by one individual extracting, transporting, and processing their own ore. More commonly, these tasks are divided among several individuals. Chisel workers and packers (who fill sacks with the stones removed) remove ore from tunnels, foot porters and motorcycle taxis then transport it to homes and processing centers, where others may be employed to crush and amalgamate the ore with mercury. Though the ways labor is deployed are flexible, a division of labor has emerged in Pongkor where specialists exist for each of these functions. Each job is recognized by a distinct name and is associated with a set of stereotypical characteristics. The payment for the services they provide is also relatively standardized. The most common jobs, and their local names, are summarized in the table below. All are considered gurandil, a reflection of the communal understanding that all jobs are important to the mining process.

Table 1: Mining Labor Processes and Jobs in Pongkor

Mining Labor Jobs			
<i>Process</i>	<i>Extraction</i>	<i>Transportation</i>	<i>Processing</i>
<i>Types of laborers</i>	Chisel workers (<i>tukang pahat</i>)	Porters (<i>tukang pikul</i>)	Ore crushers (<i>tukang numbuk</i>)
	Ore packers (<i>tukang tarik</i>)	Motorbike transporters (<i>ojek</i>)	<i>Gelundung</i> (mill) operators (<i>pengolah</i>)
	Tunnel supervisors (<i>danlob</i>)		Cyanide processing operators



Figure 14: Two small chunks of quartz vein believed to contain gold (left and middle) and a gold-mercury amalgam ball produced through processing in a gelundung (right). The ball appears silver because the gold content is low relatively to mercury, silver, and other impurities.

3.2. Labor Configurations

Just as there are a diverse set of jobs in Pongkor's small-scale mining economy, particular tasks are also conducted in myriad forms. For example, the task of collecting ore can occur in several different configurations of laborers and labor practices. The standard form of extraction in Pongkor is similar to what is commonly described of hardrock tunneling in the small-scale mining literature (see Jønsson & Fold, 2011). A group of tunneling laborers, some focused on removing ore with chisels and others on packing it into sacks, is led by a boss (or bosses) who finance and organize the operation. A tunnel supervisor often serves as the boss's representative in the field. In this relatively simple configuration, the miners are their own self-contained group with their own private tunnel. The mine boss provides the capital to build the tunnel, including daily provisions for his laborers, equipment required for tunnel construction, and any payments necessary to secure access to the mining site.⁴² Once a productive gold vein has been located, which can take weeks if not months, the boss and his laborers will share the resultant ore. These "shares" serve as compensation for the laborers' work (compensation is further described in Section 3.3).

However, as my visit to Haji Deden's tunnel taught me, ore collection also occurs in other forms, sometimes even side-by-side on the mountain. One set of variations include the use of rented or shared tunnels (as opposed ones owned and operated solely by one group). In rented tunnels, a mining boss will contract, generally through an upfront cash payment, with the owner of a productive hole to literally "buy time" (*beli waktu*)⁴³ during which his crew can extract ore. Haji Deden's temporary opening of his tunnel during Ramadan provides an example of how shared tunnels work. Shared tunnels are owned and maintained by a boss or group of investors, but are available to the general public for use. Anyone—from boss-backed groups, to self-organized collectives, to individual miners—can work the tunnel. Unlike rented holes, access to shared tunnels requires no upfront payment. Instead, miners provide the hole managers with a portion of the ore they collect after completing their work, an arrangement referred to as *gacong*. For this reason, capital is significantly less important for miners working shared tunnels than those in private or rented tunnels.

Alternatively, *gurandil* may extract ore as individuals or in small, egalitarian crews of two to five. In this form, there is no hierarchy of boss and crew. Independent small groups of laborers rotate through various labor tasks (chiseling, packing ore, resting) and contribute to the costs invested (typically, for tools and food) relatively equally. Similarly, all ore produced is divided amongst them evenly. Most often, these miners work old and abandoned tunnels, hoping to uncover new veins or access remnants of gold left behind by previous groups. Such mining is almost always conducted with significantly less capital, and offers lower expected returns, than the boss-led operations described above. Miners called *onek*, who collect ore at very small scales with almost no capital, are the humblest of this category. They will visit the mining area alone to glean for ore, both underground and above ground, anywhere that seems promising. Often this entails mining in old, abandoned, or otherwise unused tunnels. *Onek* will carefully examine these tunnels for veins left behind by previous miners or might dig the tunnel in a new direction in hopes of finding a new vein.

⁴² For example, bribes offered security guards or payments to rent a tunnel owned by another mining boss.

⁴³ A typical period for rental is based on shifts, for example "one day" or "one day and one night," rather than long term.

In another variation, some gurandil do not mine in tunnels at all. Instead, they work various kinds of lower grade ore and mining by-products already on the surface. I saw examples of this just below Haji Deden's hole. There, crews of two or three used simple hydrologic techniques to sort through rocks. Redirecting water using bamboo pipes, one miner washed soil down a small channel where another worked it over a towel-covered board. Later, sediments trapped in the towel would be shaken loose and exposed to mercury to capture any gold present. This sluice-like method, locally called *handuk* after the word for towel, is commonly found in alluvial mining sites elsewhere in Indonesia where it is called *parit* (ditch) mining (Erman, 2015; Soemarwoto, 2015). In Pongkor, miners working in this fashion only find lower quality ores—generally in the rock that is considered waste by tunneling miners—but their simpler techniques require far less capital, present fewer safety risks than underground mining, and can be pursued more flexibly, in different times and places.



Figure 15: Miners loosening sediments with water and hoes in surface-level mining. The sediments flow down the ditch and are caught by other workers who use sluice-like boxes covered in towels.



Figure 16: A surface-level miner sits in a ditch washing sediments over a towel-covered board. In Pongkor, this method is called *handuk*, after the word for towel.

Collection of surface-level, lower grade ores also exists on an individual level. The widowed women who I met on the mountain at dawn comprise one such example. These women make a living scavenging stones outside small-scale mining tunnels, carefully examining and collecting each by hand. When lucky, they will also be offered a few charitable handfuls of richer underground ore by nearby tunneling miners. Perhaps the most unique “mining” is done by villagers who dig up mine tailings that were long ago discarded in the soils around their homes. These tailings may have been considered worthless in more prosperous times, but they contain trace amounts of gold that can still be squeezed out using cyanide processing.

As with extraction, transportation and processing labor also occur in various configurations. These variations are largely scale-dependent. *Onek* miners—who collect relatively small amounts of ore—will haul, crush, and amalgamate the ore they have gathered individually. More commonly, at least some of these tasks will be outsourced to other laborers. For example, miners working a productive private or shared tunnel will have too much ore to transport themselves, and thus will pay porters and motorbike drivers to return their ore sacks to the village. Generally, these workers are contracted on an ad-hoc, first-come-first-serve basis. Similarly, miners may temporarily contract neighbors to help crush ore when volumes are large.

The work of amalgamating ore is frequently done by its owner,⁴⁴ using either their own or a friend's *gelundung*.⁴⁵ However, in the largest and most highly capitalized operations, all of these tasks are consolidated and laborers are retained on a semi-permanent basis. In such cases, porters are hired to work in regular, daily shifts, always transporting ore from one private tunnel back to the boss's large processing warehouse. There, the processing labor is divided among workers who crush ore, operate amalgamation equipment, or, potentially, conduct gold cyanidation. Non-extraction labor, therefore, occurs in configurations including individual, ad-hoc, and semi-permanent arrangements.

3.3. Compensation and Labor Relations

Labor relations in Pongkor, both between small-scale mining bosses and their employees and among mining participants in general, are also diverse. They vary considerably along two key parameters: form of compensation and degree of autonomy. Gurandil engaged in boss-backed ore extraction are usually considered direct employees of the financier.⁴⁶ This boss determines the location and schedule of their work and provides all necessary supplies. As in many other small-scale mining contexts (e.g., Jønsson & Fold, 2011; Peluso, 2018; Verbrugge, 2014), miners working in this system are compensated via a production sharing agreement. Most commonly, the boss receives a 60 percent share of ore (counted in sacks) while the laborers will evenly split the remaining 40 percent.⁴⁷ Once the sacks of ore have been divided, each individual is free to sell or process the ore as they please. Laborers, in this arrangement, show up to the mine site, work, and in return receive daily rations and a share of their combined product. However, as employees tied to a particular boss, they forgo some freedoms. For example, they commonly spend several days camping in the mining area before returning home, alternating resting and working in shifts. This limits their ability to pursue other livelihood opportunities, assist with domestic labor, and participate in village and family social activities. In contrast, gurandil working independently typically prefer to visit the mountain and return home in the same day.

Independent miners—those working individually or in small groups without external financing—retain all ore produced, generally splitting it evenly with any other workers. They also have much greater freedom in choosing when and where to mine, autonomy which is highly valued. However, they must provide their own capital, paying for tools, food, and any expenses

⁴⁴ For example, a chisel worker who receives a sack of ore as part of his “share” of the total product is considered the owner of that particular sack. Even if it has been produced by a group, once it has been distributed to the laborer it is now theirs to manage individually. Most frequently the worker will process the ore themselves, but in some cases miners may sell, trade, or gift sacks of unprocessed ore. To provide a different example, a mining boss or financier is usually entitled to 60 percent of ore produced. The sacks that constitute this 60 percent belong to, and are managed by, that individual. Thus, even when ore is produced by a group, the eventual product (sacks of ore) is typically owned and processed individually. The exception to this is batch-processing when cyanidation, rather than mercury amalgamation, is used to process the ore (see bottom of section 3.3).

⁴⁵ As described elsewhere in Indonesia (Spiegel et al., 2018), *gelundung* owners will provide use of this equipment and accompanying mercury for free in exchange for the tailings generated. However, prior to the introduction of cyanidation in Pongkor, it was common for *gelundung* owners to charge a “rental” fee for use of their equipment.

⁴⁶ Indeed, they are usually called *karyawan*, the same word used for an employee of a company or office.

⁴⁷ Much less commonly, groups will work under 70%-30% or 50%-50% arrangements, usually owing to some difference in what type of capital will be provided. Tunnel supervisors are typically paid out of the boss's share. Unlike many sites in Indonesia (e.g., Peluso, 2018), no money is reserved for land owners because nearly all mining takes place on state-owned mining concession land.

necessary to facilitate access to mining sites (including, for example, bribes or payments to rent a tunnel). This broad category of work is conducted at variable scales. The rarest are self-funded, “entrepreneurial” mining groups, which pool capital to open private tunnels or to work shared or rented tunnels—a relatively sophisticated operation considering the lack of an outside financier. Much more common, but also much less intensive, are the many forms of gleaning and extraction of low-grade ore, including *onek*, *handuk*, and scavenging.

Labor processes that are conducted further down the production chain, after ore extraction, are more likely to work on an ad-hoc basis and for cash. This is especially common for laborers transporting ore, via foot or on motorbike, and those employed in crushing ore. Most ore porters, for example, have complete autonomy in their work. They decide, individually, when to visit the concession and which tunnel areas to solicit work from. Once they find someone requiring their service (typically, a tunneling miner who wants their ore hauled down off the mountain), they make an agreement on the spot about how much they will be paid and where to deliver the ore.⁴⁸ The fees exchanged for this service (like those for motorcycle transporters and ore crushers) are more-or-less standardized, but may vary depending on the length of the hauling trip. Gurandil of this kind, thus, receive cash payments in the form of output, or piece-rate, work.

A final form of labor compensation is semi-permanent, shift-based wage labor. This phenomenon remains relatively rare, but may represent an emerging trend. It exists only in the largest and most capital-intensive operations, which typically employ cyanidation processing techniques. Unlike most mining in Pongkor, in this scenario all ore collection, transportation, and processing activities are consolidated into one operation under the direction of a wealthy boss. All collected ore is processed in a batch using cyanide, rather than dividing it among laborers as shares of the raw product. In such cases, even tunneling laborers receive compensation in cash. Allegedly, this still represents a share, but calculations are not transparent. These operations also have laborers who transport and process ore that work “in-house.” As a result, all laborers in the production process work regular shifts and are paid regular cash wages, sacrificing autonomy and potentially higher returns for stability of employment.

The diversity of mining jobs, configurations, and relations in Pongkor illustrates how informal gold production in one location can be composed of extremely heterogeneous forms of labor. More critically, these differences are significant. In the sections below, I reflect on how these particularities can be analyzed using the conceptual tools of critical development studies, rural political economy, and agrarian change.

⁴⁸ However, finding someone who requires hauling services is not a sure thing. There are typically more ore porters in the mining area than there are sacks of ore being produced. In some cases, ore porters may be required to queue at the mouth of a tunnel, waiting their turn to receive a sack of ore. If a porter arrives to the mining area too late, they may return home empty-handed.

Table 2: Labor Compensation Arrangements in Pongkor

Compensation Scheme	Compensation Description	Jobs	Degree of Autonomy	Additional Information
<i>Production sharing</i>	60% of ore to boss, remaining 40% split among laborers	Chisel workers, ore packers	Shift-based; work demands dictated by boss	"Standard" arrangement; daily rations are provided to laborers
<i>Independent work</i>	Ore is retained by individual or split equally among participants	All tasks	Most flexible	Must provide own capital and food, usually operates at very low-level
<i>Output wage</i>	Cash payment based on amount produced/service provided	Porters, motorbike transport, crushing, processing	As desired, but must cohere with schedules of ore producers	
<i>Shift-based wage</i>	Cash payment per shift; may approximate time-wage labor	All jobs	Shift-based; boss-dependent; regular and indefinite	Large and highly capitalized operations; all tasks consolidated

4. Gurandil Class Formation

Pongkor's diverse forms of informal gold production are both a driver and product of gurandil class formation. The various labor arrangements described in the previous section contain structuring elements that promote differentiation among mining participants. In this section, I unpack these processes of class formation. First, I examine the power dynamics between capital-rich small-scale mining bosses and laboring miners. Second, I highlight inequalities between different types of mining laborers, demonstrating how some have more opportunities than others. Third, I examine how Antam and its policing activities have exacerbated processes of gurandil marginalization. In the process, the company has inadvertently spread small-scale mining to other locations. These dynamics have produced a clear hierarchy within Pongkor's small-scale mining economy. At the top, elite mining bosses are increasingly consolidating their control over the small-scale mining economy. In the middle, younger men without dependents are some of the few gurandil laborers with genuine opportunities to accumulate. And, at the bottom, most other laborers simply are simply getting by at "subsistence" mining levels.

4.1. Mining Bosses and Laborer Exploitation

The inequalities most commonly described in the small-scale mining literature are those between financiers and laborers (e.g., E. Fisher, 2007; Verbrugge, 2014). In Pongkor, financiers and other mining elites are usually referred to as bosses. The defining feature of a mining boss is possessing capital, whether in cash or in the ground. When not joking around, this is how Mang Jajang explained “*bos gurandil*” to me, “A boss is someone who has a lot of capital (*modal*) or their own productive mining tunnel (*lobang*). They manage tunnels and have employees.” Other gurandil defined bosses by contrasting them with laborers. One told me, “A boss is a businessman. While others work with a hammer and chisel, he works with money and a mobile phone.” This is what nearly every gurandil in Pongkor aspires to—to someday own a tunnel worked by other laborers, rather than themselves. However, as I describe below, Pongkor’s hierarchy of bosses and laborers is increasingly rigid and opportunities for accumulation are slim.

In other contexts, small-scale mining has been described as an opportunity for socio-economic mobility. Cleary (1990), for example, argued that Brazilian small-scale mining was not capitalistic because workers—through ingenuity and the flexibility of mining work—could eventually become *donos*, or bosses. Examining gold mining in West Kalimantan, Indonesia, Peluso (2018) suggests something similar, writing, “Not a few crew and mining bosses started in the peaty pits as diggers” (p. 414). In Pongkor, while many mining bosses are local elites that come from historically powerful families,⁴⁹ I have also met laborers-turned-bosses. However, most achieved their success a long time ago, during the extremely profitable but tumultuous early period of small-scale mining in the late 1990s. In the years since, characterized by increased policing and a more structured social organization of production, this path seems to have narrowed.⁵⁰ Today, some relatively successful miners straddle the line between laborer and financier, seemingly threatening to make the jump in status to a genuine boss. They both fund their operations and do some amount of the labor (typically tunneling). They may use petty capital to open a new tunnel (a risky endeavor) or rent a tunnel (a more conservative option). However, this point is a stumbling block for many aspiring bosses who quickly lose their capital in risky investments. Though stories of “self-made” entrepreneurial smallholder miners may be common elsewhere, they are increasingly rare in Pongkor. In fact, Pongkor’s bosses seem to be increasingly consolidating control over the local informal gold economy.

A fundamental reason for this limited socio-economic mobility is the increasing importance of (social, political, and economic) capital for accessing gold ores. In contrast to scholarship that highlights “low barriers to entry” in small-scale mining (e.g., Banchirigah & Hilson, 2010), the costs of access are one of the biggest differentiating factors in Pongkor’s gold economy. The first driver of this concerns the materiality and availability of local gold. The amount of easily accessible gold has diminished in Pongkor over time. Whereas in the 1990s any gurandil could find valuable ore near the surface, today the richest deposits are found deep underground. Accessing these ores involves extensive tunneling that requires water pumps, air blowers, and other expensive equipment. Additionally, in the past decade, capital-rich bosses have begun to mine low-grade deposits outside of the mining concession (and therefore without the threat of policing). These low-quality ores, however, can only be profitably mined at larger

⁴⁹ For example, local political elites, successful businessmen, and large landowners commonly finance and direct small-scale mining operations.

⁵⁰ See Chapter One for more details on this period and the changes that followed it.

scales and with use of more expensive cyanidation technology.⁵¹ Therefore, much of the gold in Pongkor is only physically accessible to individuals who already possess capital.

Second, mining bosses are often able to navigate policing pressures in ways impossible for poorer gurandil. As described in Chapter One, Antam-led security activities have heightened over time, increasing first in the year 2000 and then again in 2015. This policing restricts access to gold ores, but not evenly. For example, wealthy mining bosses can sometimes achieve access to the best mining areas through elite-level social connections or by making payments to security insiders. Independent and low-level miners, in contrast, are limited to some of the lowest quality mining areas. These zones have little value to Antam and thus are patrolled with less intensity. Mining bosses can also leverage political connections to ensure their processing facilities (sometimes large, multi-building operations) are not harassed by the police. All of these are forms of social, political, financial, and physical capital that are simply unavailable to most low-level or independent miners.

In addition to not having capital, gurandil laborers also deal with costs that are seldom born by mining bosses. Paramount among these are the safety and legal risks that laborers face on the mountain. From tunnel collapses and landslides to noxious gases and flooding rivers, accidents are a constant in the mind of every miner and their family. While laborers face these uncertainties, many bosses work comfortably from the safety of their homes. Meanwhile, laborers also bear the brunt of law enforcement activities that patrol the mining concession. Miners who are unlucky enough to encounter security will have their equipment (often including their shoes) seized and are occasionally arrested. Even for those who escape with minimal legal implications, there are often intense feelings of humiliation, fear, and injustice. Finally, laborers often endure financial costs that are not accounted for in their compensation. For example, armed thugs come to Pongkor to prey on low-level miners. They wait beside paths in the mining area, demanding a small payment from every gurandil laborer that passes. If not paid, they will beat up the miner or seize their ore or equipment. Bosses, on the other hand, often have sufficient social and political clout to avoid such encounters.

Mining bosses can also make relatively more profit from the same ore when compared to independent miners. This is because bosses, equipped with more capital, can invest in methods to increase the efficiency of their operations. These include consolidation of various mining labor processes (bringing various steps “in-house”), increased mechanization of ore processing (such as automated crushers), and economies of scale. Perhaps the most important advance is utilization of capital-intensive cyanidation technology. When compared with more commonly used mercury, this method captures significantly more gold from the same quality ore. Poorer laborers, in contrast, expend extra energy and money to complete the same processes. Thus, even when working within the same group (sharing the same ore according to a 60%-40% split) bosses can earn relatively more per sack of ore than their laborers.

Finally, Pongkor’s small-scale mining bosses exploit some of their employees. Cleary (1990), Peluso (2018), and other scholars have highlighted the importance of product-sharing arrangements in small-scale gold mining. Compensation through shares ensures that laborers can benefit directly from their labor. It therefore presents fewer opportunities for exploitation than wage labor. In Pongkor, only laborers involved in tunneling or ore extraction work are compensated with shares, while others receive cash wages, based either on output or shifts. In many cases, waged gurandil, such as ore porters, work independently and thus retain control over their labor. However, in cases where waged workers are employed directly by mining bosses

⁵¹ See Chapter One for more details on gold cyanidation.

(described as “shift-based work” in section 3.3.) the opportunities for exploitation are clear. One of the best examples are the teams of ore crushers who work in wealthy mining bosses’ processing centers. They will be paid a standard rate each day to sit and crush bag after bag of ore. The amount they are paid has no relationship to the gold actually produced, but rather is a time or output-based wage. To make matters worse, these employees often work in horrible conditions. Laborers typically sit inside a boss’s *gelundung* warehouse, surrounded by the loud rattling of dozens of ore mills and swirling toxic mercury fumes.

For these reasons, this type of work is not preferred by most gurandil in Pongkor—many local residents would rather glean stones than make a living this way. However, mining bosses have a way to circumvent this problem: they import labor. Workers, typically older or very young men, are brought in from other adjacent areas of West Java or Banten. In most cases, they live in barracks constructed by their boss and purchase food sold by shops owned by their boss. Having few connections with the local community, they are often extremely dependent on their employer. Thus, while the social organization of production in Pongkor precludes many forms of exploitation, wealthy mining bosses have found ways to take advantage of the most vulnerable small-scale mining laborers. Alongside the other structural advantages engendered by social and economic capital (outlined above), these direct forms of exploitation have ensured that Pongkor’s elite mining bosses sit comfortably atop the gurandil class hierarchy.

4.2. Differentiation Among Workers

The vast majority of informal mining participants in Pongkor are not bosses. They have little capital and thus work almost exclusively as laborers. These laborers are not only exploited by mining bosses, but may also be subject to inequalities within the laboring class. All of the various mining labor positionings—the many permutations of mining jobs, configurations and relations described in this chapter—entail different opportunities, risks, and constraints. As I describe below, some laborers are better positioned than others, driving differentiation among gurandil into heterogenous “classes of labor” (see Bernstein, 2006).

First, I consider the livelihood opportunities afforded by various positionings in Pongkor. Cleary (1990) highlights form of compensation as a key differentiating feature in his description of Brazil’s *porcentista* miners, who receive shares, and *diarista* miners, who receive wages. This distinction is also important in Pongkor, but with significant differences. In Brazil, miners involved in extraction graduated from wages to production sharing, a preferred form of compensation, as they accrued experience. In Pongkor, nearly all laborers working in ore collection roles are paid with a share of ore, while wage-work is more common in downstream jobs. Like in Cleary’s case, working in a production sharing arrangement offers the best opportunities for accumulation. Receiving even a small portion of a rich gold strike can be a major financial boon. However, in Pongkor there is a more evident downside to production sharing arrangements. These incomes are fundamentally unstable—shares can be negligible when tunnels are not productive. Miners might make nothing for several weeks, hit a vein and consistently make one million rupiah (~\$70) per week, and then briefly spike to five million rupiah (~\$348) on one very lucky day.⁵²

⁵² Incomes in Pongkor are incredibly variable. This is due to many factors, including the uncertain quality of gold ores, irregular working schedules, disruptions caused by policing or accidents, variations in the costs of services, and so on. The numerical figures provided here are based on common responses I heard during interviews—they provide

Wage-work, typically in the form of transportation or processing labor, offers a stark contrast. Incomes are generally steady and predictable, but relatively low. A porter, for instance, might profit 350,000 rupiah (~\$24) per week. This security is seen by some gurandil as an asset, “We don’t have to worry about the quality of the ore, we don’t have to worry about the holes—we just get paid the standard rate.” Many of these jobs also offer a higher degree of autonomy than group-based extraction. For example, most porters choose which days to work, allowing them the flexibility to rest, pursue other livelihood opportunities, and, for migrants, return home. The exception is shift-based wage labor, which exists only in the most highly capitalized operations. This work, widely seen as undesirable in Pongkor, requires laborers to both accept low incomes and sacrifice autonomy in return for a stable income.

Finally, adding a category outside of Cleary’s formulation, is poorly capitalized, independent mining. This work, generally in the form of *onek* or gleaning, offers the most limited financial returns. A typical *onek* might make 150,000 to 450,000 rupiah (~\$10 to ~\$31) in a week, though often they simply break even. Surface ore gleaners make even less. Some accept these low returns because it is their only option. For others, it helps keep food on the table while they wait for better opportunities to emerge. This category of gurandil best exemplifies what Lahiri-Dutt calls “extractive peasants” (2018b). Like agricultural peasants or petty commodity producers, they combine small amounts of capital with their own labor, working the entire production process from extraction to sale. Such miners work gold deposits that are free to access but tend to be very low quality. Often, they make just enough to cover expenses for the next mining trip. This work is thus seldom more than a retreat to mere subsistence. Aptly, one *onek* miner joked that it was simply “hunger medicine” (*obat lapar*).

These various mining positions entail varied exposure to safety and legal risks. The most alarming of these are often-fatal underground accidents. This risk is most acute for those who work in tunnels—chisel workers, ore packers, and some porters—but even among these the danger is differentiated. Miners who work in private tunnels tend to be safer. These tunnels, an asset of the financier, are maintained with wooden supports to help avoid collapses. The poorest miners work dangerous, abandoned tunnels that, though free to access, have failing or no supports. Transportation jobs face fewer safety hazards, but bear disproportionate exposure to some legal risks. Unlike nimble tunnel workers who can hide and flee, porters are incredibly vulnerable to policing. They laboriously traverse the concession under the weight of 60-kilogram sacks full of incriminating evidence. When caught by security forces, porters seldom receive jailtime, but their cargo is invariably confiscated, meaning they will not get paid. Motorcycle transport faces similar challenges as they navigate public roads visibly laden with illegal goods. *Onek* miners have the worst of both worlds. They face dire safety risks in unmaintained tunnels and then must contend with security forces as they haul their ore home.

Gurandil laborers actively negotiate these varied livelihood opportunities. They are acutely aware of the pros and cons of various jobs and many try to move strategically between them. However, miners make these choices amidst significant constraints—both structural and individual—on who can participate in what ways. First is the simple issue of availability. Production sharing, group-based extraction labor at a producing tunnel (typically financed by a boss) is the scarcest, and most coveted, mining work in Pongkor. Its availability depends on the amount of capital being spent in constructing tunnels as well as the productivity of the tunnels themselves. During “quiet” periods, generally only those within a mining boss’s close social

an accurate sense of what a miner might experience—but should not be considered averages. All Indonesian rupiah values are converted to United States dollar estimates based on 2018 exchange rates.

network have access to these jobs. Most waged work, such as transportation or ore processing, is more available. However, it, too, can be competitive and varies with the supply of ore. Porters, for example, will queue outside tunnels for hours to receive a sack of ore and sometimes will go home empty handed. In contrast to both of these forms of labor, *onek* or gleaning work can be done any time.

Second, laborers may be constrained to certain types of work based on their identities, capacities, or needs. For example, higher risk, higher reward extraction work is often done by those with enough savings to temporarily forgo daily income and younger men without dependents. For them, it is fine to subsist on the rations provided by a financier while waiting to strike a rich vein. Waged transportation and processing jobs, on the other hand, are disproportionately occupied by poorer miners, men and women with families, and cyclical migrants. Echoing previous analyses of small-scale mining (Lahiri-Dutt, 2011; Perks, Kelly, Constantian, & Pham, 2018), among the most obvious forms of exclusion are gender-based. In Pongkor, women are not permitted to participate in tunnel work, leaving them out of production sharing arrangements entirely. They are most common in work conducted in the village, generally crushing ore or operating amalgamation equipment.⁵³ However, in cases where women are the main breadwinner, they will often venture to the mining area to scavenge for stones. Most older mining participants, too, are limited to gleaning or crushing ore.

Small-scale mining has been shown to provide broad development benefits (Gamu, Le Billon, & Spiegel, 2015; Langston et al., 2015). Tracing mining labor heterogeneity reveals how these benefits are distributed unevenly. While common narratives suggest that small-scale mining is characterized by low barriers to entry (e.g., Banchirigah & Hilson, 2010), in Pongkor only the most meager, subsistence-level livelihoods are truly accessible to all participants. Researchers should consider the structural and relational access mechanisms (Ribot & Peluso, 2003) that enable or preclude participation in various forms of mining. Contrary to the clichés, gold mining is often not about luck. As with Bolivian tin *agro-mineros* (Marston, 2020), broader social relations shape who can participate in preferred labor roles and even access the best ores.

Additionally, Pongkor's diverse labor arrangements do not, as Cleary's (1990) case suggests, serve as a ladder of upward socioeconomic mobility. More often, different laboring positions serve as a safety net and release valve for those who have fallen down the ladder's rungs. In fact, the most marginalized participants tend to be stuck with livelihoods that offer the greatest risks and least opportunities for accumulation. Unlike in Cleary's *garimpagem*, many laborers cannot escape this cycle. Pongkor is not an ephemeral mining camp, it is their permanent home. As one *onek* miner summarized, "Mining is hard. It's hard work and it's hard to leave behind. It's hard to find another way to make money."

As the agrarian change literature has shown with smallholder agriculturalists (Bernstein, 2010; Harriss-White, 2012), many of the most vulnerable mining laborers pursue (or are forced into) conservative livelihood strategies. They work in ways that require minimal capital, maintain autonomy, and provide steady, if low, incomes. Only those who are able to take more risks (typically, younger men and those with some savings) can consistently work in production sharing arrangements. These arrangements are the greatest opportunity to generate surpluses and stimulate entrepreneurship. Other forms of work, like peasants, focus primarily on reproduction—putting food on the table, paying school fees, or even supporting subsistence agriculture. Additionally, while less common, shift-based wage labor may indicate the

⁵³ In their own homes, this work is uncompensated. However, they may also be employed by others, in which case they are provided a wage.

emergence of more classical forms of capital-dependent wage labor, a transition away from the peasant category. The result of these dynamics has been differentiation between well- and poorly-positioned gurandil into different classes of mining labor. One miner spoke about these differences using explicitly class-based language, saying “*Onek* work is for the middle and lower category of miners. If you go to the private tunnels, they are the gurandil who have class.”

The literature on small-scale mining includes debate over the roles of poverty and capital in driving small-scale mining expansion (Hilson & Maconachie, 2017; Verbrugge, 2014) as well as observations of both “poverty traps” and upwardly mobile careers (Bryceson & Jønsson, 2010; E. Fisher et al., 2009; Gamu et al., 2015; Hilson, 2012b). Close examination of the various positionings of mining laborers, as exemplified here, provides further clarity on how—parallel to observations of agrarian transitions (Bernstein, 2010)—these seemingly contradictory dynamics operate within the same local economy. Furthermore, it highlights structures within the social organization of production that lead to systemic inequalities among the gurandil working class.

4.3. Criminalization and Migration

Class formation in Pongkor is also affected by the criminalization of small-scale mining participants by Antam and the Indonesian state. Almost all informal gold mining in Indonesia is considered illegal. However, this illicit status is felt more prominently in Pongkor than in many other small-scale mining areas. Nearly all unlicensed mining in Pongkor happens directly on Antam’s concession, which is under constant surveillance. Teams of corporate security officials and government police patrol its interior twenty-four hours a day, seven days a week (see Chapter Three for more details). All small-scale mining in Pongkor therefore must contend with a continuous security presence. Occasionally, there are also larger, more intensive policing interventions, such as the 2015 “Operation Humanity” raid. Finally, Pongkor is among the most publicly visible sites of small-scale mining in the country and close to watching administrative eyes in Jakarta. All of this contributes to a sentiment I frequently heard among small-scale miners—that Pongkor is among the most difficult places to work. However, the effects of policing are not felt evenly and, as with other challenges, some miners have found a way around Pongkor’s tight security: migrating to other mining sites.⁵⁴

In Indonesia, popular narratives about small-scale mining emphasize illegality and greed, often framing informal extraction as pilfering the nation’s wealth (e.g., Gewati, 2016). These depictions condemn all mining participants as equally culpable and criminal. In practice, this means poorer mining laborers often bear the brunt of Antam’s policing—they are the ones who are caught and forced to go without work. For example, in Pongkor it is common for humble porters caught by police to have their shoes (one of their few assets) confiscated. Meanwhile, bosses such as Haji Deden direct much larger operations from the security of their homes, unharassed. In the words of one Pongkor resident, “Those who don’t have money are caught; those who do, aren’t.” As described in section 4.2, legal exposure is also differentiated among different laboring positions. Tunneling laborers working with well-financed teams may avoid policing through the provision of bribes. *Onek* and transportation laborers, on the other hand, are often at the mercy of luck. The unevenness of legal exposure in Pongkor adds to existing evidence that current mining law enforcement practices in Indonesia tend to offer “preferential

⁵⁴ Much more could be written about miner migration and mobility than I will cover in this chapter. Here, I focus—in line with the rest of the section—on how policing and migration have affected small-scale miners in Pongkor unevenly. I am planning further research and analysis on this topic as part of my post-doctoral plans.

treatment for elite actors” and “trap workers in systems of informality and inequality” (Spiegel, 2012, p. 200). Blanket criminalization of small-scale miners therefore compounds other forms of socio-economic marginalization that differentiate Pongkor’s various mining classes.

However, as with many of the other obstacles they face, Pongkor’s small-scale miners have ways of negotiating the challenge of Antam security and local policing. Today, many simply leave Pongkor when mining locally becomes too difficult. They migrate, instead, to other gold mining locations in Indonesia where scrutiny is less intense. Small-scale mining can be an incredibly mobile livelihood. Unlike industrial extraction, informal miners are not tethered in place by formal resource permits, large, spatially-fixed investments, or reliance on infrastructure. They are free to move, often month-to-month or even day-to-day. While some miners I met in Pongkor had spent their entire lives in the region, many had travelled to the far ends of Indonesia on mining expeditions. Men born and raised in Pongkor, who otherwise have scarcely had reason to travel even as far as Jakarta, have travelled as far as Aceh, Kalimantan, Maluku, and Papua—to borrow a common Indonesian saying, “from Sabang to Marauke,” tip-to-tip of the Indonesian archipelago. For example, I met one miner who proudly displayed a footlong model airplane above a doorframe in his home. The model, he told me, was the first thing he bought on his way home from a gold mining trip to Kalimantan, a token to commemorate his first experience on an airplane. Other gurandil have less ambitious travel plans. Many visit the smaller gold mining sites scattered in other areas of West Java or in nearby Banten province.

More generally, Pongkor and this broader region are known as a sending place for small-scale mining labor and know-how. Pak Gatot of APRI, for example, estimated that some 60 percent of Indonesia’s migrating miners originated in West Java or Banten. In almost all cases, a key reason miners decide to leave Pongkor is because of the challenge of corporate security and broader policing. One miner told me, echoing sentiments I had heard from others, “Really, the gold output in Pongkor is the best, but it is also stricter here than anywhere else. When you go to mine somewhere else, of course there are always challenges, but there isn’t a company.”

Mining migration has thus helped miners navigate the criminalization they face in Pongkor. It can allow mining participants to keep their livelihood afloat. When security becomes especially strict on “the mountain,” such as after a major raid, miners may be able to shift their attention elsewhere until things in Pongkor cool down. But this mobility can be a double-edged sword. Mining in a distant location generally means a loss of autonomy and sometimes involves taking on debt. This is because mining migration, too, is experienced unevenly. Gurandil can travel to relatively nearby mining sites, such as those elsewhere in West Java and Banten, with little risk. Sometimes a group of miners will pool capital, teaming up to travel and open a new tunnel in these locations. Enterprising miners can even travel alone, hoping to find work in a more bustling mining location. For example, during my fieldwork, one local man ran a business shuttling these mining laborers to Lampung on the adjacent island of Sumatra. His nine minibuses (*angkot*), carrying nearly a hundred miners in total, would make the trek there and back once a week, charging passengers 250,000 rupiah per trip.

Longer trips, such as to Kalimantan or Papua, are more typically organized by a financier. Wealthy mining bosses from Pongkor invest in mining pits all around the country and, as local labor is often seen as unreliable, they typically send trusted laborers from Pongkor to construct and work the tunnels. The bosses will coordinate and pay for the flights of these laborers, a dynamic which has produced so many unlikely travelers in Pongkor. However, it is typically expected that these travel expenses will be cut (*dipotong*) from the groups’ revenues before any laborers are paid—and before any laborers are purchased tickets to return home. This

can create a serious bind for mining laborers, especially those who hope to send remittances to their families at home. If a mining group has difficulty finding a productive gold vein (a relatively common occurrence), miners will often be stuck. They will have neither income to show for their work, nor the ability to return home and seek alternative employment. In the worst situations, families in Pongkor are forced to find money to bring their husbands or sons (often otherwise expected to the breadwinners) home.

The criminalization of small-scale mining in general and the presence of Antam in particular add to the obstacles faced by Pongkor's small-scale mining participants. These challenges are not faced evenly. Richer miners often avoid the worst effects of criminalization, while lower-level laborers, already subject to broader political-economic pressures, are doubly marginalized. The ability to migrate gives all mining participants an opportunity to escape the unusually intense security presence in Pongkor. But this form of flexibility, too, affects miners differently. For laborers, it provides an opportunity to continue with a mining livelihood, but it reduces their autonomy, often makes them beholden to wealthy mining bosses, and sometimes entangles them in debts that fix their labor in distant locales.

5. Exclusion and Informalization in Industrial Mining Labor

For gurandil laborers, insecurity is part and parcel of small-scale gold mining work. Gold revenues are always uncertain and forms of flexibility, though they help make continued livelihoods possible, seldom help mining laborers climb the socio-economic ladder. Reducing insecurity is a pillar of advocacy for small-scale mining formalization. Scholars and development practitioners who subscribe to this belief suggest that the allocation of small-scale mining titles, government regulation, and labor laws will improve conditions for mining participants (i.e., Siegel & Veiga, 2009). In short, they argue that informality is the prime source of insecurity in small-scale gold mining. If these activities could be brought into the formal sector, alongside industrial mining, the argument goes, worker insecurity would be reduced. The case of Pongkor, however, presents some reason to doubt this. Antam, the formal, state-owned industrial mine, has its own problems with employee precarity. Increasingly, lower-level employees are marginalized within the company, while many others continue to be excluded from opportunities for work entirely. As with informal mining, formal mining work in Pongkor is increasingly hierarchical and insecure.

As described in Chapter One, Antam provided temporary employment to many people in Pongkor during its early years, in the late 1980s and early 1990s, in the region. While the company brought skilled mining labor from its closing operation in Cikotok, local people were recruited to help with manual labor and rudimentary forms of extraction. Nearly all men of a certain generation in Pongkor participated in this work. Many remember serving as porters, carrying equipment and parts of machinery through the forest and up the mountain. Others joined work on the "open pit," a short-lived superficial mining operation in which local people assisted blasting rock at the surface and collecting the resultant ore. These participants remember "working for Antam," but it seems much of this work was short-term and likely organized informally through local brokers. After the Antam mine was up and running manual laborers like this were no longer needed. And, in fact, as small-scale mining began to pick up in the early and mid-1990s, most found they could make much more money working gold themselves. For residents of Pongkor, work with Antam in this early period was abundant, but it was physically challenging, poorly paid, and inevitably short-term.

By contrast, work with Antam today is more valuable but hard to come by. The company's labor force is highly stratified and local people are almost entirely excluded from its middle and upper ranks. Most of the employees I met during my visits to Antam's headquarters were rarified mining professionals—corporate executives, community development specialists, environmental engineers, skilled mining technicians, and senior security managers. Many wield degrees from prestigious universities in Depok and Yogyakarta and speak better English than Sundanese. They live not in the upland villages directly adjacent to the mine, but instead commute from more urban, cosmopolitan contexts. Some live in a residential neighborhood, a “company town” of sorts, built and maintained by Antam about a 30-minute drive from the mine. Many others commute an hour and a half each way from the major metropolitan city of Bogor.

The local residents who secure jobs, in contrast, are concentrated in the ranks of manual laborers, some types of security guards, and, in a few cases, secretaries. Most are contract-based rather than permanent positions, with contracts typically lasting two years and seldom renewed. The lack of job opportunities for local people is longstanding source of conflict between the company and community members. Some village leaders even suggest that Antam is disingenuous about its employment record. Several told me that, though Antam reports that 80 percent of its employees come from the local subdistrict (*kecamatan*), this is only true because their “company town,” and therefore the addresses of all staff who live there, is located within the subdistrict's boundaries. True born-and-bred local employees are a rarity. In one of the villages (*desa*) nearest the mine only two people out of a total population of more than 6,000 were permanently employed by Antam.

Education level is a major obstacle for Pongkor residents hoping to work at Antam. These days, a high school degree is the expected minimum for most contract-based employment and a university degree or higher is the norm for permanent positions. Most people I met in Pongkor, especially those over the age of 30, have no more than an elementary or middle school education. The subdistrict encompassing Pongkor is one of the least resourced in West Java, with only one public high school serving a population of nearly 100,000 people. The potential to work in small-scale mining has only exacerbated these trends, with many young men pressured into ditching school to try their luck on the mountain.

However, it is not only education that prevents local people from getting employment at Antam. Several interviews claimed that internal connections or bribes are prerequisites for getting work, even for lower-level contract positions. One former Antam employee told me that a worker could be required to forward 10 percent of his monthly salary as a kickback to the person who offered him the job. Another respondent said that his nephew was asked to pay 5 million rupiah upfront just to get an entry level job. Thus, despite an abundance of job opportunities early in Antam's history, work with the company today is limited to a small, relatively privileged subset of the local population.

Current and former Antam employees also complained to me about the quality of jobs available at the company. Like the quantity of employment opportunities, it seems that this has also degraded over time. As mentioned previously, the majority of Antam employees—especially for lower-level positions—are hired on temporary contracts. Mang Encep was one of many people who expressed frustration to me about the temporal insecurity of this work. Encep came to Pongkor to work for Antam in 2005. He got his job through connections—his uncle, a permanent employee, hired his brother, and his brother helped secure him a job drilling holes as part of Antam's exploration team. When Encep first arrived in Pongkor, there was a feeling that contract employees could earn a permanent place at the company through training and hard

work. He was disappointed to find that this was not the case and, dismayed with his managers, left the company in 2009 to pursue small-scale mining. Encep argued that the contract-to-permanent route is even more dire today, saying, simply, “it’s impossible.”

Others emphasized a different problem with work at the Antam Pongkor mine: much of it isn’t actually employment with Antam. Like industrial mining corporations around the globe, Antam increasingly relies on outsourcing to do its work. Many of the people who “work at Antam” are actually contractors. They are employed by local or national companies (often referred to as “CV,” “PT,” or “mitraan”) that provide services ranging from gardening and canteen cooking to corporate social responsibility consulting and mining equipment expertise. The company’s own security force, the most significant source of jobs for local Pongkor residents, is a key example. Of 234 people listed among Antam’s security force in 2018, only four were considered “*organik*” employees, or those directly employed by Antam. The majority were workers hired by two private companies contracted by Antam (116 security guards and 72 field assistants), while the remaining 42 were officers who rotate in from the provincial and national military police.

Subcontracting can be understood as an opportunity to increase efficiencies, but it can also serve as a way to devolve, and therefore avoid, responsibility by mining companies. I heard at least one example of this at Antam when I spoke with Dedi, a gardener who I met tending the shrubs planted around a large statue of a miner on the company’s grounds. Dedi told me that he works not for Antam, but one of the many “*mitraan*,” or partnerships, that provide services to the company. He is grateful for the work, but admitted that his pay was well below the regional minimum wage (*upah minimum regional, UMR*) and not like working directly with Antam. In general, residents in Pongkor suggested that jobs with contractors were lower quality than direct employment by the company.

Even some of Antam’s most loyal supporters lament recent trends in the company’s treatment of employees. I spoke with Pak Joyo, a veteran Antam employee who has worked at the company since 1985, including its operations in Cikotok, Pongkor, and Halmahera. Joyo now leads a small team that manages Antam’s post-mining activities in Cikotok. He and his 17 employees are tasked with managing the historic mine’s legacy, including maintaining the remaining properties which now serve as something of a museum. Joyo grew up in Cikotok and fondly remembers the years when active mining made it a bustling, cosmopolitan town. It was a genuine “company town,” with the Antam providing housing for all employees, building churches and mosques, and providing education and healthcare for all in the community.

In 2006, Joyo was transferred from Cikotok to Pongkor, part of a broad movement of human resources from the closing mine to Antam’s new operation. He was dismayed to find that, rather than being provided company housing, he was allocated only three months to stay at the mess before needing to find his own accommodations. He ended up living, feeling unhappy and alone, in a dorm in a nearby small city for the next 5 years. Joyo emphasized to me that the privatized facilities in Pongkor, a new mine, were a stark contrast to the “full inclusive package” that was typical of older mines. Even Pongkor’s “company town”-style neighborhood was in fact private homes that employees needed to purchase. Joyo felt this made everything at Pongkor much more “individual”—the mine was a place of work, and nothing more. He said this was a challenge to employees, who needed support, and failed to stimulate the kind of community that he had cherished in Cikotok. Ironically, as he himself noted, Pak Joyo is the only permanent Antam employee left in Cikotok—all of his staff members are technically contractors.

The poor conditions of work with Antam have spurred some employees to leave the company, sometimes even before their contracts are up. I frequently heard Antam's Pongkor mine framed as a jumping off point, rather than a final destination, for mining careers. After getting their start in Pongkor, miners go on to work at larger, more remote, and often foreign-operated mines. Interviewers in Pongkor told me of siblings, friends, and neighbors who had gone on to work at industrial mines in Sumatra, Sulawesi, Kalimantan, and even at the massive Freeport-McMoran mine in Papua. These moves inevitably mean a pay increase, sometimes by several magnitudes. One former Antam employee suggested that a mining technician who might earn 5 million rupiah per month in Pongkor could earn 18 million rupiah for the same work at Freeport. Other Antam workers make a very different kind of transition after leaving the company—to small-scale mining. As I describe in more detail in Chapter Four, I met dozens of former corporate mine employees during my fieldwork that became gurandil. In some cases, these workers were manual laborers who, once shunted away from the company, had few other opportunities to turn to; in others, they were mining technicians, mechanics, and other skilled workers who chose to pursue their own, independent mining business. Whether wanted or not, it seems small-scale mining could offer these miners types of security and autonomy that the company could not.

6. Conclusion

Opportunity and insecurity are two sides of the same coin for gold miners. In both the formal and informal sectors, this contradiction is part of the experience of living off of gold; of hitching one's livelihood to a globally traded commodity that lies hidden underground. However, gold and its attendant uncertainties are not experienced evenly. Participants in both Pongkor's industrial and small-scale mining are increasingly differentiated. A hierarchy, or various classes of miners, has emerged in which participants occupy different positions in the gold economy. By tracing the social organization of production in Pongkor, I have shown how some miners are structurally poised to accumulate gold's benefits, while others face constant insecurity.

To understand these inequalities, I draw on concepts from rural political economy and agrarian change. Other scholars have employed a similar approach, expanding on farmer-miner comparisons to analyze small-scale miners as similar to "smallholders" or "extractive peasants" (Lahiri-Dutt, 2018b; Peluso, 2017). I argue that Pongkor's gurandil are more akin to industrial workers, though, in being able to retreat to "subsistence" mining, maintain some similarities to peasants and petty commodity producers. Their livelihoods either depend on the capital of others (and they therefore participate as workers) or they operate independently at very small levels using a combination of their own capital and labor (and thus, as petty commodity producers). This combination of attributes makes them unique: they are subject to processes of class differentiation and laborer exploitation, but simultaneously hold forms of livelihood flexibility and autonomy.

Pongkor's informal gold production involves myriad labor processes, arrangements, and relations. Each intersection in these diverse configurations entails a different positioning in the economy. Along with (and informed by) miner identities, capacities, and capital, these positionings can mean varying degrees of opportunity for mining participants. In this sense, Pongkor's informal gold economy has a clear structure, resulting in a trend of differentiation between mining haves and have-nots. This process of class formation is driven by inequities between elite mining bosses and mining laborers, by divergent positionings among the gurandil

working class, and by uneven criminalization of small-scale mining. Many mining laborers attempt to strategically manipulate their position in the gold production process. For example, when more valuable work tunneling with a financier is scarce, they will switch to petty commodity production through *onek* mining. But mining's flexibility is a double-edged sword. Though it can help one stay afloat, it is rarely an opportunity to accumulate. In the end, many forms of small-scale mining in Pongkor appear to be little more than subsistence-oriented mining.

Employment with Antam might seem a better opportunity, but it is similarly uneven and insecure. Local people are largely excluded from work with the company, and those who do find employment are rarely permanent employees or even on Antam's actual payroll. Antam has become an increasingly neoliberal operation, with more and more outsourced and contract-based labor. In contrast to past decades, being an Antam employee no longer implies job security or job quality. For some, these negatives are such that small-scale mining work is actually preferable to work with Antam. In this sense, the hierarchies and insecurities of all mining work in Pongkor are linked. Both formal and informal gold mining increasingly depend on insecure, flexible, and casualized forms of labor, a process that Geenen and Verbrugge (2020) call the "informalization" of global gold production.

I understand the shared precarity of Pongkor's gold miners as an empirical example of Bernstein's "new agrarian question of labor" (2004, 2006). Levien, Watts, and Yan (2018) summarize Bernstein's thesis in a way neatly encapsulates the experiences of Pongkor's small-scale miners: "the working poor in the global south have experienced intensified crises of reproduction but also fragmentation as they are forced to move across rural and urban spaces and between precarious wage labor, petty commodity production, and forms of informal non-agricultural self-employment to survive" (p. 867). The dynamic character of small-scale miners—as both industrial workers and petty commodity producers dependent on land-based resources—reflects the increasingly desperate and flexible nature of contemporary livelihoods. Moreover, differentiation *among* gurandil is illustrative of the fragmentation of miners into multiple "classes of labour" (Bernstein, 2006; Lerche, 2012). The insecurity of work at Antam, too, fits in this formulation. For Bernstein (2004), the agrarian question of labor is also a "crisis of employment," with formal industrialization "incapable of generating sufficient, and sufficiently secure, employment to provide 'a living wage' to the great majority" (p. 205). In this same vein, small-scale mining has become a backup livelihood for many of Antam's increasingly precarious workers. It should be no surprise, then, that the insecurities of mining work in Pongkor's formal and informal mining activities are entangled.

CHAPTER THREE: GOLD TERRITORIES AND SUBTERRANEAN CONTESTATION

1. Introduction

On August 24, 2015, Antam security officers found four unwelcome visitors hundreds of meters underground in the company's gold mine in the Pongkor region of West Java, Indonesia. The men were wearing company uniforms, but were not employees of Antam, the state-owned mining corporation. In fact, they had surreptitiously descended into the tunnel riding a cart used to transport mining ore and were wearing the uniforms to conceal their clandestine purpose: to take gold for themselves (Rizal, 2015b). They were small-scale, unlicensed miners; four of thousands that live and work in the Pongkor area. While most local small-scale miners make a humble living working marginal gold veins with hammer and chisel, this group was after a bigger pay day. They hoped to access Pongkor's deepest and richest veins, which are only accessible from inside Antam's industrial mining tunnels. The incident landed the men in jail and initiated a dramatic increase in security activities in the mining area. However, it represents just one bold maneuver in a broader "*permainan kucing dan tikus*," or game of cat and mouse, as locals call it, between Antam and small-scale miners that has been running for more than twenty-five years. As the company tries to control its mining concession and the gold deposits therein, small-scale miners have continuously found ways to exercise their own claims to Pongkor's underground.

The four small-scale miners, who were caught carrying ten sacks full of gold ore, were charged with theft and sentenced to up to 10 years in prison (Rizal, 2015b). In the eyes of government and Antam officials, this offense was even more egregious than other small-scale mining activities because the men had taken gold from an underground specially reserved for the state. The Pongkor mining concession is a "Vital National Asset of the State," an official designation for resources deemed essential to the well-being of the Indonesian nation and afforded protection by the national police and military.⁵⁵ In other words, Pongkor's gold veins are subterranean state territory that must be defended for the national good.

But, how does a state defend subterranean territory? In most countries, including Indonesia, subsurface resources are legally the domain of the national state. Part of the "vertical turn" in geography, a growing literature has described the processes of mineral cataloguing and claiming that produce the underground as state territory (e.g., Braun, 2000; Bridge, 2013; Elden, 2013; Frederiksen, 2013; Himley, 2019; Marston, 2019). These analyses are effective at illustrating how particular institutions and histories enabled the underground to become state territory. Fewer scholars, however, have examined the material enactment and contemporary reproduction of underground territory. Though state control of the subsurface is unambiguous on paper, it is less clear how smoothly this authority translates to real-world contexts or how effectively it is maintained over time. How, then, do states and state-sanctioned extractive companies respond to the obstacles they encounter in enacting their subterranean territorial authority? In other words, what do *ongoing* processes of underground state territorialization look like? And what, if anything, about the underground makes it different than other resource territories?

⁵⁵ In Indonesian, *Objek Vital Nasional Asset Negara*.

In this chapter I reflect on these questions by examining the competition between industrial mining and small-scale gold mining activities in Pongkor. Informal, unlicensed, small-scale mining is one of the clearest examples of underground territorial contestation. Informal miners across the globe operate in direct refutation of state authority over the subsurface and often make their own territorial claims to mineral resources. I examine Antam's attempts to enact territorial control, analyzing how it and allied state forces respond to these threats in Pongkor. I begin with an overview of three literatures: scholarship on territory, politics of the underground, and conflict between large- and small-scale mining. Then, I briefly examine the history of underground state territorial production in Pongkor. Next, I draw on my fieldwork to analyze the techniques by which Antam attempts to assert its territorial control and the ways small-scale miners circumvent it. I find that these dynamics of territorialization and contestation play out via competing modes of accessing, navigating, and knowing the underground, all shaped by the particular material characteristics of the subsurface.

2. Territories, Undergrounds, and the Extractive Industries

Political ecologists, geographers, and similar scholars use the concept of territory to analyze the relationship between power and space. Unlike commonplace uses of the term, critical interpretations of territory do not cohere neatly with cartographic boundaries or the sovereignty of nation-states. Instead, territories are always in flux, with malleable borders, incomplete authority, and competing power dynamics (Agnew, 1994; Agnew & Oslender, 2013; Elden, 2010). Many scholars thus emphasize the *process* of creating territory (Ballvé, 2012; Rasmussen & Lund, 2018; Vandergeest & Peluso, 1995), as with Peluso (2005), who describes territorialization as “the creation and maintenance of spatialized zones within which certain practices are permitted based on the explicit or implicit allocation of rights, controls, and authority” (p. 2). In a pathbreaking piece, Braun (2000) brought the analytic of territory to the subterranean. Combining insights from Michel Foucault and Neil Smith, Braun describes how new geological sciences at the end of the 19th century enabled Canada to institutionally produce “vertical territory” and enroll its citizens in the governmental project of putting underground resources to productive use. Key to Braun's analysis is how nature, or, in Foucault's terms, “territory with its specific qualities,” shape attempts to govern territory (Foucault, 1991, p. 93). It is precisely the very unique “specific qualities” of the subterranean—the many material characteristics and representational categories that differentiate it from the aboveground—that make it ripe for advancing understandings of territory.

The recent “vertical” turn in geography (e.g., Adey, 2015; Elden, 2013; Goldstein, 2019; Harris, 2015; Weizman, 2004) and a parallel proliferation of literature on “the geological” (e.g., N. Clark, 2017; Erb et al., 2020; Squire & Dodds, 2020; Yusoff, 2013) have begun to address this gap. Elden's 2013 intervention sparked much of this scholarship, pushing against conventional two-dimensional understandings of territory and insisting that power also operates upward and downward—through volume. Multiple recent analyses have taken up Elden's call, examining voluminous extensions of state sovereignty and surveillance in the underground, oceans, arctic ice, and air (Billé, 2020; Childs, 2020; Jackman & Squire, 2021; Steinberg & Peters, 2015). Bridge (2013) more specifically reflects on how verticality and volume may apply to the holes, tunnels, and flows involved in underground resource extraction. Meanwhile, other research has built more directly on Braun's (2000) analysis by interrogating the production of vertical mineral territories in specific national and sub-national cases. These analyses explore the

historical processes of interpreting, cataloguing, and mapping geological resources through which the underground became the domain of the state. They trace the conceptual, discursive, institutional, and infrastructural processes required to enroll minerals in state-backed extraction projects (Bridge, 2007; Frederiksen, 2013; Himley, 2019; Marston, 2019; Scott, 2015).

While this research has illuminated the *production* of vertical territories, surprisingly little has been published on the *enactment* and *re-production* of these state territorial visions. Broader scholarship reminds us that territories are unstable, territorialization sometimes fails, and state territorial visions are “often a utopian fiction unachievable in practice” (Vandergeest & Peluso, 1995, p. 389). Furthermore, territorialization is an ongoing process, is always incomplete and contested, and can be pursued by actors and collectives other than the state (Corson, 2011; Peluso, 2005; Peluso & Lund, 2011; Rasmussen & Lund, 2018). This is just as true under ground as it is above. Though the subterranean can seem impenetrable to parties without significant state or corporate resources, non-state territorialization of the underground does occur (Pérez & Melo Zurita, 2020). The production of vertical territory, therefore, is only the first step in securing state control of underground resources. States and state-backed actors must translate their territorial visions into the material world and maintain them throughout time. In the realm of mineral resources, this process is often fraught with obstacles, competing claims, and rejection of state authority. How, then, do state-backed extractive operations implement, maintain, and consolidate subterranean territorial control in the context of these challenges?

The literature on mining, oil, and gas provides many empirical examples for examining dynamics of territorialization and contestation. However, while the resources themselves are often underground, most conflicts in the extractive industries involve concerns—commonly, land disputes, environmental degradation, and the distribution of resource-generated revenues—that largely play out above ground. In contrast, I find a unique opportunity to explore the specifically subterranean aspects of vertical territorial contestation by examining conflicts between large-scale and small-scale mining.

Small-scale mining spans more than 80 countries and provides livelihood support to an estimated 134 million people worldwide (World Bank, 2020). Despite common depictions of chaos, small-scale mining generally proceeds according to local norms, customs, and property systems (Huntington & Marple-Cantrell, 2021; Klein, 2020). As with state or corporate industrial mining operations, this ordering of people, resources, and space can be understood as productive of small-scale mining territories (Peluso, 2018). In cases like Pongkor, small-scale mining occurs in the same location as industrial mining, resulting in direct competition over mineral reserves and competing processes of territorialization. This juxtaposition provides an opening for my analysis of contested subterranean territories.

Globally, encounters between small- and large-scale gold mining vary considerably. Frequently, disagreements over land use, political representation, the distribution of resource benefits, or other concerns have resulted in tension and violence (Hilson & Yakovleva, 2007; Libassi, 2020a; Okoh, 2014). In other locations, the two forms of mining have found ways to at least temporarily co-exist in peace (Aubynn, 2009; Luning & Pijpers, 2017; Verbrugge, 2017). Yet, the overlap of small- and large-scale mining is seldom as neat as the descriptors “conflict” or “coexistence” might imply. For one, it is typically only the industrial mining operations in these encounters that maintain support from the central state (Cuvelier, 2019). This support generally accords them territorial authority in these spaces—not only to extract minerals, but to manage people and resources within the (above and below ground) space of a mining concession. The territorial politics of overlapping mining operations are necessarily informed by

geology, but only one of the analyses mentioned here highlights the underground specifically. Luning and Pijpers (2017) describe how gold mining in a Ghanaian site is divided according to depth—small-scale miners are permitted to access more superficial deposits whereas an industrial mine has a monopoly over deeper ores. In this case, the material configuration of local gold, alongside broader social conditions, has allowed for an “in-depth geopolitics” of co-existence.

In Pongkor, the subterranean remains a contested sphere. Small- and large-scale miners compete to navigate the same subsurface spaces, collect the same veins of ore, and specify proper ways of interacting with the underground. In other words, small-scale miners defy the state’s authority over the subterranean and sometimes attempt to enact their own territorial visions. I use the competition over ores in Pongkor to explore how state and state-backed companies work to consolidate territorial control over contested undergrounds. Geological cataloguing and mapping—processes already well-covered by the literature—may be enough to institutionalize the subterranean as state territory, but are not sufficient to maintain this territorial control. To more fully understand state control of the underground, we need to see how it responds to competing territorial visions. This is key to understanding more about how the “specific qualities” of the underground shape its territorialization.

3. The Indonesian State and Pongkor’s Subterranean

The basic relationship between nation, state, and underground resources is outlined in article 33, paragraph 3, of the 1945 Indonesian constitution: “The land, the waters and the natural resources within shall be under the powers of the state and shall be used to the greatest benefit of the people.”⁵⁶ Since the late 1960s, the predominant mode of managing underground resources has been a state-corporate extractive regime. In this system, the Indonesian state owns all underground resources, but devolves most responsibility for exploring, extracting, and processing these resources to state-owned, private domestic, and international industrial mining companies.

However, the rapid growth of informal, small-scale mining activities in Indonesia, such as in Pongkor, has presented a challenge to state-corporate control of the subsurface. These activities are widespread, with an estimated one million Indonesians spanning 27 provinces depending on small-scale gold mining for their livelihoods (BaliFokus, 2017). Small-scale mining participants present a genuine challenge to conventional territorial control of the underground. They actively disregard state authority by mining without permits, occasionally compete directly with state-approved companies, and have increasingly advocated for popular access to mineral resources. Here, I consider how Pongkor’s *gurandil* have challenged state authority over the underground.

The production of Pongkor’s underground as state territory and a “vital national asset” unfolded in several stages. Between 1905 and 1930, the Dutch colonial government issued six decrees designating much of the area around Pongkor as state forest. In the process, it appropriated land that was still home to, and continued to be used by, many local people. Following independence in 1945, the fledgling Indonesian government adopted this designation. The land was initially managed as production forest, first by the regional and then the national

⁵⁶ In Indonesian, “*Bumi dan air dan kekayaan alam yang terkandung di dalamnya dikuasai oleh negara dan dipergunakan untuk sebesar-besar kemakmuran rakyat.*”

government. Then, starting in 1992 with an expansion in 2003, this area was converted into a national park (Galudra et al., 2008, 2005). Antam conducted systematic geological surveys of the region between 1988 and 1991. Based on promising results, the state carved a 4,058-hectare concession out of the national forest for Antam's use in 1991, and later increased this area to 6,047 hectares in 2000.⁵⁷

Constructing a mine in Pongkor took additional work. In the early 1990s, Antam officials proposed a plan to construct a large, regional headquarters for Antam on a hillside above a local village. Leaders of the local village, however, rejected the plan. They cited concerns over loss of land, poor compensation, and the potential for the mine to have a negative impact on the local community. In response, Antam formulated a new plan. They proposed an alternate site for their operations in an adjacent village. This time, they arrived to negotiate with village leaders with military officials in tow—a common practice in Suharto-era authoritarian Indonesia—all but forcing the deal through. Shortly afterwards, in 1992, the company broke ground and began construction of its facilities. In the process, they relocated several small communities outside of the new mining concession, but left many others living directly on its borders and a few pre-existing enclave villages (such as Kampung Ciemas) entirely encapsulated within it.

In the ensuing decades, these communities became the loci of alternate visions for local gold and counter-territorializing projects to claim Pongkor's underground. Small-scale, unlicensed mining began in the area almost immediately following Antam's arrival. As described in Chapter One, the company inadvertently spurred some of these activities by attracting small-scale miners from its old mining site in Cikotok and providing tenuous employment to many of its early laborers. These activities reached a peak in Pongkor in 1999 when the government estimated that as many as 26,000 small-scale miners worked in the area (McMahon et al., 2000). Responding to this rush, Antam, state police, and the Indonesian military cracked down on *gurandil* activities, ending a period where small-scale mining often occurred relatively openly in Pongkor. Despite this, small-scale mining has persisted for the past two decades, now often in more subtle and “underground” ways.

Antam officials claim that these unlicensed miners are both disrupting its operations and directly stealing from the nation's vital mineral coffers. The company's security teams work to catch small-scale miners, evicting them from the concession and sometimes arresting them. Many small-scale miners in Pongkor have thus come to resent the company. They ask why an industrial company based in Jakarta, rather than local people, should have control over local resources.⁵⁸ Occasionally, community groups have proposed alternative territorial arrangements for Pongkor's underground. In the mid-2000s, for example, village leaders proposed the idea of a “village pit,” a portion of the concession set aside for local small-scale miners (Lestari, 2011). In 2016, local miners put forward another proposal, entitled “People's Management of Gold Mining to Uplift the Community,” to petition the government to legalize their mining activities.⁵⁹ According to popular sentiments, both initiatives failed in large part because of hostility from Antam. My interviews with Antam officials suggested this was likely true, with one interviewee passionately telling me that they would ensure small-scale mining is never legal in Pongkor. But

⁵⁷ See Chapter One for additional detail on the history of Pongkor.

⁵⁸ It is important to note that the line between Antam, small-scale miners, and other community members is often blurry. As described in Section 6, the both groups are porous, with people and information often traveling between them.

⁵⁹ Although permitting systems for legal small-scale mining do exist in Indonesia, very few small-scale mining permits have been given full approval by the central government (Spiegel, 2012). This is especially true for small-scale gold mining and mining in sites of conflict, such as Pongkor.

this feeling is not unique to Pongkor. While the idea of legal small-scale gold mining has recently grown more popular with provincial and regency-level governments, Indonesia's national ministries remain incredibly resistant to approving permits for small-scale miners. This reflects a broader anxiety I frequently heard in my interviews with ministry officials: allowing legal small-scale mining will complicate the state's exclusive control over the underground.

4. Between the Surface and Subsurface

Territorializing processes aim to control access to and movement of resources. In this regard, underground territories are unique: they require management of the connection between two categorically distinct realms, the surface and subsurface. As Bridge (2013) points out, this vertical relation is contradictory. The radical difference between surface and subsurface opens the possibility of “selective engagement” where one realm is experienced as separate from the other (Bridge, 2013, p. 55). However, there is simultaneously and inevitably “vertical reciprocity” (Adey 2010). For humans at least, all engagement with the underground implies a relation with the surface—accessing the subterranean necessarily starts from above and, later, often entails the transference of its contents (e.g. ores, carbon, fossils) back to the terrestrial world (Bridge, 2013; B. Clark & York, 2005). In Pongkor, this relation between surface and subsurface is a key focus of territorial contestation. The primary sites of this conflict are the concession and the hole.

The concession forms the extractive industries' first mode of territorial control. Mining concessions are bounded, spatial units, typically designated by the state, within which selected parties are permitted to control and access underground resources. They are a way of controlling who constructs conduits to the underground, where, under what terms, and for what purposes. In the Pongkor region, the Indonesian state has designated a 6,047-hectare space as a gold mining concession. Antam has rights to the exclusive use of the concession for the duration of its contract, but that does not stop Pongkor's *gurandil* from surreptitiously collecting gold from within its boundaries. Many of them, after all, live directly on, and sometimes within, the concession's borders. In response, corporate mining security and allied state police forces patrol the space, ejecting and sometimes arresting anyone deemed a trespasser. In this situation, the concession spatially frames the struggle over access to local gold. It is the terrestrial manifestation of the state's subterranean territory.

The territorial dynamics of the concession are made particularly clear at its entrance. This point, aptly referred to as “*portal*,” mediates all official movement between the concession and the outside world. It spans the only paved road onto the concession and is the only formal way in or out, and moving through it requires a security inspection. Anyone without an invitation or pre-approved reason to enter the concession is denied.⁶⁰ Security teams check vehicles on the way in for small-scale mining equipment, and vehicles on the way out for illicitly sourced ore. The concession, then, is not simply an administrative designation for Antam's mineral rights, but is used as spatial boundary for excluding others from both the surface and the subsurface. This is best exemplified by a change of *portal* policies enacted in 2015. The road, via *portal*, is the only way to access several enclave villages, entirely enclosed within the boundaries of the concession. After Kampung Ciemas became a hotspot for small-scale mining activities in the 2010s, Antam decided to severely restrict public access to the community. Local residents are now only

⁶⁰ Including myself, on several occasions.

allowed to pass Antam's gates during three specified hours of the day: 6-7am, 12-1pm, and 6-7pm. Their access to their homes has been severely curtailed because of Antam's prioritization of preventing unlicensed mining. This strict rule shows how the *portal* has effectively become the first line of defense for Antam's subterranean territory.



Figure 17: Multiple warning signs greet anyone approaching the security checkpoint, called *portal*, at the entrance to Antam's concession. Among other things, these signs remind visitors of the legal punishments for theft, of the presence of police in the area, and that proper paperwork and permission is required to enter the concession.

However, *gurandil* and other local resource users know ways to circumvent this defense. They follow rocky, forested pathways and muddy stream beds to move on and off the concession more discreetly. In response, the company must monitor not only the concession borders, but also its interior area. For this purpose, security vehicles continuously patrol Antam's system of internal concession roads. Split across three shifts, these "*patroli*" monitor the concession twenty-four hours a day. Other security staff are assigned to one of twenty-two security posts stationed throughout the concession and near key mining operations installations. In 2018, Antam retained a total of 234 personnel for these purposes. The participants come from multiple security forces, including Antam's own employees, a private security contracting firm, a team of operational field assistants, West Java regional police, and national military police. A primary duty of all is intercepting concession trespassers, confiscating small-scale mining tools and ore, and bringing offenders to the local police station. As demonstrated by the Antam security both at

and inside the company's gates, keeping unlicensed miners and their tools off the aboveground space of the mining concession is a key strategy for excluding them from its underground territory.

While the concession aims to regulate access to minerals in terrestrial, cartographic space, the hole mediates flows between the surface and subsurface. Thus, it too becomes a key locus of territorial control and contestation. Antam's mining activities target several large, sloping veins of gold ore encased within the mountains around Pongkor. This extraction requires a series of interconnected, underground tunnels linked to the surface via several entrances and ventilation ducts. These tunnel entrances, wide enough to fit heavy machinery, are the only officially legitimate gateways to the underground. And they bear signs of it—safety reminders, smooth, painted concrete, and heavy steel gates. Like the entrance to the concession, these openings are called "*portal*," a nod to their role in bridging two worlds. More precisely, each is named according to its altitude in meters—Level 700, Level 800—indicating the vertical nature of the tunnel system inside.

Local small-scale miners also construct tunnels, but tend to use a less technical name. They refer to both their tunnels and the corresponding entrances simply as "*lobang*,"⁶¹ or holes. Small-scale miners discretely dig *lobang* into hillsides on the concession, sometimes just across a valley or ridge from Antam's operations. Their holes are diverse. Some descend vertically into the ground, while others project horizontally into the mountain. The most sophisticated are lined with wood planks and may have ore hoisting equipment, while the most rudimentary, called "*lobang tikus*" or "rat holes", seem little more than cracks in the rock. Most hole entrances are just large enough to fit a crouching miner, but the tunnels inside can stretch for hundreds of meters. Whatever the form, these small-scale miner holes are a direct refutation of the state territorial order which insists that only Antam may access the underground.

If Antam and state security's first territorial endeavor is to keep small-scale miners out of the concession, their next is to keep them above ground. "Closing holes" (*penutupan lobang*) has thus become a major project for Antam's security operations. In addition to trained security officers, the company employs more than 70 laborers whose primary focus is to support the identification, mapping, monitoring, and destruction of small-scale mining holes. After finding an active hole, security teams will disperse, and sometimes arrest, small-scale miners in the area, physically disrupt the tunnel entrance so it cannot be used, and subsequently patrol the area to prevent future access. The company closes hundreds of holes in this way each year, claiming to have closed over 3,500 from 2014 to 2018.

The policing of subterranean territories is particular in this regard—access to the underground is always discrete, and it is points rather than areas which must be secured. This is a reflection of the same characteristics which lend the extractive industries in general a discontinuous geography (Bridge, 2010; Ferguson, 2005). For all involved, the "molecular" nature of holes, as Bridge (2010) puts it, is a double-edged sword. While it is easy enough for Antam to close one particular hole, small-scale miners can always construct another. Their small tunnels can pop up in a number of places around the concession and, under the cover of dense forest, can be relatively easily concealed. Some miners will even deliberately disguise the entrances to their tunnels to blend in with the surrounding scenery.

In sum, territorialization of the underground involves regulating access. In Pongkor, this occurs both in the form of the concession, a terrestrial container with particular rules for who can utilize the minerals underfoot, and by securing holes, the portals that connect the surface and

⁶¹ *Lobang* is the local Sundanese term, whereas *lubang* is more frequently used in the national language, Indonesian.

subsurface. Put more conceptually, a key component of subterranean territorialization is the management of vertical relations. However, the interface between surface and subsurface is only the most familiar and superficial site of territorialization. Different rules apply underground. The hole marks the entrance to the subterranean, but offers few clues about what is happening within it. For that, we need to understand territory in a three-dimensional sense.

5. Contested Volumes, Veins, and Tunnels

Processes of subterranean territorialization face several inherent obstacles. First, the earth's surface is opaque. What happens below ground cannot easily be determined from above. Second, activity underground operates in a realm with fundamentally different dynamics. While so much of the above ground is treated as a two-dimensional plane, the subsurface is always experienced in three dimensions. As Elden (2013) and Bridge (2013) point out, territory here is a question of volume. For state and corporate territorialization of underground resources, “the exercise of power involves technologies of calculation, visualization, and manipulation around volume” (Bridge, 2013, p. 56). Resources, such as veins of gold ore, are calculated in volumetric quantities and extracted as flows. Furthermore, unlike our experience of the surface, this subsurface is not easily navigable “empty” space, but predominantly already “full” space within which emptiness must be found or created. Tunnels are one example of “empty” underground space. In Pongkor, they are both a means of accessing gold ores and the product of the displacement of rock to the surface. While the target of both Antam and small-scale miners is volumes “full” of gold, the volumes most directly contested are the “empty” space of tunnels.

Antam's efforts to enact its state-provisioned territory entail multiple volumetric concerns. Like all mining operations, the company first must attempt to determine the quantity, quality, and location of underground ores. Geological mapping, begun in 1988, has provided multiple ways of representing and visualizing Pongkor's subterranean. It reveals the largest concentrations of gold are encased in four low-sulphidation quartz vein systems of epithermal origin. These large vein systems, averaging 2.5 to 8 but occasionally up to 24 meters in width, run roughly parallel with 300 to 800 meters between them. Each descends steeply into the earth, stretching up to one kilometer in length. Together, the veins are estimated to contain up to 6 million metric tons of ore, including over 100 metric tons of gold and over 900 of silver (Basuki et al., 1994; Marcoux & Milési, 1994). Antam has constructed a system of tunnels based on this knowledge. It follows the three largest of these veins, removing the ore they contain along the way.

On paper, Antam has the exclusive right to all gold contained in the Pongkor concession. In practice, thousands of small-scale miners are also eagerly working the area to extract gold for themselves. Like the company, they identify and follow veins (*urat*) underground, digging deeper and longer tunnels as they go. As described in this chapter's introduction, small-scale miners sometimes attempt to access the large, rich veins that Antam targets, thereby competing over the exact same volumes of ore. More commonly, they pursue much smaller, more scattered veins deemed unprofitable by contemporary industrial mining operations.⁶² In both cases, small-scale miner tunneling—an unapproved volumetric practice—is considered a threat by Antam. The company combats this by closing small-scale miner holes, but new portals to the subterranean are regularly being opened. And, once underground, controlling territory becomes

⁶² Typically smaller than a hand in width.

much more challenging. It is difficult to understand the volume of a tunnel from the surface; who or what is inside is concealed. Gurandil tunnels can climb, dive, branch, and have multiple entrances. They can lead just about anywhere—including Antam’s own spaces of extraction.

All miners in Pongkor know that Antam’s tunnels lead to the region’s highest quality gold deposits. Though relatively uncommon, some small-scale miners have dug their way into the company’s tunnels to access these rich veins themselves. Boring with simple hammers and chisels, their small underground pathways eventually breach the much larger openings of the industrial tunnels. Once inside, they have greatly improved mobility and large surfaces on which to search for marginal veins left behind by the company’s extraction. The most daring (and perhaps, reckless) gurandil may even attempt to collect the high-quality ore which Antam itself has blasted from the surrounding rock. Much more common, however, is scavenging in sections of the company’s closed, inactive tunnels. Small-scale miners acknowledge that these cavernous tunnels are “used” or “second-hand” (*bekas*) from Antam, but, being inactive, consider them to now be a public resource, “managed by the people.”

During my fieldwork, at least one popular small-scale mining hole led—via a long, meandering, and dangerous route—to a “used” Antam tunnel. Interview participants often recounted their impressions of working in this tunnel, contrasting the cavernous, busy space with more typical narrow “rat holes.” They describe navigating the multiple “levels” of Antam’s underground labyrinth, sometimes climbing or descending hundreds of meters between them by ladders or ropes. While sitting in his living room, a miner named Mang Hendra told me about his experience in the tunnel. “The hole is not big like this room, it’s big like the size of the local market. I entered the space and saw people all around. Some were waiting to collect ore, some were sleeping, some were eating. There were even vendors selling snacks and coffee. I shone my headlamp up to the top, but couldn’t see anything. I looked down the company’s bore holes, too, but I couldn’t see the bottom.” An Antam official offered me a very different metaphor for the situation. Unlicensed passageways pierced the industrial mining tunnels like the spokes of a “*sarang laba-laba*,” or spider web. This imagery evokes the three-dimensional challenge of controlling and contesting territory in a volumetric underground—competing claims can bore in from any direction, unknown, to occupy and use subterranean space.

Needless to say, Antam considers any unpermitted ore collection in its tunnels a grave offense. It is perceived as both direct theft of the company’s product (and, therefore, the nation’s wealth) and a serious safety concern. One Antam employee described to me the fear and surprise that overcame him when he realized that the strange flicker of light reflecting back from a dark tunnel wall was another person’s eyes. This is enough of a problem that Antam has had to implement relatively significant security and operational changes. Concerns that informal miners might traverse their tunnel system has led them to entirely suspend their activities in some parts of the mine. When I joined a tour of an Antam tunnel being hosted for university geology students, I was astonished to see a large steel fence spanning the entire opening of one tunnel branch. This fence, I was told, was installed specifically to inhibit the movement of small-scale miners. Security teams also patrol tunnel interiors, looking for and sometimes catching uninvited miners. Like the four men caught in 2015, anyone seen in these tunnels is arrested and inevitably receives jail time.



Figure 18: A fence spanning the interior of Antam's tunnel. Fences like this have been installed to prevent the movement of small-scale miners within the company's industrial mining tunnels.

However, these tactics cannot be used to manage underground volumes outside Antam's tunnels. Most informal mining takes place in tunnels that gurandil dig themselves. These are dispersed throughout the concession and some are relatively far from Antam's operations. Furthermore, security forces are reticent to enter these unsanctioned mining holes. There is no way of knowing what dangers could lie inside or how stable their construction may be. Beyond traces outside the hole and sounds emanating from it, there is little way of knowing whether or not the tunnel is even active. In this way, the unknowability of the underground can work to small-scale miner's advantage. While large mining crews are hard to miss, smaller groups or

individuals can become invisible simply by being quiet when patrols are at the surface. However, there are other ways of controlling underground volumes.

One option is air. For both industrial and small-scale miners, the “empty” space of tunnels is only habitable if it contains oxygen. Antam uses ventilation shafts and ventilation equipment to manage this challenge. Small-scale miners tend to use natural ventilation in shallow holes and deploy diesel-powered blowers to force surface air underground in deeper ones. Despite this, there are still accidents in which informal miners suddenly die underground of suffocation.⁶³ The volumes and flows of gases, thus, are a critically important, if often invisible, component of occupying the subsurface. This fact can be brutally exploited to control subterranean spaces. Unwanted occupants can be “smoked out.” Small-scale miners circulate stories of Antam security using this tactic to police holes. They allege that security teams ignite tire fires to send thick smoke into tunnels they themselves cannot or will not enter, forcing breathless informal miners to come fleeing from the tunnel’s mouth. Antam vigorously denies this claim, even reversing it to suggest that informal miners have used the same approach to clear out the company’s industrial tunnels. The actual rarity of “smoking out” occurrences suggests that neither group regularly deploys this technique, but several high-profile incidents keep a fear of smoke engrained in miners’ minds. The most dramatic of these events occurred in 2004, when thirteen small-scale miners and one Antam employee died after smoke inundated portions of both an industrial and unlicensed mining tunnel (Purnama, 2004). During my fieldwork in 2018, another unlicensed tunnel filled with smoke, resulting in the death of one small-scale miner and the hospitalization of another. Though the cause of the smoke was never determined, local residents’ suspicions immediately turned to bad actors within Antam security. Everyone in Pongkor knows that volumes of air—be it comprised of sufficient oxygen or noxious smoke—are part of subsurface territorial struggles.

A second option for “securing the volume” is even simpler: make empty space full. This is Antam’s preferred strategy for managing unruly underground volumes. The company uses a common underground industrial mining technique known as “cut-and-fill.” Ore is removed in sections called “stopes” which, once emptied, are “back-filled” with a pumped-in slurry of mining tailings mixed with cement. This results in a hardened, rock-like fill which provides stability so that adjacent stopes can be opened and mined. In Pongkor, the conventional “cut-and-fill” method has been adapted to security ends. Antam back-fills its spent tunnels not only to provide underground structural integrity for its operations, but also to prevent small-scale miners from encroaching on them. For this reason, tunnels that would not typically require back-filling for structural reasons may be filled simply to impede unapproved movement within them. In this sense, one of Antam’s strategies for asserting control over the underground is to add replacement sediment once it has displaced valuable ores to the surface—to make volumes it has emptied full.

In a further innovation, Antam security has recently applied the logic of “cut-and-fill” mining directly to the policing of small-scale mining holes. Just as filling slurry can be used to replace volume in industrial mining “stopes,” it can be used to occupy the illicitly emptied volumes of informal mining tunnels. This has allowed the company’s project of “closing” small-scale miner holes to expand beyond the surface, giving it a new volumetric reach. Like smoke, the fluid slurry can traverse tortuous and unknowable underground passageways in a manner impossible with human security patrols. Once hardened, it has the added benefit of solidly filling the nooks and crannies of tunnel branches, wherever they may lead. Antam’s security team are

⁶³ It seems this can be caused by encounters with naturally occurring gases or from poor ventilated exhaust from underground equipment or fires.

proud of this technique. During an interview, one senior security official gleefully outlined the implementation of this recent endeavor. Pipes, channeling 120 liters of slurry per hour, were being laid throughout the concession. He estimated their teams were already filling one hole per day. To Antam officials, this is a marriage of modern underground mining technologies, key security priorities, and sustainable tailings management. But, in reality, backfill is not a perfect solution. It is a poor substitute for the actual underground. Gurandil are used to tunneling through bedrock and, while an impediment, solidified backfill is nowhere near as hard. Informal miners report that they can relatively quickly excavate paths through the material if they are determined to re-enter a tunnel, be it industrial or informal.

6. Underground Knowledges and Secrets

Mining is not simply about accessing, navigating, and excavating the underground, but also particular ways of knowing, experiencing, and representing it. Braun (2000), for example, describes how 19th century innovations in geological science made the underground legible and thereafter shaped the institutions that made it state territory as well as the forms of governmentality that facilitated extraction. This fact is just as true for small-scale mining as it is for industrial mining. Territorial claims and territorializing practices emanating from both types of mining rest on modes of perceiving the subterranean. Contrasting knowledges become sources of conflict, while other knowledges—secrets sought after by both small-scale miners and Antam—are sites of conflict.

My research, tacking back and forth between conversations with corporate and informal miners, revealed both surprising similarities and remarkable differences in these groups' understandings of the underground. For example, both Antam employees and small-scale miners use the same names to refer to particular "*blok*," or terrestrial zones of the concession. *Blok* names do more than simply identify particular places. They carry information about different mining conditions. Small-scale and corporate miners typically have the same impression of a particular *blok*, understanding the quality of the gold ore present in that area, the type of sediment, and the condition of the terrain. Tunnel or hole names, in contrast, are much more diverse. Antam names its tunnel openings after technical details—primarily, a number corresponding to its height above sea level, as in "Level 600" or "Level 700." In contrast, small-scale miner hole names record circumstance, history, or ownership. Often their holes will be named after the small-scale mining boss who originally constructed the tunnel, even if the hole has changed ownership several times since.

Even stronger contrasts can be found in the ways that Antam and small-scale miners locate and pursue gold ores. The company relies on technical geological knowledge, methodical sampling conducted mostly in advance, and mineral engineering expertise. As described above (section 5), Antam's operations visualize Pongkor's ore as a vast, three-dimensional network of underground veins. Geological maps and models of various kinds depict these veins as an interconnected system, united both physically and by their common geological origin. Local gold ore is thus all one thing—an "ore body" or "the Pongkor deposit"—to be managed and extracted by Antam. The actual mining is largely implementation. Tunneling is mapped out in advance by geologists at desks, while technicians underground carry out these plans. These underground operations work in coordination on multiple rotating "fronts." On one day, a particular front will be drilled with bore holes and loaded with explosives, while at another front ore previously blasted will be excavated. Heavy machinery will collect all the ore—rich veins and surrounding

rock—for processing at the mill. These processes are repeated, methodically and according to plan, to excavate all portions of the “ore body” deemed profitable.

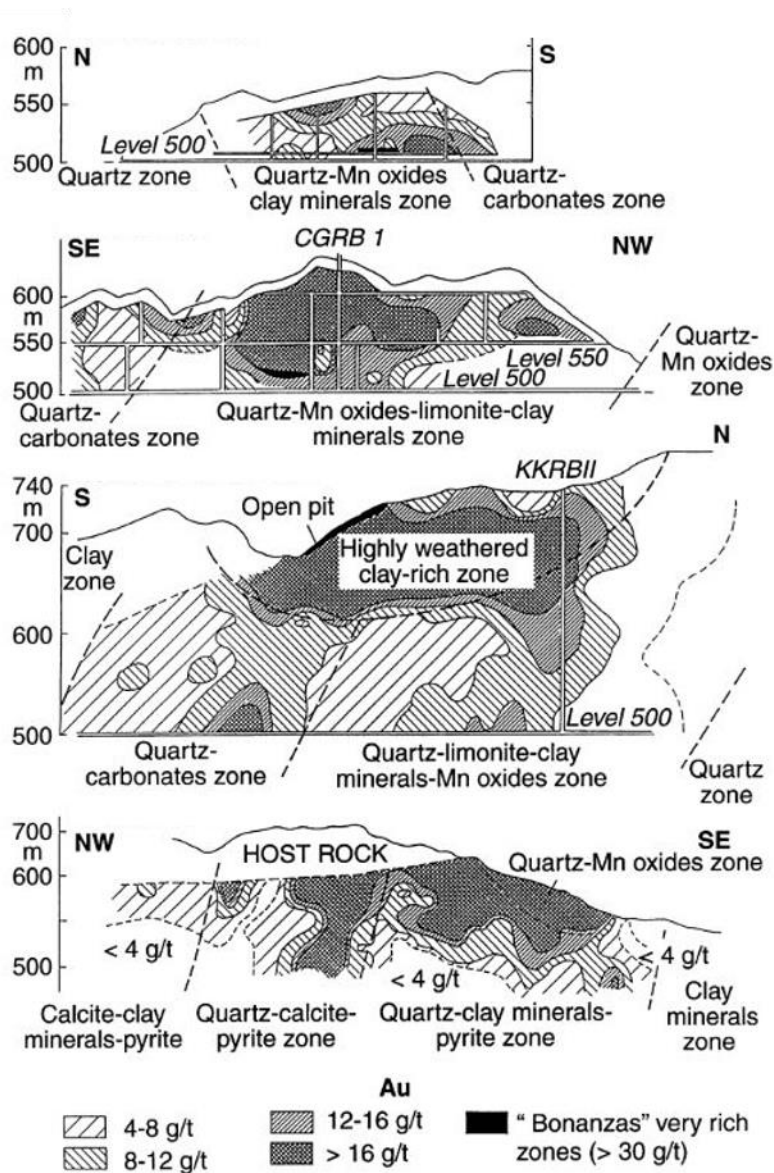


Figure 19: A geological rendering of Pongkor’s underground. Images of this type are used by Antam to envision the Pongkor “ore body” and map a tunnel route to extract it. The shaded areas indicate zones with gold content in and the straight lines are industrial mining tunnels (adapted from Milési et al., 1999).

Small-scale miners, of course, operate quite differently. Though some have access to technical geological knowledge, most informal miners select tunnel locations primarily through practical experience and guesswork. Almost all miners I interviewed used the loanword “feeling” when asked how they decide where to mine; “I just use feeling.”⁶⁴ Left unsaid is the significant amount of background information that contributes to this “feeling.” For example, small-scale

⁶⁴ The word “feeling” is usually said with a distinctive Sundanese pronunciation, “peeling.”

miners have an understanding of the different types of rocks and excavation conditions in Pongkor's various *blok*, often differentiating areas based on these characteristics. Once a tunnel opening has been constructed, miners will continuously assess the quality of the rock encountered as digging proceeds. This process is dynamic and unpredictable. A miner will crouch, hammer and chisel in hand, at the leading end of a tunnel that often extends hundreds of meters underground. Using only a small headlamp to see, the miner will choose which veins to pursue based on appearance—particularly, looking at the color and concentration of darker pigments in quartz veins. Periodically, miners may more directly assess the gold content of these veins through a crude survey method conducted inside the tunnel. They will crush removed ore and swirl it in a small dish with water, hoping to catch the glint of gold somewhere at the pan's edge.

Other methods are less experimental. Unlike many small-scale mining locations, including some nearby in Indonesia (Peluso, 2018; Soemarwoto & Ellen, 2010), spirituality is not an overt feature of gold mining in Pongkor. Most miners told me that Islam (the dominant religion in Pongkor) condemns engagement with magic or spirits and, publicly at least, most participants seem to heed this direction. However, others suggested that many gold seekers secretly appeal to extra-physical forces to boost their luck. Miners, especially those with extra funds, will visit persons known to possess mystical “knowledge” (“*ilmu*” or sometimes “*ilmu hitam*,” black knowledge) to request assistance in finding rich veins. Sometimes this will take the form of explicit tunneling instructions, “Dig to the right, you will find red earth. One meter beyond that will be rich ore.” More commonly, miners will be prescribed offerings to bring to the mouth of the tunnel—from expensive incense to simple black coffee—to appease spirits. These spirits, typically but not always conceived of as the “jinn” of Islamic mythology, are sometimes framed as “managing” or “caring for” (*urus*) the gold veins within the earth. Small-scale miners thus use both practical and spiritual knowledge to follow individual veins, often resulting in meandering tunnels whose course no one can predict. Whereas Antam's operations conceptualize Pongkor's gold as an interconnected “ore body” pursued through extensive geological mapping, small-scale miners understand the deposits as much more fractured and unstable, a treasure to be hunted down in real time.

Other types of knowledge are not a source of disagreement, but enrolled as tools in the enactment and contestation of underground territory. In these cases, control of the subterranean is also about the control of privileged information and, often, the circulation of secrets, open or otherwise (see also Peluso, 2018). Some of this information regards gold itself. As described above, Antam possesses advanced, and continually evolving, geological knowledge about the location and quality of underground ore deposits. Though proprietary, this technical knowledge can and has leaked to informal miners. It is evident that some *gurandil* know the precise locations of ore being mined by Antam. For example, some “rat holes” are constructed for the sole purpose of intersecting company tunnels, while other miners have used industrial ventilation shafts to gain access to the underground (e.g., PT Aneka Tambang, 2013).

It is also not uncommon to meet previous Antam employees who now put their knowledge to use in small-scale mining. One miner I met, Mang Encep, worked in Antam's exploration unit, drilling bore holes at the surface in search of new gold veins, for four years before quitting in 2009. He told me, “Antam is bad place to work, but it's a good place to get an education. They taught us everything about mining, from zero. The problem is they don't pay much. They were disrespectful to us workers.” Since finishing at Antam, Mang Encep has found relative success in small-scale mining. He is still in touch with workers at Antam, some of

whom, he said, “sell information” to informal miners. Though he insists he has never done so himself, the education he received at Antam and his knowledge of the concession have no doubt been useful in building his own gold mining enterprise over the past decade.

Both Antam and small-scale miners also pursue information about the others’ activities. This is spoken about rather openly, and often in directly confrontational military terms—small-scale miners do “recon” to avoid security, while Antam collects “intel” to intercept planned informal mining activities. One surprising example of this came when an Antam security official turned these “intel” operations on me. He revealed, mid conversation, that he knew I “hung out” with local informal mining bosses and suggested that I should not get too cozy with them. Apparently, a mining financier I had interviewed had posted photos of me on Facebook. Antam’s security leaders are quite proud of their “intel” operations and suggested to me that this has been key to recent successes in reducing the number of small-scale mining activities. In addition to uniformed personnel collecting data, they rely on a network of informants based in local villages and even outright spies. One senior official joyfully shared a story about having a spy infiltrate a small-scale mining area by pretending to be a travelling vendor, selling snacks and coffee to unsuspecting miners as he collected information. The company also intentionally recruits ex-informal miners as security field assistants, knowing they will bring small-scale miner secrets and practical knowledge with them. Via these various methods, Antam secures information about new mining holes, about financing bosses and their partners, and even about internal leaks and corruption.

But, small-scale miners, too, collect intelligence. In addition to securing geological details about the location of rich gold veins, ambitious informal miners may try to get insider information about activities in Antam’s tunnels. The most daring endeavors—rare attempts to collect valuable ore blasted by Antam workers, such as the 2015 incident in which miners were caught wearing Antam uniforms—necessarily involve this insider information and typically some amount of insider cooperation. More mundane “intel” is pervasive and a key part of everyday informal mining life. Small-scale miners know the typical routes and time schedules of Antam’s concession security patrols, allowing them to avoid potentially risky encounters. These details are “open secrets” in Pongkor. In cases where security deviates from the schedule, some advanced warning is often relayed via text message. The withholding, sharing, and collecting of information also happens between small-scale mining groups. Especially productive mining holes, for example, are kept secret for as long as possible to avoid the arrival of rent seekers or insistent want-to-be partners. In such cases, another quirk emerges. “Intel” collected by Antam about one informal mining group—for example, that a new productive tunnel has been opened—can make its way to a competing group, which then attempts to join in the profits.

7. A Subterranean Game of Cat and Mouse

Residents of Pongkor often refer to the dynamic between Antam and small-scale miners as a “*permainan kucing dan tikus*,” a game of cat and mouse.⁶⁵ This is an analytically compelling comparison. Like a cat and mouse in a home, Antam and small-scale miners often operate in the same general field, the concession, but the smaller counterpart often has a “mouse hole” they can escape too. Most small-scale miners live off the “crumbs” of marginal veins, but a daring few

⁶⁵ References to the cat and mouse game are abundant in Pongkor, particularly with gurandil framed as mice or rats. This game is also referred to as “*kucing-kucingan*” (to play cat-and-mouse), miners sneaking about are “*nikus*” (mouse-ing), and some miners tunnels are called “*lobang tikus*” (mouse hole).

attempt to collect directly from the source of Antam's own profits, causing the company even more distress. In response, Antam insists it must defend the state's "vital national asset." It works to exclude small-scale miners by controlling portals to the subsurface, managing underground volumes, and securing forms of geological knowledge. But, try as the "cat" might to banish the "mice," small-scale miners bring their own ingenuity, sometimes using the "specific qualities" of the underground to their advantage. In doing so, they have enacted their own counter-territorial claims to Pongkor's subterranean.

This ongoing game of cat and mouse empirically demonstrates the incompleteness of subterranean state territory. While multiple scholars have analyzed the production of underground territory (Braun, 2000; Bridge, 2007; Frederiksen, 2013; Himley, 2019; Marston, 2019; Scott, 2015), the case of Pongkor illustrates how this is only the beginning of the story. It highlights that underground territory, too, as Vandergeest and Peluso (1995) point out for forest territories, are often unstable and always incomplete. Thus, scholarship on mining and the underground must pay more attention to territorialization as an ongoing process. Even after cataloguing and permitting underground resources, states and firms must work to enact, maintain, and reproduce subterranean territory through time.

Research on conflicts between small- and large-scale mining has pointed to some of this work, describing incursions and expulsions of unlicensed miners in industrial mining zones (Bainton et al., 2020; Hilson & Yakovleva, 2007; Kemp & Owen, 2019; Okoh, 2014; Patel, Rogan, Cuba, & Bebbington, 2016). Similarly, Antam attempts to reproduce its territorial authority by securing the boundaries of its mining concession. However, policing this terrestrial space is only the most superficial way the company tries to consolidate its control. Antam also must be attentive to the particular points of entry to the underground—its own industrial tunnels, ventilation shafts, and mine carts, as well as the thousands of small, easily concealed "rat holes" that small-scale miners have built to penetrate the earth. Controlling these portals, either by policing or closing them, is vital to excluding others from the underground. In other words, Antam uses "vertical reciprocity" (Adey, 2015) to its advantage, policing surface-subsurface relations in a discrete point-by-point, hole-by-hole fashion.

If Antam fails to manage surface-subsurface relations, it must contend with a new set of territorial obstacles—the "specific qualities" of the underground. Braun (2000) deployed this Foucauldian phrase to show new geological knowledges and discourses were instrumental to the production of "vertical territory" in late 19th century Canada. As the "specific [geological] qualities" of the subterranean became legible in new ways, the settler colonial government enacted policies that cultivated new political rationalities predicated on "seeing 'geologically'" (Braun, 2000, p. 38). The territorial competition between Antam and small-scale miners is shaped by this and other material and representational characteristics of the underground. First is simply the hardness of the earth. Accessing the underground is a difficult, dangerous, and sometimes highly technical affair. Perhaps this has made it seem inevitable that subterranean spaces would be controlled by powerful state governments and permitted professional mining companies. But, small-scale miners, in Pongkor and elsewhere, show that the material obstacles of the underground are no immense deterrent against counter-territorial projects (e.g., Peluso, 2018; Verbrugge, 2014).

In fact, *gurandil* often use the "specific qualities" of the subsurface to their advantage. One such quality is the experiential distinctiveness of the above and below ground, enabling Bridge's "selective engagement" between the two realms (2013). Simply put, Antam officials cannot easily know what is happening under the earth. The subterranean lends itself to

invisibility (Colven, 2020) and, unlike aboveground vertical territories (Goldstein, 2019), the company cannot effectively surveil the state's underground territory. Unlicensed tunnels can twist and turn, lead to or from anywhere, and contain anything or anyone. There is no way of knowing without being inside them. To small-scale miners, this uncertainty is a form of cover. It enables them not only to hide and flee, but to have discreet, unfettered access to rich areas of ore, like Antam's former tunnels.

The unknowability of underground tunnels has also shaped Antam's response. They do not try to know what is in unlicensed tunnels—instead, they try to fill them. Rather than policing the bodies of small-scale miners, they attempt to manage underground volumes by making “empty” space “full.” Bridge points out that resource extraction is a volumetric endeavor, with resource flows displacing material from the underground to the terrestrial world (Bridge, 2013). Antam's “backfilling” activities illustrate how managing volume is also used to exclude unwanted visitors from underground territories. Managing volumes in this way, including the ominous potential to restrict volumes of oxygen, is unlike any “specific quality” common to surface resource territories.

As with Braun's late Victorian Canada, the features of Pongkor's underground are socially mediated. How the subterranean is represented matters in territorial and counter-territorial projects. Antam depicts, in both geological renderings and rhetoric, Pongkor's gold veins as a singular, interconnected “ore body.” These deposits are to be worked systemically, pursuing all profitable ores with successive layers of excavation. Like professional forestry and political forests (Peluso & Vandergeest, 2001; Vandergeest & Peluso, 2006), this scientific representation bolsters their territorial claims. When Pongkor's gold is envisioned this way, only a capital- and technology-intensive industrial mining firm is capable of doing the job. Gurandil conceptualize gold differently. Veins may be interconnected, but, in the darkness of narrow underground tunnels, they are experienced discretely. Claiming one vein does not mean claiming them all. Moreover, encountering veins is haphazard, not planned. Miners use their feelings, appease spirits, and depend on a healthy dose of luck. In this representation, gold is not sitting there waiting for a mining permit holder to come and get it. Rather, it is actively found in relation between miner, mountain, and gold's spirit keepers. This dynamic perception of gold contradicts the notion that it could be owned by anyone, let alone the Indonesian state. Finally, Antam attempts to avoid the material challenges of managing underground territory by collecting information about unlicensed mining activities through a network of spies and informants. But small-scale miners collect their own intelligence, sourcing both secret geological data from the company and information about its policing activities.

This chapter described the multiple and varied ways that Pongkor's game of cat and mouse plays out, above and below ground. Pongkor's underground is clearly designated as state territory, to be managed by the state-owned company, Antam. Despite this, small-scale miners have undertaken their own counter-territorial projects for more than twenty-five years, articulating the claim that local people should have access to local resources. Both state territorialization and local counter-territorialization are, therefore, interrelated, ongoing processes. Each must contend with the particular features of the underground, which shape this resource conflict in ways distinct from terrestrial territories. They open, close, and conceal new portals to the subsurface, compete over subterranean volumes of gold, rock, and air, and deploy different ways of knowing the underground. This game of cat and mouse demonstrates how territory, even territory composed of solid rock, is always unstable and incomplete.

CHAPTER FOUR: CONTRADICTION TIES AND EVERYDAY ENTANGLEMENT

1. Introduction

In this chapter, I go beyond the surface of Pongkor's resource conflicts, demonstrating that distinctions between Antam and small-scale miners are often more ambiguous than they first appear. Debates over mining benefits, underground territory, and gold itself animate life and politics in Pongkor. Most rhetoric and action from both Antam and small-scale miners suggest they are binary forces engaged in intractable conflict over local minerals. Both "sides" deploy simplified discourses that vilify the other and champion themselves. Most of all, Antam officials insist that the company, as a legal mining operation, is absolutely distinct from the illegal activities of gurandil. However, below the surface are less visible processes and relations that bind these mining activities together, contradicting the broader conflict. Interpersonal networks span across the blurry boundary between Antam and gurandil, and labor, information, and money continually cross it. The narrative of distinctiveness projected by Antam, and reinforced by broader dichotomous policy and media discourses about mining, is ultimately an illusion. I argue that all mining in Pongkor—though differing in scale, organization, legality, and power—is constituted by these contradictory ties and everyday forms of entanglement.

I begin by examining narratives of legal and illegal mining produced by Antam and allied state actors. These insist on a dualistic view of mining where industrial and small-scale mining are distinct, entirely separate realms. I then compare this perspective to scholarly interpretations of mining that have reinforced or sought to transcend dichotomous understandings of small- and large-scale mining. An emerging trend in this literature is a focus on the "interface" between these mining operations (e.g., Bainton et al., 2020; Kemp & Owen, 2019). I offer a slightly different approach: I argue that understanding conflict between small- and large-scale mining requires looking not only at ways that they interact, but also at the ways they are co-constituted from the bottom up. In other words, I encourage a shift from looking at interactions to internal relations.

To make this argument, I outline three types of connections between Antam and gurandil. First, I describe how familial ties crisscross the blurry boundary between industrial and small-scale mining. Next, I describe the porosity of this boundary. Laborers move between these extractive operations, with individuals employed as corporate mine security guards one year and informal tunnel diggers the next. Information and money, too, move back and forth between these supposedly separate realms. Finally, subtle and ongoing negotiations between gurandil, corporate officials, local elites, and even miners' mothers and wives illustrate that Pongkor's competing mining groups are in dialogue and influence each other. These micro and mundane interrelations—what I call "everyday entanglement"—believe clear distinctions between large- and small-scale mining and complicate narratives of resource conflict. Moreover, they highlight that large- and small-scale mining, though different in organization, legality, and power, are interrelated in fundamental ways.

2. Antam's Binary Vision

Bu Dian welcomed me into her office and invited me to sit down on a sofa. It was my first day visiting Antam's offices and she wanted to discuss my request to conduct interviews at the company. She held a packet of documents I had sent electronically in support of my request, including a letter outlining my plans for interviewing Antam staff, a request for any information they might have on small-scale mining in Pongkor, and copies of my Indonesian research permit paperwork. Friendly but clearly cautious about my intentions, Bu Dian leafed through the documents while probing my understanding of small-scale mining. Almost immediately, her tone was defensive. Her first comment was a declaration of Antam's historical primacy. The company had begun mining in Pongkor first, she instructed. Small-scale mining had only appeared in the area afterwards, and therefore had no legitimate claim to gold on the concession. More broadly, she wanted to ensure that I was in here to do "objective" research—that is, in her interpretation, to do research that foregrounds Pongkor's small-scale mining as an illegal activity and not to advocate for its legalization.

Some of Bu Dian's anxiety about me derived from the terminology I used to describe small-scale mining in my research proposal. She took issue with my use of the acronym PESK, *pertambangan skala kecil* (small-scale mining), rather than the more common acronym in Indonesia, PETI, *pertambangan tanpa izin* (mining without permits).⁶⁶ The term PESK has gained acceptance (if not widespread use) in Indonesian government and NGO rhetoric over the past decade, reflecting the fact that not all small-scale mining in the country is illegal.⁶⁷ Despite this, Bu Dian said that she had never heard the acronym before. She declared that, though various terms have been invented to discuss small-scale mining,⁶⁸ the appropriate term to use was PETI. It was important to be explicit that these activities were illegal. It seemed that, to her, illegality was a fundamental characteristic of small-scale mining, rather than a relationship to the state. She admitted that the Indonesian government was moving forward with plans to permit some small-scale mining (in the form of WPR and IPR), but made clear that she did not support this endeavor and even suggested that its advocates were acting on behalf of criminal interests.

Throughout our conversation, Bu Dian's repetition of several phrases outlined a broader vocabulary "appropriate" for discussing small-scale mining. "PETI" was frequently framed as a "problem" (*masalah*) that had to be "overcome" (*diatasi*). Its participants were not "miners" (*penambang* or *gurandil*), but "perpetrators of unpermitted mining" (*pelaku PETI*) driven by greed. When I commented that many small-scale miners I met said they collected gold because they "have no other choice" (*tidak ada pilihan lain*), Bu Dian and a colleague responded with a joke. Laughing, they revised this commonly heard refrain, saying the miners must have meant "have no other choice but to be tempted" (*tidak ada pilihan lain menggiurkan*).

This conversation with Bu Dian was the first of many I had with Antam staff that made a key argument: that Antam's mining activities and those pursued by Pongkor's small-scale miners are polar opposites; one is legal, one is not, and they have nothing in common. Antam's mining is framed as positive. It is legal, supports national interests, promotes local economic

⁶⁶ I had intentionally used the term PESK because it does not assume *a priori* that all small-scale mining is, or will always be, illegal.

⁶⁷ Although there are almost no fully legal small-scale gold mining sites in Indonesia, small-scale mining permits (IPR and WPR) have been allocated for other mining products, such as precious stones or manganese.

⁶⁸ Others include *pertambangan liar* (wild mining), *pertambangan ilegal* (illegal mining), and *pertambangan rakyat* (community mining).

development, generates corporate social responsibility benefits, and follows international mining “best practices.” Small-scale mining, in contrast, is depicted as illegal, immoral, dangerous, and environmentally damaging. Furthermore, these conversations framed Antam’s mining staff and small-scale miners—the people themselves, not just the activities—as fundamentally different. Whereas Antam employees are the bringers of modernity, development, and order, small-scale miners are greedy thieves so impatient for money that they are willing to destroy their community to get it. One Antam security officer even refused to acknowledge the presence of small-scale mining in Pongkor. He told me the only miners in Pongkor were Antam—anyone else on the concession should not be referred to as a miner, but rather as a trespasser, a thief.

These framings work to produce and reproduce an image of Pongkor in which Antam and small-scale mining are separate and distinct. This chapter shows that this image is an illusion. The dichotomy that supposedly divides Antam and small-scale miners is undermined by interpersonal connections that tie them together; by flows of labor, information, and money between the two; and by continual processes of negotiation. These commonplace, micro interrelations—constitutive elements of all mining in Pongkor—make it impossible to cleanly separate Antam and gurandil.

3. Framing Small- and Large-Scale Mining

The image of Pongkor projected by Antam staff—where industrial mining is the only viable option for gold extraction, and all other mining activities are illegal, distinct, and beyond comparison—is situated in a broader history of dichotomous discourses used to distinguish small-scale, informal, or otherwise unrecognized economic activities from those with state-approval.

The bluntest of these binaries, between legal and illegal, is frequently deployed to describe small-scale mining in Indonesia and is a key component of Antam’s rhetoric about gurandil in Pongkor. As has been observed in examination of other “licit” and “illicit” activities (E. Aspinall & van Klinken, 2011; Nordstrom, 2007; Van Schendel & Abraham, 2006), the framing of legality often says very little about the actual activity. It foregrounds one feature—acceptance by the state—above all others, even where that feature may have very little bearing on the actual practices, broader social acceptance, or experiences of the activity in question. The same is frequently true with small-scale mining. Kuntala Lahiri-Dutt (2004) describes how the “politics of definition” have animated global conversations on small-scale mining, with “small-scale,” “artisanal,” “illegal,” and “informal” all used as adjectives to characterize, and emphasize particular aspects of, non-industrial mining. Lahiri-Dutt points out that “illegal” is a particularly unhelpful qualifier, emphasizing that “the illegality of the informal enterprises is the result of regulatory system itself” (p. 127), with poor policies making illegality inevitable for many small-scale mining activities. Spiegel (2012) concurs, pointing out that the word “illegality” predominates in Indonesian government rhetoric on small-scale mining, but that the inaccessibility of small-scale mining permits has, in part, perpetuated unlicensed mining in the country. Instead of “illegal mining,” Lahiri-Dutt (2004) advocates for the use of the term “informal mining,” which she describes as many mining activities, both with and without state-approval, that are labor intensive and poorly documented.

However, the binary of formal and informal mining has its own problems. These terms are widespread in current conversations on small-scale mining, including in this dissertation, and are recognized as an important corrective to state-centric legal framing. Despite this,

characterizations of informality are plagued by a history of dualistic thinking in development discourse. Like earlier conceptualizations of “modern” versus “traditional” sectors of the economy (Boeke, 1942; Lewis, 1954), examinations of the informal sector, a term credited to Keith Hart (1973), have often posited the existence of two distinct economic realms (Sethuraman, 1976). Many influential analysts, similarly to modernization theorists before them, approach this topic from the perspective that the informal sector is a temporary phenomenon associated with underdevelopment. They suggest that governments should work to incorporate informal activities into the formal, “modern” economy (e.g., de Soto, 1989).

Other scholars have noted contradictions in these developmentalist perspectives, citing the widespread existence of informal economic activities in even the wealthiest countries and suggesting that contemporary informal economic activities may be a product of late capitalism, rather than an aberration from it (Castells & Portes, 1989; Sassen, 1994). Early and current critiques of the concept of informality argue that any strict bifurcation into formal and informal sectors conceals the fact that all economic activities are situated in the same, always already interconnected political-economic context (Breman, 1976; Chen, 2012; Moser, 1978). Today, many critical scholars agree on the need for development discourse to move beyond the constructed opposites of formal and informal as organizing categories (Guha-Khasnobis et al., 2006). Therefore, while formal and informal mining are convenient terms, they should serve as only a contingent heuristic rather than an ontological frame.

A subset of the literature on mining has recently developed an alternative vocabulary for describing the relationships between small-scale and large-scale mining activities. Rather than comparing mining activities in the abstract with dualistic categories like legality or formality, these analyses emphasize what has been called the “interface” between small- and large-scale mining (Kemp & Owen, 2019) by examining the cases where both activities co-exist in close proximity (as in Pongkor). These studies reveal myriad potential relationships between these operations, including conflict, cohabitation, and even cooperation. Much of this scholarship describes how competition over mineral deposits has led to antagonism between these groups (Cuvelier, 2019; Hilson et al., 2020; Jønsson & Fold, 2011; Klein, 2020). These conflicts sometimes erupt into the violent eviction of small-scale miners or fevered protests on the part of those displaced (Geenen, 2014; Hilson & Yakovleva, 2007; Okoh, 2014). Other contexts demonstrate that peaceful cohabitation is (at least temporarily) possible, often with small-scale miners permitted by companies to access ores of lower value (Aubynn, 2009; Luning & Pijpers, 2017; Smith, Smith, John, & Teschner, 2017). Finally, some cases suggest that active, cooperative partnerships between small- and large-scale mining might be possible, especially in cases where gold ore collected by small-scale miners is sold to larger operations for processing (Bansah et al., 2018; Veiga & Fadina, 2020).

The scholarship on mining “interfaces” highlights the failures of dichotomous discourses on small- and large-scale mining. Many of the cases studied demonstrate that different scales of mining interact and influence each other—they are simply not separate sectors that can be treated as independent or unrelated. As Bainton and Owen (2019) argue, “the complexity of mining arenas demands a conceptual approach that can account for a plurality of perspectives and a multiplicity of interfaces and arenas, actors and interests: a basic binary dialectic is simply not fit for the task” (p. 769). With this chapter, I contend that scholars can go even further to interrogate constructed boundaries in mining. Rather than understanding large- and small-scale mining operations as different groups or entities that interact or “interface,” I analyze the interrelations that mutually constitute them, showing how they are tied together at a fundamental level.

A final reflection on gold attempts to transcend the binary of small- and large-scale mining by taking a global view on gold production. Geenen and Verbrugge (2020) argue, in a style reminiscent of earlier critiques of the dualism between formal and informal, that the international gold industry must be studied as a whole. Examining the worldwide historical trajectory of gold mining and drawing on contributed case studies from the expanding list of countries that produce the precious mineral, the editors highlight a trend of increasing “informalization” in both large- and small-scale operations. In short, more and more gold is sourced from marginal production sites by marginalized labor. They contend that this process of informalization is a response to broad structural constraints within the industry, including the depletion of easily accessible ore reserves and the increasing cost of maintaining legally compliant and socially acceptable industrial mining. Geenen and Verbrugge, therefore, go beyond the approaches described above by tying contemporary small- and large-scale gold mining together and showing how they are simply different manifestations of the same underlying political-economic forces.

This chapter builds on the aforementioned scholarship, offering an even more radical approach for understanding the interconnections between small- and large-scale mining. I argue that these activities are not just a set of formal and informal economies informed by the same political-economic context, not merely two parties interacting at an “interface,” nor simply products of the same global production network. Instead, in the sections below, I demonstrate the entanglement of small- and large-scale mining at a fine scale. Rather than looking at violent conflicts, legal settlements, or formal mine-community interactions, I look at everyday relationships between Antam and small-scale miners. Far from being binary, the mining activities in Pongkor often seem to be constituted by their interrelation. Segments of their operations may even be composed of the very same people, money, and decision-making processes. Thus, despite what Bu Dian and other company staff project, I argue there can be no absolute distinction between Antam and Pongkor’s gurandil. In what follows, I empirically examine the intimate, local-level ways that their mining activities inform each other, the micro and mundane interrelations that tie them together from the bottom up—what I call their “everyday entanglement.”

4. Intimate Ties

The blurry boundary between Antam and small-scale miners is embedded in the composition of Pongkor’s families and neighborhoods. Although work at Antam is relatively scarce, many households contain someone who has worked for the company in some capacity, at some point. The same is true of small-scale mining. Nearly everyone in Pongkor has a connection to informal gold collection, ore processing, or supporting industries. And, sometimes, Antam employees and small-scale mining participants may live under the same roof or share regular family meals. These intimate ties between Antam employees and gurandil lay an interpersonal foundation for their everyday entanglement, making an absolute distinction between the two nearly impossible.

The example of Mang Agus’s family illustrates the myriad interpersonal connections between Antam and small-scale miners. Agus’s extended family were among my earliest and closest interlocutors in Pongkor. I came to consider the group, organized around four adult brothers, as one of my deepest windows into the everyday world of gurandil. Each of the brothers was involved in informal gold mining (sometimes in different ways, including

tunneling, processing, and gold buying) and their families shared with me everything from the basic steps of gold production to the emotional toll of mining's economic uncertainty and physical danger. They became, in a sense, my idea of prototypical small-scale miners—and ones who often complained about the ways Antam impeded their livelihoods. But, even as these impressions were taking shape, I learned that Agus's family were not so distant from the company.

This realization came forcefully to me one day when asking about the police raid on Kampung Ciemas, "Operation Humanity." The 2015 raid, in which over two thousand police and security officers descended on the village to rid it of small-scale mining activities, was a turning point for the Pongkor community. It was the most recent of several historical moments in which Antam and local governments dramatically tightened law enforcement against informal mining (see Chapter One). But more than that, it was an emotional touchstone for local people that demonstrated the extent of Antam's potential for violence and lack of compassion. Popular recollections of the event always include violent imagery of structures in Ciemas being burned to the ground. Knowing I was interested in hearing more about this event, Mang Agus suggested that we could learn more from his father-in-law, Kang Udin, who had witnessed the entire raid firsthand.

Several weeks later, Agus accompanied me to his father in law's home, where we caught Udin just about to head outside to work on his gold processing equipment. His *gelundung* had rotated for approximately six hours and it was time to wash out the steel barrels and collect the mercury-gold amalgam they had produced. We chatted casually as Udin went about this work before heading inside his home for a more deliberate conversation about his experiences as a miner and during the raid at Ciemas.

Shortly into our conversation about "Operation Humanity," I became disoriented. Kang Udin was explaining how he was emotionally distressed during the raid. He said that he and many of his friends cried as they watched the buildings burn, but that they had no choice but to do their jobs. Do their jobs? I suddenly became aware of my own confusion. Rather than being caught at Ciemas as a gurandil, as I had assumed, Mang Agus's father-in-law was there as an Antam employee. The man whose son-in-law was my prototypical gurandil, and who had himself been processing gold in front of me moments earlier, had also been part of the corporate security force that had torched thousands of buildings deemed illegal in Ciemas. I learned, through this and subsequent conversations, that Udin had in fact worked as a security officer for Antam for some 15 years. Even before then, he was involved in gold. Born and raised in the Pongkor area, Udin had moved to Aceh in the early 1990s where he worked part time in informal gold mining. Returning home to Pongkor during *Krismon*, he was surprised to find the region had turned into an even bigger mining hotspot. He joined this work, buying, selling, and processing gold, before the activities became violent and unstable in the late 1990s (see Chapter One). Without work, Udin applied to join Antam and, in 2001, was hired as a security guard, working to patrol the concession and arrest gurandil like his son-in-law.

When I asked him about this potential conflict of interest, Kang Udin offered a response that refuted Bu Dian's characterization of mining in Pongkor. Although he was charged with policing gurandil, they were not "illegal miners" to him, but "brothers" (*saudara*) who should be treated with respect. Because of this, there was never any trouble with friends he encountered on the mountain. He admitted that company policy was hardline—that "all gurandil must be stopped"—but his personal philosophy was that enforcement should depend on context. Gurandil caught outside of Antam's closely guarded "red zone" areas could merely be given a warning,

rather than prosecuted. Udin expressed that “we must keep a balance between the well-being of the company and the well-being of the people.” When it came to the raid on Ciemas, however, things were more black and white. The top-down, highly coordinated initiative to “clear” the village of small-scale mining activities left no room for Udin’s personal discretion. Ultimately, the raid would be part of the final chapter in his work with Antam. Several months later, in 2016, Udin and many other security guards were let go, without severance or other benefits, by the company.⁶⁹ Since being laid off, he has returned to small-scale mining work, regularly visiting the mountain in Pongkor and even joining an expedition to mine in Kalimantan in 2017.

Kang Udin is not the only one of Mang Agus’s family members to have worked with Antam. In fact, some have had even more enduring careers with the company. One of Agus’s uncles, for example, is a longtime member of Antam’s security force. The uncle shared some of his story with me, describing that he started work with Antam in the late 1980s when the company was just beginning construction on its mining installations. After a short break, he returned to join its more formal security forces in the mid-1990s, after ore production had begun, and he has worked there ever since. His position is more senior than Udin’s was, and his professional attitude and way of speaking about the company reflect this. Nevertheless, he shared Udin’s equivocation about Antam’s hardline policy towards small-scale miners. He stressed that his work is emotionally taxing and, though he will carry out his work as necessary, he often “takes pity” on those he finds trespassing on the mountain. This perspective makes sense—Agus’s uncle is deeply embedded in the local community. In addition to his work with Antam, he has served in the neighborhood leadership structure for decades and is considered an honest and respected voice for the community. These positions, perhaps, also meant that he was a bit reserved, concealing some details of his story. Agus later told me some of what was left unsaid: that even his uncle has previously worked as *gurandil* and, as described further below, in some cases still cooperates with them.

Others in Mang Agus’s circle have not been as fortunate as his father-in-law or uncle. While many people in Pongkor have worked with Antam, these positions have often been poorly compensated and temporary. Agus’s older brother provides a good example. He worked with Antam for a brief period in the late 1980s, digging trenches as part of the company’s early construction activities. However, this labor-intensive and poorly paid work was seen as undesirable (even then), and he quickly left the position as small-scale mining ramped up in the late 80s and early 90s. After times got tougher for *gurandil* in the 2000s, the older brother sought work with Antam again. However, having only an elementary school education and little professional experience, he has not yet had any luck. Instead, he has pinned his hopes on his son, also Agus’s nephew. This nephew, the oldest in his generation, has advanced through most of high school and is desperate to get work with Antam. He has seen his father, uncles, and friends toil in small-scale mining and has no interest in this dangerous work. To his great disappointment, all of his applications to work at the company have thus far have been rejected. Others in Agus’s family told me that the young man was asked to pay a five-million-rupiah bribe to have his application accepted. His father summed up, the only work in Pongkor is “on the mountain,” with or without Antam, so, for now at least, the livelihoods of both are in small-scale mining.

Stories like those from Mang Agus’s family can be found throughout Pongkor. Many people have, at some point and in some capacity, been on Antam’s payroll. Some have current

⁶⁹ As described in Chapter Two, employment with Antam has become increasingly insecure over the past decade. I frequently heard about workers being laid off or having their temporary employment contracts expire.

work with the company, though many more seek it. Agus and his three brothers all participate in small-scale mining, but they have direct familial connections to the company. In other households, the relationship can be even more direct. One example is two brothers with whom I shared coffee late one evening. The year prior, one of the young men was working in Antam's accounting office while the other was a gurandil. The year following, they switched positions—the accountant was a gurandil and the former miner was a security guard. To anyone familiar with the Pongkor area, such intimate ties are unsurprising. The community is close-knit and neighborhoods are often clusters of close and distant relatives. Far from Bu Dian's formulation of legal and illegal mining, or the broader sets of binaries used in discourses on mining, Antam and gurandil are woven together into the fabric of Pongkor's community.

5. Crossing the Blurry Boundary

5.1. Labor

As demonstrated by Mang Agus's family, some residents of Pongkor have made a living both through employment with Antam and as gurandil. A person can work as a corporate security guard patrolling the concession one year, and be digging their own unlicensed tunnels on it the next. Mining labor thus travels relatively fluidly across the blurry boundary between large- and small-scale mining. Examples of this abound in Pongkor. However, this movement has its limits. Most commonly, as with Agus's brother and father-in-law, residents have worked with Antam either in laboring roles, such as construction workers or porters, or as security guards. In the 1990s and 2000s, many of these workers left poorly compensated work with the company to seek their own fortunes on "the mountain." Today, it is more common that Antam employees will join, or return to, small-scale mining because they have been laid off by the company. In either case, this labor movement is related to the quality of employment opportunities with Antam available to Pongkor residents. Local people have largely been excluded from higher-level, more stable, better-compensated positions with the company. With a few notable exceptions, many of the senior staff I interviewed at Antam's offices grew up outside the region, boasted advanced university educations, and lived in special Antam housing or commuted from neighboring cities rather than residing in local villages.

The movement of labor between Antam and small-scale mining in Pongkor has a long history. Indeed, as detailed in Chapter One, Antam's movement of employees helped initiate small-scale mining in the region in the early 1990s. The company transferred employees from its operations at Cikotok, which it was preparing to shutter, to its new mine at Pongkor. The employees from Cikotok, a region with a long history of small-scale mining, brought knowledge of small-scale mining practices as well as connections to eager mining laborers with them in the process. The employees of Antam's new mine thus stimulated small-scale mining in the area, and were likely some of its first practitioners.

However, this early period is not the only moment in which Antam brought small-scale mining labor to Pongkor. Throughout its decades of operation, it has continually sourced skilled and semi-skilled laborers from outside the region who later transitioned to small-scale mining. Pak Rahmat offers one example. I met Rahmat at one of the small shops lining the footpath to the concession, a *warung* that caters specifically to miners on their way to and from the concession. After a brief introduction, he invited me next door to his smithing workshop, where he creates, sells, and repairs metal tools for mining. There, Rahmat offered a demonstration of

his key craft: fashioning chisels of various styles from steel rebar at a central furnace and bellows. Despite his obvious skill, Rahmat was not trained as a metalsmith. In fact, he had come to Pongkor years ago to work as a mechanic for Antam.

Pak Rahmat grew up in Sukabumi, a city several hours to the south of Pongkor, and spent the first decade of his career working in a garment factory outside Bogor. In 2004, he leveraged this experience to land a job in one of Antam's mechanic shops. After barely a month in Pongkor, the company told Rahmat that he would be transferred to a different location. They wanted to shift laborers to a new mining operation they planned to open in Cibaliung, Banten. Rahmat was disappointed at being jerked around by the company and decided he would rather stay in Pongkor, where he quickly put his know-how to work at a friend's shop that fashioned tools for small-scale miners. Eventually, he opened his own business. Though his Antam salary of five million rupiah a month was substantial, at times he could make even more working with *gurandil*. At his peak, he employed six staff members, sold hundreds of chisels a day, and made millions of rupiah each week. Rahmat told me that many of his friends had the same experience: they came to Pongkor to work for Antam, but found that they could make more money in small-scale mining. These days business is much slower. Rahmat only sells a handful of chisels each day. However, the movement of labor persists, only with a different dynamic. According to Rahmat, many people now come to Pongkor to work one- or two-year contracts with Antam. Permanent posts, once a possibility for hard workers, are now incredibly rare. If and when a worker's contract is not renewed, small-scale mining is a relatively easy next step.

5.2. Knowledge

When miners move, so too do the expertise and information they possess. The operations of both Antam and small-scale mining are informed by knowledge that passes between them. Pak Rahmat's use of his mechanic know-how to open a smithing shop offers one simple example. Another former Antam employee, Mang Encep, highlights how mining expertise also crosses the blurry boundary between industrial and small-scale mining.

Like Rahmat, Mang Encep was recruited from afar to work for Antam. He originally lived and worked as a tailor in the eastern corner of West Java, hundreds of kilometers away from Pongkor. His brother had lucked into a job at Antam and, in 2005, was able to secure one for Encep too. The work was a contract position in Antam's "geomin" field office, a post which involves living in a camp on the concession and drilling exploratory boreholes to find new gold veins for future development. Encep enjoyed the learning experience of this new work, saying he and his coworkers were "taught to be miners from zero. It was like studying, but getting paid to do it." What he didn't like, however, was Antam's treatment of its employees. He felt there were few opportunities for advancement, that his supervisors were disrespectful towards him, and that the pay was little compared to other mining companies. His brother and many of his colleagues felt the same. They eventually left Antam for jobs at mining operations in Sulawesi, Sumatra, or Papua, sometimes for three times the pay. Encep had married a local woman in Pongkor so decided to stay and, quitting his job at Antam in 2009, instead transitioned to work in small-scale mining. Nevertheless, he has continued to put his industrial mining training to use. For example, he was among the first in Pongkor to begin using a machine, like the company, to mechanically crush his ore before processing. His knowledge of the concession from his "geomin" days, including both a general sense of its geography and specific memories about previous boring sites, has also come in handy, helping him to develop several productive mining tunnels.

Though many ex-Antam employees have become gurandil, the flow of labor and information is not unidirectional. Like Mang Agus's father-in-law, some small-scale miners find work with Antam security, a job that typically has lower educational requirements. The most plentiful of these opportunities are with a segment of Antam security colloquially known as "Team Orange." The unit, which sports orange t-shirts rather than security uniforms, is tasked with the manual labor demands of security operations, such as destroying small-scale mining tunnels or dismantling illegal structures.

Antam deliberately recruits small-scale miners to work on Team Orange. One reason for this is that Antam security directly benefits from the skills and knowledge gurandil bring. These workers know how small-scale mining works. They understand how and where tunnels might be dug, they know gurandil tricks for evading security, and they are not afraid to actually go underground. They may even be able to provide specific information about new tunnels or individuals that operate them. This knowledge is critical to Antam's security operations. It enables the company to more nimbly track unlicensed activity on the concession, as well as more effectively enforce the rules against it. Not all members of Team Orange divulge this type of insider information—some are simply laborers looking for work—but those willing to have earned the taskforce a terrible reputation. Despite being largely local people, Team Orange is among the most despised aspects of Antam. Gurandil and their families associate the orange-clad unit with excessive cruelty and betrayal. Company officials, on the other hand, look upon the group with pride. They understand them as newly rehabilitated thieves as much as useful informants.

Of course, gurandil have informants, too. In addition to Antam employees bringing insider knowledge with them when they join small-scale mining work, information is also passed from current Antam staff to teams of gurandil. This takes many forms. Historical evidence suggests there have been some incidents of corruption and rent-seeking. For example, one audacious attempt in 2015 involved two unlicensed miners caught after entering Antam's main tunnel while wearing official company uniforms (Rizal, 2015a). Residents of Pongkor told me this type of access—information (and sometimes assurances) about how, when, or where to enter a restricted zone—is available for a hefty fee, though they admit bribery is more difficult than in decades past. Mang Encep, who is still friends with some of his former colleagues at Antam, told me other gurandil purchase geological information, tunnel maps, and other technical details from employees of the company, though he declined to say he did so himself. More common is the transfer of more mundane knowledge. Often, this information travels through the interpersonal networks that tie Antam employees and gurandil. For example, a security guard might warn his friends of an upcoming raid on a particular area of the concession. Though he was careful not to mention this when we spoke, Mang Agus's uncle, the longtime member of Antam's security force, often shares this type of information with Agus and his brothers. A simple "today's not a good day to go the mountain" gets the message across. Additionally, the uncle might use his knowledge of activity on the concession to help Agus and his family find more gold. For example, he can offer Agus hints about which areas of the concession are "hot," with new productive veins having been found by other small-scale miners. Sharing this type of information is ubiquitous in Pongkor. While bribery is considered a risky form of "playing" (*main*) in gold, giving and receiving basic details about Antam's activities is simply part of living in the same community.

The movement of information back and forth between Antam and gurandil in Pongkor illustrates at the local level a dynamic that also occurs on larger, national and international

scales. Knowledge from large-scale mining is constantly being utilized by those working in small-scale operations, and vice-versa. The transfer of small-scale mining knowledge, via Antam employees, from Cikotok to Pongkor shows how the movement of industrial mining has been linked to the spread of informal mining. Similar processes have played out throughout Indonesia's history. In the 17th century, the VOC attempted to excavate gold near Minangkabau mining operations in West Sumatra. In the late 19th and early 20th centuries, Dutch mines were built atop ancestral gold production areas in Bengkulu, and, after subsequently being abandoned, came under the management of local people (ter Braake, 1944; van Bemmelen, 1949; van Leeuwen, 2014). In the late 1980s and 1990s, small-scale and corporate miners followed each other across Kalimantan in search of new gold veins (Tsing, 2005; Williams, 1988).

In Pongkor, I watched this type of dynamic continue in real time via actual interpersonal relationships. Small-scale miners I knew received information not just about local gold reserves, but about extraction opportunities near other industrial mines as far away as Sulawesi, Kalimantan, or Papua. They might get a call from an old friend—often someone who used to work at Antam's mine in Pongkor, but was now employed by an industrial mine in another region—inviting them to come to a distant island. They hope to work together again, to reproduce the collaborative relationship between some Antam staff and *gurandil* in new mining locations. Knowledge of mining techniques has also crossed between industrial and small-scale miners. A case in point is the use of gold cyanidation, an industrial processing technique, to extract gold from ore and tailings. This technology likely traveled to Pongkor internationally, originating with ex-industrial miners in the Philippines, crossing the Celebes Sea to informal miners in North Sulawesi, and making its way across the archipelago to West Java (Verbrugge, Lanzano, & Libassi, forthcoming; Whitehouse, Posey, Gillis, Long, & Mulyana, 2006).

5.3. Money

Just as people and information move between Antam and small-scale mining, so does money. In Pongkor, I saw that incomes sourced from one form of extraction were frequently redeployed as capital the other. This often occurs when workers transition from jobs at Antam to small-scale mining. Wages saved from this formal work are used to jumpstart their new livelihood, supporting the labor costs for a new tunnel, purchasing a set of *gelundung*, or opening a shop that targets miners. Of course, some Antam workers are even be tempted to “play” in small-scale mining while they are currently employed. This involvement need not be direct. For example, Antam employees, who are known to have regular incomes, might be approached for a loan by a neighbor who works as a small-scale miner. Alternatively, they may be convinced by friends or family to “join stock” (*ikut saham*) in a mining venture. In such cases, Antam employees—or any one with excess cash, for that matter—invest money from their salaries as pooled capital. In return, they can expect a regular return of cash or ore if the mining venture is profitable, all without the need to actual participate in mining themselves. These varying layers of involvement make it easy for, and perhaps almost inevitable that, money originating with Antam will make its way into small-scale mining.

It is easy enough to imagine how Antam salaries can become small-scale mining capital, whether through direct involvement of company employees, loans between friends, or pooled investment schemes. However, there are even more direct routes along which mining capital flows. I heard about several cases where money from Antam's Community Development (or ComDev) department made its way into small-scale miners' hands. ComDev runs several

programs aimed at bolstering non-mining livelihoods in the Pongkor region. One initiative, for example, provides cash loans for local businesses. Some small-scale miners have had success accessing these funds, as well as loans from banks, by being somewhat misleading on their application forms. For example, a gurandil who owns a small shop will suggest the loan is intended for expanding this business, when indeed some or all of the money will be used to finance a mining endeavor. Even residents who actually invest the loan money in a shop may ultimately be participating in the small-scale mining economy—after all, many shops in Pongkor primarily serve gurandil. Other ComDev programs aim to circumvent problems related to the use of cash by offering residents support in kind instead. An initiative aimed at building capacity for animal husbandry in Pongkor, for instance, distributed a small number of sheep to a group of program participants. However, when these participants encountered difficulties raising the sheep, they quickly sold the animals for cash. By most accounts, this money likely returned to the small-scale mining sector. These dynamics make sense when considered in relation to Pongkor’s broader political-economic context. So long as there are limited livelihood opportunities outside of gold, community members will continue to direct surplus funds into small-scale mining.⁷⁰

The examples of money earned through informal gold mining reappearing in industrial mining are often even more striking. The simplest of these are the various types of rents paid by small-scale miners to cooperating Antam employees. It is commonly understood in Pongkor that one of the benefits of working for Antam is the opportunity to earn “*sampingan*,” or “something on the side.” Some company employees and others involved in policing small-scale mining seek opportunities to make a little extra cash, typically from better-financed gurandil looking for additional insurance on their operations. *Sampingan* exchanges take many forms. As suggested previously, the most daring are rents paid to facilitate access to restricted mining areas, sometimes even within Antam’s own tunnels, where high quality ores can be found. This type of arrangement is called “*komit*,” a “commitment” between the two parties. More common are *sampingan* secured through less risky endeavors. As Mang Encep suggested, information—from geological information to security timetables—might be purchased from Antam employees. Antam staff might demand a payment in return for an employment opportunity with the company, as was the case with Mang Agus’s nephew. In other instances, enticed security officials may agree to knowingly avoid encounters with a particular small-scale mining group, to be lenient if members of the group are caught, or to otherwise selectively neglect to enforce regulations. Via *sampingan*, capital accrued through small-scale mining becomes income for Antam employees. In this sense, industrial mining livelihoods are constituted in part by small-scale mining revenues.

Some of Antam’s actual operations are also shot through with small-scale mining monies. The mining company works with a variety of local and regional contractors, businesses that provide particular services including everything from canteen meals to gardening services to industrial equipment. Often, local elites own these businesses, many of whom are known to have made their initial fortunes in small-scale gold mining. The route of small-scale mining boss to successful entrepreneur has been followed by many of the wealthiest people in the Pongkor area. They not only own businesses, locally known as “*CV*” or “*PT*,”⁷¹ that win major contracts from

⁷⁰ It is important to note that all of these dynamics primarily benefit the most privileged classes in Pongkor. The poorest residents do not have access to Antam’s wages, their loans, or many of their ComDev programs.

⁷¹ *CV* and *PT* are legal designations for certain, limited liability partnerships in Indonesia. Though *CV* and *PT* businesses are ubiquitous in Indonesia, they typically indicate a higher level of capital than small, independent

Antam, but also buy up agricultural land, open shops, and even invest in tourism. These endeavors are part of a clear trend of political-economic accumulation and concentration in Pongkor. Mining bosses generate profits through small-scale mining and then reinvest it as capital to both intensify their gold production operations and diversify into other, more stable, and more legal enterprises. Antam, as the biggest business entity in Pongkor, often provides the consumer demand that meets this new capital.

In some cases, shifting small-scale mining capital into a legitimate business serves to strategically sever—or, at least give the appearance of severing—an individual’s relationship to unlicensed gold production. Antam staff eagerly introduced me to several people that had followed this path. One day when visiting Antam’s offices, I unexpectedly ran into two men dressed in colorful, Indonesian batik shirts rather than company uniforms. The senior Antam official accompanying me proudly proclaimed that these were reformed “ex-gurandil” who he wanted to introduce me to. The duo laughed, saying that they used to be Antam’s enemies, but now regularly visit the company’s offices to discuss business and community development plans they are working on together. From my conversations with these men, as well as broader public opinion of them, it was evident that the “ex-gurandil” had leveraged the financial and political power they accrued through small-scale mining into these relationships. Antam staff even directly admitted this—one of their strategies for ending small-scale mining is to entice bigger bosses into other, legal business activities, often in collaboration with the company. Although this tactic may remove some important players from the small-scale mining sphere, Antam officials failed to recognize that they are effectively rewarding, and perhaps even laundering money for, people who have made their riches in unlicensed extraction. Moreover, several people I spoke with in Pongkor were quick to cast doubt on these men’s status as “ex-gurandil,” saying that nearly all local elites continue to “play” in small-scale gold, whether explicitly or not. The myriad interlinkages between formal and informal mining in Pongkor, as highlighted in the content above, make this all too easy to imagine.

6. Processes of Negotiation

The boundary between Antam and Pongkor’s small-scale miners is undeniably blurry. Personal relationships weave the mining operations together and the movement of labor, knowledge, and capital between them results in myriad, everyday forms of entanglement. Despite this, Antam officials like Bu Dian insist that the mining corporation stands apart from the region’s unlicensed mining activities. They might admit some forms of “corruption” have affected its operations in the past, but claim that the company now has strict rules to maintain order, both within and without (further described in Chapter Five). Antam’s interactions with small-scale mining, they suggest, are clear, consistent, by the book—simple law enforcement activities to remove trespassers from the concession and bring them to the local police. In fact, the actions of Antam employees are often not so rigid. Instead, regular processes of negotiation between company and community show that Antam and its employees are open to influence, even when it sometimes means bending the rules.

Most Antam employees verbally toe the company line: all unlicensed mining activity must be stopped. However, actual enforcement practices suggest there have been implicit

businesses (*UD – Usaha Dagang*). In Pongkor, the terms *CV* and *PT* colloquially stand for companies that do business with Antam or other large entities and are typically associated with wealth.

concessions to gurandil, allowing small-scale mining in some places by some people. Pongkor's mining concession is spatially understood, by both the company and small-scale miners, in terms of named "blocks" (*blok*) or "locations" (*lokasi*). These blocks correspond to the geographical features of the concession (often divided by ridgelines and rivers), but also with geological specifications and the gold content they contain. They also represent a differentiated geography of mining. Some are known as focal points of Antam's extraction, whereas others are key destinations on "the mountain" for small-scale miners. The various locations also mean different types of engagement between company security and small-scale miners.

A block called Cigancang is famously home to Pongkor's richest gold ores. In the late 1990s it was a site of frenzied small-scale mining, but today it hosts one of Antam's most important extraction sites. Company security enforces its policies absolutely in this area. Cigancang is therefore known among small-scale miners as a "red zone" (*zona merah*), where any trespassers will inevitably be arrested and likely jailed. Though many gurandil dream of returning to the area, it is now visited rarely and only by the most daring (or, perhaps, those with the best-laid plans and a *komit*). Contrasting Cigancang is Batu Bodas, a rocky block located on the concession's border, close to several residential villages. Batu Bodas was a site of Antam's early extraction, but today what ores remain there are relatively poor quality. The area is also steep and notoriously dangerous to traverse. Perhaps because of these qualities, Antam security seems to have largely conceded the block to small-scale miners. The company's policing of Batu Bodas is less intensive, and gurandil visiting there have less fear of getting caught and punished. However, mining in the block has other drawbacks—namely, the physical danger of mining there and the low quality of its gold ores. For many gurandil, incomes from Batu Bodas are simply not enough. Nevertheless, if Cigancang is popularly referred to as a "red zone," Batu Bodas is often considered a "location held by the community" (*lokasi punya masyarakat*).

Some gurandil believe this situation is more than just a tacit agreement between Antam and the community, but rather the result of actual negotiations. Small-scale miners have told me—usually bitter because of continued policing—that Cigancang was effectively traded for Batu Bodas during meetings between Antam officials and village leaders. Cigancang would become totally off limits, while Batu Bodas would be "freed" for use by the people. Both Antam and local leaders deny this, but it is true that community representatives have made (unsuccessful) proposals to formally release Batu Bodas from Antam's control. Actual, high stakes meetings between these parties have and do occur, but they are typically not a give-and-take. Village leaders told me they often found the meetings condescending. They would be told by Antam and regional government officials how things would be, and could only protest and raise their grievances in response. Despite this, it is clear that village leaders have historically had some influence in managing policing efforts. For example, a prompt intervention by a village head (*kepala desa*) following a gurandil's capture could mean the difference between formal legal processing and a slap on the wrist.

Negotiation between Antam and gurandil also comes in more personal forms. In the 2000s and early 2010s, one strategy Pongkor's residents used to manage policing was "*demo ibu-ibu*," or women's demonstrations. When a local small-scale miner was caught on the concession, word would quickly make its way back to the villages. There, a team of women, usually including the miner's wife, mother, or daughter, would assemble and march towards Antam's offices. Their hope was to intercept the security vehicle containing the captured miner on the road. If they could plead with the security officers before they arrived at their headquarters, there was still a chance the miner might escape formal punishment. In these

demonstrations, women used their social position as a deliberate negotiating tactic. Confronted with a miner's wife, mother, or daughter, security officials were forced to humanize the person they had caught. It encouraged them to see the gurandil as someone simply trying to provide for their family, rather than a greedy thief. Participants of women's demonstrations also told me that they knew they would be treated differently than groups of demonstrating men. Their protests had to be respected. They could not simply be dismissed as "anarchists" or criminals, as others often were. Furthermore, no security official would be "brave enough" (*cukup berani*) to arrest a woman, even if they were trespassing or their protests were deemed illegal. And, often, the *demo ibu-ibu* were successful. The security officials would listen and the miner would be released with just a warning.

Today, interventions by village elites or by women's demonstrations are not as effective. Since 2015, Antam has sought to regularize its security practices and make enforcement more consistent. Gurandil taken in must now be brought to the local police and all demonstrators without permits risk arrest. But whether or not someone is targeted by Antam security is still, sometimes, open to subtle forms of negotiation. Among the clearest examples of this are Pongkor's "widow" miners. As described in Chapter Two, there are many different types of small-scale miners in Pongkor. One of these types is a small collective of women who traverse the concession gleaning gold ore. They collect promising stones by hand or ask for small, charitable donations of ore from other gurandil. Many of them are older, widowed women, while others are women with husbands who are unable to work (typically because of chronic health problems). In all cases, these ore gleaners are the main breadwinners in their families and have almost no other livelihood opportunities—facts that are publicly understood, even by Antam's security workers. And, seemingly because of this, the widow miners never have to worry about getting in trouble for their unlicensed ore collection.



Figure 20: A “widow” miner collecting promising looking stones on the concession.

I spoke with several of these women about their experiences. One of them, Bu Tia, offered me a detailed account of their work and relationship with Antam. Although the women share the same on-concession spaces as men, and do many of the same activities, none have ever been detained by Antam security forces. In fact, they occasionally enlist the tacit support of company employees in their scavenging endeavors. One of the locations they glean ore from is around the mouth of one of Antam’s own tunnels. Sorting through the left behind rock from the company, the women find stones that, though still low in quality, are better than the waste rock found around unlicensed mining holes. Before collecting this ore, the women will approach a security guard posted at the tunnel opening to explicitly ask for permission to collect the stones. Sometimes the security guard will say yes, offering hushed advice to “be quick and be quiet.” On other occasions, they will be swiftly but politely turned away. Still, this is a far cry from the experience of many men, who may be detained by security simply for being seen within the bounds of the concession. Bu Tia confirmed this, saying that gleaning near Antam’s tunnel is only for the group of widowed women—no similar activities exist for men, and it would be risky for them to try any. Bu Tia attributes her group’s success to mutual understanding and respect. Unlike many more ambitious miner men, they are direct and transparent with the Antam security they meet. They will follow security’s instructions and pose no threat. Moreover, it seems that

Antam security understand that the widows, as Bu Tia put it, have been “forced to go to the mountain” by their circumstances.

A final example of the ongoing, everyday processes of negotiation in Pongkor returns us to the raid on Kampung Ciemas. Antam and regional police framed the mass raid as a critical intervention against organized criminal activities. Ciemas, according to them, was the “basis of the largest cartel in Indonesia.” They suggested that the village should have been a small, peaceful agricultural community, but was instead becoming a Wild West-style town overrun with outsiders getting rich by stealing from the nation’s vital mineral coffers. With this justification in hand, combined teams of corporate security and police—including local residents, like Kang Udin—dismantled and torched over 1,000 structures in the small village. During my visits to Ciemas I found ample evidence of this destruction. Entire neighborhoods were strewn with trash and rubble just barely overcome by new weeds and grass. Of the structures that still stood, many were spray painted in red with the word “*warga*.” I was told the scrawled “*warga*,” which in this context might be translated as “local resident,” served as a pleading signal to members of the raid. If part of the justification for the crackdown was to remove outsiders, local residents should be spared. Many of these structures undoubtedly served (and continue to serve) roles in the mining economy, containing ore processing equipment, selling mining wares and tools, and acting as housing for mining laborers. After all, in 2015, small-scale mining *was* the economy in Ciemas. Despite this, the plea of the *warga* seems to have worked. At least some of these structures were spared. This type of unspoken negotiation suggests another concession from Antam: though all unlicensed mining is deemed bad, small-scale mining by local people is more tolerable than that by outsiders. It seems that the dynamic persists today. One afternoon while being shown around Ciemas by an Antam representative, I could not help but point out the evidence of continued gold mining in the village—the unmistakable sound of *gelundung* turning in the neighborhoods below us. “Oh, but that’s local people,” he responded.



Figure 21: The word “warga” (resident) spray-painted on a structure to prevent its destruction during policing raids.

Engagements between Antam and Pongkor’s small-scale miners are not black and white. They do not simply involve enforcing or evading the law, and they do not keep separate the legal and the illegal. Instead, many of these interactions are shaped by processes of negotiation. Some occur between village heads and company officials; others happen ad hoc between security guards and “widow” miners on the mountain. It seems all of these unwritten rules are part of, as Kang Udin put it, finding “a balance between the well-being of the company and the well-being of the people.”

7. Interpreting Everyday Entanglement

Pongkor’s history contains clear moments of conflict between a large-scale mining company and small-scale miners. Many observers also note that this conflict is between two types of mining: one legal and the other illegal. These statements are true, but they do not tell the full story. While these binary categories serve useful heuristic purpose, they fail to capture the many ways that *all* mining is tied together in Pongkor. Antam and gurandil are not, as Bu Dian insists, completely separate. Nor is the complexity of their relationship accurately represented by previous scholarship on large- and small-scale mining. They are more than two parties

conflicting, cooperating, or otherwise interacting as cohesive entities. Instead, the line between small- and large-scale mining is continuously blurred. Family networks, the movement of labor, information, and money, and ongoing forms of negotiation ensure that all of Pongkor's extraction activities are interconnected, from the inside out. Pongkor's gold economy, therefore, must be approached and analyzed as an internally differentiated whole. And while Antam and Gurandil are different—divergences in their organization, legality, and power are described elsewhere in this dissertation—they can only be properly understood through their interrelation.

I draw attention to this interrelation by analyzing the micro and mundane ties that I call everyday entanglement. This concept builds on, but differs slightly from, the multiple uses of the term “entanglement” in recent anthropology scholarship (e.g., Giraud, 2019; Hodder, 2012; Roberts, 2017; Thomas, 1991). Although entanglement is rarely defined, the term is commonly used to indicate how people and things are constituted by relations. These relations are understood to be multiple and dynamic. They are often uneven (that is, they are not “flat” or power neutral), however, influence can nevertheless flow in multiple directions. Entanglement, therefore, has commonalities with other understandings of interrelationality, such as co-constitution or Marxian dialectics. I offer that a similar formulation can help us understand gold mining in Pongkor and small- and large-scale resource production more broadly. Extraction in Pongkor is neither two distinct types of mining nor an amorphous blur of them both, but an entangled sphere where formal and informal mining are both different while constituting each other. With *everyday* entanglement, I point out that these interrelations are neither abstract nor formal. They are concrete, personal, ongoing, and often routine.

In this sense, everyday entanglement offers a new approach for analyzing resource conflict. For comparison, I consider Stuart Kirsch's (2014) examination of the dynamic between multinational mining companies and their critics in Papua New Guinea. He describes this relationship as “dialectical,” with mining corporations and activists shaping each other's activities, practices, and rhetoric via battles waged in courtrooms, public relations campaigns, and state legislatures. In Pongkor, entanglement is more mundane. It is located in resident's bodies, in their families, in petty and large capital, and in circulations of local gossip. Advocates of “good governance” might offer another analysis of Pongkor, describing the relationship between large- and small-scale mining as corruption. Everyday entanglement complicates and demystifies this framing. It highlights the ways that social and political-economic relations are productive, shaping their participants, not merely transactions between them. Furthermore, unlike amorphous conceptions of corruption, it roots these relationships in specific activities and processes. These activities are often so ordinary and everyday (sharing information with a brother; taking pity on a widow) that calling them corruption seems farcical. An understanding of Pongkor's everyday entanglement reveals the danger of common binaries used to describe mining contexts and offers, instead, pathways for improving local resource governance.

One observation we can take from this entanglement is the incredible internal diversity and porosity of mining operations. In her analysis of the Newmont Corporation's copper-gold mine in Sumbawa, Indonesia, Marina Welker (2014) highlights how individuals within the company enact it in various, sometimes contradictory, ways. In doing so, she dismantles common interpretations of mining companies as monolithic, exclusively profit-focused entities. Antam's activities in Pongkor offer an opportunity to extend this lesson. Though senior company officials attempt to construct a unified discursive front that cleanly distinguishes legal from illegal mining, lower-level employees (often those whose lives most resemble those of typical Pongkor residents) see room for balancing the needs of small-scale miners and the company.

Furthermore, in many cases these same individuals actually have been, or in the future may be, small-scale miners. In the case of Antam, it is not merely that employees “enact” the corporation in different ways, but also that the company is constituted by employees with radically different positionings. Lower-level employees may rhetorically toe the company line, but many cannot help—because of their own livelihoods or those of their neighbors and families—being personally entangled with unapproved mining activities.

Small-scale mining is no different. Recent analyses from around the globe have highlighted the heterogeneity of actors, production roles, and mining techniques employed in small-scale mining (Ferring, Hausermann, & Effah, 2016; Libassi, 2020b; Verbrugge & Besmanos, 2016). Pongkor’s gurandil demonstrate how this diversity extends to political dispositions and engagement with industrial mining operations. Although most express a dislike of Antam, small-scale miners will take advantage of opportunities from the company when it suits them. Some forms of small-scale mining are even predicated on relationships with the company, as when informal miners enter Antam’s tunnels, make *komit* arrangements, or use corporate-sourced geological knowledge. Too often, mining conflicts are simplistically framed as “company versus community.” Alex Golub’s ethnography of mining company-community negotiations in Papua New Guinea (2014), however, demonstrates that “the community” is internally differentiated, composed of actors with different interests and levels of power. Pongkor’s small-scale miners, a particular type of community, show how these dynamics also occur away from the negotiating table. During a demonstration against Antam, they can form a relatively unified, confrontational “leviathan,” but everyday interactions with the company are more variable and opportunistic, with some seeking to take advantage of Antam’s presence rather than resist it. Neither Antam nor gurandil, therefore, should be considered monolithic entities. In fact, the mining activities of both are informed to a significant degree by individuals breaking ranks from the group they may be typically associated with.

A second observation is how everyday entanglement in Pongkor is both material and discursive. Antam and small-scale mining are connected by the human bodies that move between them, the physical gold veins they pursue in common, and the underground spaces they may both occupy. The regular movement of capital between formal and informal mining highlights a significant political-economic interlinkage. But less tangible forms also constitute this entanglement. Knowledge about the locations of ore, about mining techniques, and about others’ mining or security activities shape who can extract gold when and where. Finally, there are the terms upon which mining is negotiated, the discursive terrain upon which miners stake their claims and counterclaims. Conflicts between industrial mines and surrounding populations have conventionally been about land use and dispossession, forms of compensation, the distribution of jobs and CSR benefits, or environmental degradation (e.g., Golub, 2014; Jacka, 2018; Kirsch, 2014; F. Li, 2015). In cases involving small-scale miners, such as Pongkor, the locus of conflict is often gold itself—who does it belong to and who should be permitted to extract it?

As highlighted by Bu Dian, Antam employees root the company’s claims to local gold in its legality and professional mining expertise. The absence of these characteristics is what makes Pongkor’s small-scale mining, in their view, inappropriate, incompatible, and distinct from Antam. Higher level officials promote strict adherence to this framing by, for example, refusing the acronym PESK (small-scale mining) in favor of PETI (mining without permits). However, small-scale miners find traction with some Antam employees by shifting the argumentative frame and “shopping” for more compelling discourses (Biezeveld, 2004).

Most small-scale miners claim they should be able to access local gold because they have few or no other livelihood opportunities. Bu Dian rejected this, too, joking that small-scale miners are more greedy than needy. However, Antam staff regularly confronted with signs of poverty are more receptive to this claim. Relatively lax security activities on the Batu Bodas block offer one example. The quality of gold in Batu Bodas is typically so low that “greed” could not reasonably be the motivation for mining there. Even more explicitly, Antam staff allow widows, like Bu Tia, to collect rocks from the concession. If Bu Tia’s reasoning is correct, these lenient security guards understand the women have been “forced to go to the mountain” to make a living. Gender also plays a role here, as men receive no such permissions. More broadly, the success of *demo ibu-ibu* illustrate that both local residents and Antam interpret women as offering a more compelling argument for sympathy towards small-scale miners. Finally, some of Pongkor’s miners have tapped into a discourse differentiating local and non-local resource users. In defiance of Bu Dian’s binary, some Antam officials have been receptive to claims that moderate amounts of unlicensed gold collection are acceptable, so long as it is only done by local residents.

These observations highlight the complexity of relationships between small-scale and large-scale mining. Most scholarship on this subject has described these relationships in broad outlines, typically in terms of conflict, cohabitation, or cooperation (e.g., Cuvelier, 2019; Hilson et al., 2020). While the situation in Pongkor could be (and has been) roughly described as a conflict, in this chapter I highlight the inadequacy of this framing. Too many interactions between Antam and small-scale miners contradict this broad-brush statement. Recent scholarship has offered an alternate concept, the “interface” of small- and large-scale mining, to better incorporate the diversity and dynamism of interactions between types of mining (Bainton et al., 2020; Kemp & Owen, 2019). While nimbler, this framework has thus far tended to treat mining groups as cohesive, interacting entities. As the case in Welker and Golub’s analyses, the dynamics of mining in Pongkor demonstrate that mining groups are not monoliths. Nor do they always “interact” in coherent or discrete ways. While interactions between Antam and gurandil as separate groups do occur, often their relationship is shaped more by micro activities, negotiations, and movements. Frequently, these interrelations are so routine that they seem hardly notable. Labor, knowledge, and money move back and forth between Antam’s and small-scale miners’ activities. In fact, it is often the very same people or funds who constitute Antam or small-scale mining, at different times and different places. The relationship between small- and large-scale mining is thus much more intimate than an “interface,” rather it is a form of entanglement that shapes mining practices and the lives of participants across the mining spectrum.

Similarly, Pongkor’s entanglement offers lessons for analyses of informal economic activities, highlighting how the ties between formal and informal are intimate, personal, and everyday. Building on earlier critical contributions on the informal economy, as well as literatures on global production networks, Verbrugge and Geenen (2019, 2020) argue for an integrated look at global gold production, inclusive of small and large sources. They “shed new light on two seemingly oppositional trends in the global gold mining economy: the emergence of a global gold mining industry, and the expansion of a heterogeneous range of informal ASGM-activities,” arguing “that both trends should be seen as part of the same overarching process: the deepening and widening of the gold commodity frontier, which seeks to overcome a series of socio-ecological and socio-political challenges” (Verbrugge & Geenen, 2019, p. 421). The case of Pongkor, and Indonesia more broadly, corroborate these findings—small- and large-scale

mining have often moved and expanded in tandem, responding to the same underlying factors (see also Chapter One and Libassi, 2020a; Tsing, 2005; Williams, 1988). This chapter details this interrelationship on a finer scale and in more complex ways. Antam and Pongkor's small-scale miners are not merely responding to the same political-economic context (i.e., increasing labor costs, increasing regulations, precarious livelihoods, high global gold demand), they are also constituting and transforming each other. Often, this entanglement is shaped less by broad structural influences than it is by routine, everyday details—who is related to who, where minor opportunities crop up, or what they daily gossip is. The entanglement between formal and informal, then, should be understood as much through their close interconnections as their common foundations.

Why, then, do Bu Dian and other senior company officials insist that Antam and Pongkor's small-scale miners are distinct, that the formal and informal mining spheres have no overlap? Rather than an impartial description of mining in Pongkor, dichotomous narratives serve the political-economic ends of the mining corporation. They are part of a strategic discourse. Legalistic framings, especially, are aimed at consolidating Antam's control over local resources and Pongkor as a territory (further described in Chapters Three and Five). Asserting that informal mining should be called PETI (mining without permits) rather than PESK (small-scale mining) centers the one characteristic which undeniably distinguishes Pongkor's mining activities—the presence or absence of a permit. The people, places, money, knowledge, techniques, and forms of access involved in this gold mining are all more ambiguous. The binary of legal and illegal helps to obscure these ambiguities, bolstering Antam's argument that only they are appropriate stewards of local gold. This insistence is perhaps a tacit acknowledgement of the entanglement that connects Antam and Pongkor's small-scale mining; an endeavor to conceal the blurry line that could be used to question the company's authority, integrity, and professionalism. After all, if Antam and gurandil cannot be made distinct, if legal cannot be clearly separated from illegal, upon what grounds can the company claim its control of local gold is more appropriate than management by small-scale resource users? As Lahiri-Dutt (2004) puts it, this is “the politics of definition” at play, now in an actual mining site rather than the realm of academic or policy discourse.

8. Conclusion

Reading the news, listening to Antam executives, or standing at the edge of a local, roadside demonstration, one might get the impression that gold mining in Pongkor is a resource conflict with clear divisions. Conceptually, this would make sense, too. Theoretical interpretations of formal and informal economies have previously drawn lines between these spheres. Scholarly descriptions of small- and large-scale mining interactions have often emphasized conflict, sometimes making it sound inevitable (e.g., C. Aspinall, 2001; Ballard & Banks, 2003; Geenen, 2014; Okoh, 2014). Indeed, elsewhere in this dissertation I find it compelling, useful, and accurate to describe the situation in Pongkor as a struggle between Antam and small-scale miners. However, this chapter serves as a reminder that resource conflicts are usually not so clear cut. Similar to Welker (2014) and Golub's (2014) analysis of other mining contexts, the composites of Antam and small-scale miners are unstable, dynamic, porous, and composed of diverse individuals with different, and often changing, positionings. While they coalesce in moments that to produce genuine conflict, more typically they are entangled in routine, everyday ways that blur the boundary between small- and large-scale mining.

Though Antam and Pongkor's small-scale miners are different in terms of legality, access to power, and organization, they are also often constituted by the same people, economic and informational flows, and discursive processes. Kinship networks and neighborhood friendships span the blurry boundary. Personnel move back and forth between scales of mining. Geological technicians employed by Antam one year might become small-scale mining bosses the next. Likewise, petty mining laborers sometimes trade up for work in Antam, putting their knowledge of unlicensed mining secrets and practices to work as security field agents for the company. Money also flows between these operations. Wages from Antam become capital for digging small-scale tunnels, while elite mining bosses use their accumulated profits to open businesses that contract with Antam. Despite the insistence of senior Antam officials that legal and illegal mining are separate, numerous forms of compromise undermine this distinction. The reproduction of legalistic narratives constructs a binary illusion that serves Antam's political and territorial interests. In reality, Pongkor's small- and large-scale mining are entangled in very fundamental and everyday ways. More than just interacting or being produced by the same broader political-economic structures, they are internally related; co-constituted by the contradictory ties and forms of everyday entanglement that bind them together.

CHAPTER FIVE: CO-CONSTITUTIVE EXTRACTIVE SUBJECTS

1. Introduction

As described in Chapter Three, Pongkor is contested territory. In this chapter I explore how these territorial struggles extend to the realm of government, conduct, and subjectivity. Antam and gurandil compete not only over access to underground gold ores, but also over what values and conduct are appropriate—above and below ground—around the mining concession. In the process, I argue, nearly all mining participants have been transformed.

I received my first lesson on gold territories on just my second day of fieldwork. That morning, one of my hosts, an informal mining entrepreneur named Om Ferry, offered to take me to view the hillsides where small-scale mining was common. We climbed uphill on paths typically used by gurandil and peered down at traces of small-scale mining in the forested valley below. Somewhere along the way, we crossed the invisible line between village and industrial mining concession.

After about an hour, Om Ferry and I noticed a cloud of dust further down the road—three mine security vehicles were rushing towards us. Soon, we were found ourselves surrounded by a dozen officers. With a mix of sternness and confused excitement, they commanded us into their vehicles and brought us down the mountain to Antam’s local administrative headquarters. There, Om Ferry and I sat at a long conference table and were questioned for two hours. Various Antam officials arrived to interrogate us, lecture us, and document our wrongdoings. They reprimanded us for trespassing, endangering the safety of ourselves and others, and impinging on the security of an “*obyek vital nasional*” (vital national object). The small-scale mining operations we had been in search of (and had, in fact, seen) were not only improper, but, Antam officials insisted, did not exist: “The only gold mining here is Antam’s.” Most centrally, they insisted our behavior was not how things “are done” in Pongkor—we had not followed the company’s strict protocol for visiting Antam’s concession. We had not gotten the company’s permission to visit, we had not undergone a security check or entered through their official gates, and we were not accompanied by an authorized guide. Om Ferry argued with them. He proclaimed their entire investigation invalid and insisted that everyday Indonesian people, not just mining companies, had a right to visit the forested concession area and even to benefit directly from the nation’s natural resources. Giving up on Om Ferry, the Antam officials eventually deemed me more foolish than dangerous and we were released. However, one thing was made clear—Antam were the gatekeepers to Pongkor’s mining area and if I wanted to conduct research on the concession I would need both their explicit permission and to comply with their rules.⁷²

This tense encounter was not an intended part of my research, but it nevertheless provided powerful insight into Antam’s view of the Pongkor region: as a territory over which it exercises authority. This territorial control means more than simply excluding others from

⁷² After this encounter, which occurred at the very beginning of my fieldwork, I was much more careful about visiting Antam and the concession. I also visited with the local police unit and various village heads to present my research papers and receive their approval to conduct research in the area. Fortunately, I was also able to conduct most of my early research in the villages of Pongkor, rather than on the policed-spaces of the concession. Eventually, I more formally proposed my research to Antam and was able to collect interviews with their employees and visit various areas of the concession, with permission from the company’s senior staff.

accessing gold. It also involves attempts to shape the conduct of local populations, both on and off the concession. My experience was a glimpse into the myriad forms of discipline deployed by Antam and associated state forces, techniques aimed at transforming “unruly” informal miners into “proper” rural development subjects. The lectures and interrogations were not merely an attempt to enforce the law, but to re-educate—“this is a matter of safety and national security,” “small-scale mining does not exist.” However, through Om Ferry, the experience also showed me how informal miners put forth their own interpretations and lodge their own territorial claims. He represents a new, more explicitly political class of “community miners” (*penambang rakyat*), who are not just content to make a livelihood, but now argue for their rights to local gold. As I would learn later, Antam has been compelled to adapt in turn. Pressure from small-scale miners has altered how the company sees itself and how it trains its own employees.

In this chapter, I analyze the conflict over gold in Pongkor through the lenses of territory, governmentality, and subject formation. Like other mining companies, Antam endeavors to consolidate its authority over mineral resources by cultivating a new disposition within local residents—as Frederiksen and Himley (2019) put it, by producing amenable “extractive subjects.” I use the case of Pongkor to show how processes of extractive subject formation are enrolled in territorial and counter-territorial projects. In doing so, I also complicate conventional top-down narratives of extractive power, illustrating how “extractive subjects” are multiply authored. Both Antam and small-scale miners have sought to win local hearts and minds and, in the process, they have also reshaped each other.

I trace this history by describing three interrelated processes of extractive subject formation. First, Antam (and associated forces) has attempted to secure their territory by dissuading *gurandil* from participating in small-scale mining through forms of discipline enacted both on the mountain and in the village. Second, small-scale miners have countered this by cultivating political subjectivities grounded in a “community miner” identity. Community miners are not just pursuing livelihoods, but are adept at arguing that local people should have access to local resources. Third, Antam has responded by remaking itself and its employees. Transcending their role in resource extraction, they understand themselves as a clean and green example for the community. This has produced an interrelated, co-constitutive set of “extractive subjects” including corporate mining employees, small-scale miners, and non-mining local residents. In other words, multiple members of this extractive community, representing different sides of the resource conflict, have been made and re-made. Processes of subject formation are thus not only employed to facilitate extraction, but emerge within local communities and reflect backwards, via local contestation, onto state and corporate mining entities as well.

2. Resource Control and Resource Subjects

Antam’s legal claim to gold in Pongkor is rooted in a specific form of property: the mining concession. The company is the only entity permitted to extract mineral resources, ultimately owned by the state, within the bounds of the region’s 6,047-hectare concession. In actuality, Antam’s operations entail much more than is described by this property relation. Processes of territorialization are deployed to maintain and maximize profitable access to gold reserves. This entails an ordering not only of the things within the territory (gold ores) or who may do what with them (formal or informal miners), but the conduct of local populations much more broadly.

Geography, political ecology, and environmental anthropology literatures have used the concept of territorialization to analyze the spatial extension of control over natural resources and the people who interact with them (e.g., Moore, 2005; Vandergeest & Peluso, 1995; M. J. Watts, 2004). Peluso (2005, p. 2) describes territorialization as “the creation and maintenance of spatialized zones within which certain practices are permitted based on the explicit or implicit allocation of rights, controls, and authority.” Conventional analyses of territorialization have often centered the state, either highlighting new extensions of state authority or the consolidation of control within national boundaries (e.g., Elden, 2010; Vandergeest & Peluso, 1995; Yeh, 2013). However, scholarship has highlighted how this is also a non-state phenomenon. Groups as diverse as multinational corporations, conservation NGOs, paramilitary groups, and forest-dwelling communities deploy territorializing techniques. Similarly, they serve a variety of ends, from resource extraction to counter-mapping (Ballvé, 2012; Corson, 2011; Ferguson, 2005; Peluso, 2005). Even small-scale gold miners can produce territory (Peluso, 2018). Understanding this diversity is useful in the context of Pongkor. Antam, a majority state-owned company, straddles many of these lines—it is aligned with the state and endowed with national security goals, yet it simultaneously operates like a multinational mining corporation; it aims to produce a profit through resource extraction, but it also projects itself as a leader in rural development and biodiversity conservation. Territorialization in Pongkor is also multiple. While Antam pursues its own territorial goals, local small-scale miners contest this with their own visions of spatial orders and rights. Processes of territorialization are often seen as the un-making of past and re-making of new orders (Rasmussen & Lund, 2018), but Pongkor would be better described as having competing territorializations.

Both state and non-state groups deploy violent force as a means of creating and controlling territory. However, these are not the only modes of territorialization. Literature on resource territories demonstrates the importance of discourse and knowledge in producing territories. For example, Peluso and Vandergeest (2001; 1995) demonstrate how scientific forestry was critical to the control of “political forests” in Southeast Asia and Yeh (2013) argues that agricultural “best practices” facilitated Chinese control of Tibet. In the realm of mineral resources, scholars have traced how the collection and visualization of geological knowledge is key to the production of the underground as state territory (Braun, 2000; Frederiksen, 2013; Marston, 2019; Marston & Himley, 2021). However, in all of these cases, resource management expertise is not simply about the resources in question, but also who should interact with them and how. This leads to another component of territorialization, as “a process that we can understand as part of both governance and the disciplining of practice associated with governmentality” (Peluso & Lund, 2011, p. 673). Peluso and Vandergeest (2001) point out that scientific knowledges are enacted in political forests in form of Foucauldian governmentality. In the realm of mining, Braun (2000) highlights how the incorporation of geological discourses into Canadian law produced settler subjects eager to develop underground resources. In Pongkor, processes of territorialization—emanating from both Antam and small-scale miners—are similarly an ordering of the relation between people and resources.

A related, but often disconnected, literature has focused on the relationship between extractive industries and the populations that surround them. Mainstream development and business knowledge suggest that mining companies can support and avoid conflicts with local residents by providing jobs, hosting CSR initiatives, engaging “stakeholders,” and maintaining a “social license to operate” (for summaries see Hilson, 2012a; Owen & Kemp, 2013). In contrast, empirical analyses have shown mixed results, including limited development benefits, social

unrest and conflict, and human rights violations (e.g., Ballard & Banks, 2003; Bebbington & Bury, 2014; Gamu et al., 2015). This contradiction has been the focus of more anthropologically oriented research which closely examines the interactions, processes, and people that mediate company-community relations (e.g., Golub, 2014; Jacka, 2018; Kirsch, 2014; Welker, 2014).

Marina Welker's (2009, 2012, 2014) research, in particular, is useful in connecting the literature on mining to the processes of territorialization addressed here. As with Peluso and Vandergeest's political forest, Welker is explicitly concerned with how self-discipline or governmentality are deployed to maintain (in this case, the Newmont Mining Corporation's) control of resources. She describes how community development programs attempt to reshape patronage-seeking villagers into self-reliant development subjects and corporate mining defenders. Frederiksen and Himley (2019), reviewing a wide set of scholarship on mine-community relations, give this phenomenon a name: the production of "extractive subjects" (p. 1). They identify this as a key mechanism by which contemporary extractive industries consolidate control of resources through "quieter registers of power" (drawing on John Allen) rather than more stereotypical narratives of violence and accumulation by dispossession.

However, as Welker makes clear, projects of extractive subject-formation are often limited—they fail or produce unintended consequences. This chapter provides an elaboration on this theme. The story of Pongkor presented below is one of imperfect governmentality and competing co-constitutive subjectivities. I connect the question of extractive subjects to dynamics of territorialization, further emphasizing how these subject formation processes are contested and spatial. Moreover, I show how the production of extractive subjects is not simply a top-down process of state or corporate control, but can simultaneously be enrolled in the creation of alternate territorial visions by competing resource claimants.

3. Territorialization and Contestation

In the Pongkor area, signs of territorialization are abundant. Antam has an explicit spatial understanding of the region, where different zones correspond to different degrees of authority, types of responsibility, and acceptable activities. The primary zone of Antam's activity is the concession, a 6,047-hectare space that is further subdivided into areas for mineral extraction, administration and operations, and conservation. But Antam's conception of territory extends beyond these boundaries. It designates three further nested layers of interest: Ring 1, the villages (*desa*) immediately adjacent to the concession; Ring 2, the three districts (*kecamatan*) that border the concession; and Ring 3, the encompassing Bogor Regency (*kabupaten*). It has commitments to all three of these zones, but Ring 1 in particular is a space of intensive engagement. This is where most CSR activities occur, with an individual member of the CSR staff specifically assigned to each village. It is also where most *gurandil* live, where policing of small-scale mining activities extends into villages and homes, and where contestation over the benefits derived from gold is most intense.

Within these spaces, Antam is confronted by two interrelated threats. The first is the physical disruption of its operations. This occurs on the concession, as when informal miners dig into or near Antam's tunnels, but can also occur in the villages, where protests or road blockades might occur. The second threat is loss of legitimacy. This concerns local social legitimation, as in the company's attempts to maintain a "social license to operate" (Owen & Kemp, 2013, p. 29). Additionally, it involves legitimacy at a broader national and legal scale. As pressure builds throughout Indonesia to allow some legal form of small-scale gold mining, Antam is determined

to prove that the nation's resources are best managed by professional companies like itself (all the better if they are domestically or state-owned). A refrain I heard over and over from Antam staff was that, though legal small-scale mining may someday exist elsewhere, it will never happen in Pongkor—even after the company is gone. These dual threats can only be managed through processes of territorialization. The company must implement its ordering of space, resources, and people, whether through physical, legal or discursive barriers; processes of coercion or consent.

Territory is most evident at the interface and juxtaposition of these zones. The point on the boundary between the concession and Ring 1 intersected by the main road, Jalan Raya Antam, is referred to as “*portal*.”⁷³ It is the only formal way in or out of the mining concession. There, a dramatic series of signs and gates mark the separation of these two zones. And moving between these zones requires a process: an in-depth security inspection. Despite my research papers, I failed this inspection more than once. Entering the concession requires an explicit purpose, often an invitation, and frequently signatures. Moreover, everything must be in order. On the morning of my first (formally invited) visit, I was turned away at the gates because the friend who drove me there had no paperwork for his motorbike nor a helmet. This is a qualification that functionally excludes most local residents, who often use old, stripped-down motorbikes. This concern is all the more pressing in consideration of the juxtaposition of the mining concession and Ring 1—in particular, a large sub-village (*kampung*) named Ciemas which is located entirely within the boundaries of the mining concession. The road, “via portal,” is the only way to access this community and its use by the public is restricted to just three hours each day: 6-7am, 12-1pm, and 6-7pm. Every day at mid-morning you can find women who went to the market at 6am waiting by the gate for it to open again at noon. A senior security official once darkly joked with me, “They should be thankful—Ciemas is the safest *kampung* in Indonesia.”⁷⁴

But local people have ways of circumventing Antam's territorial claims. Indeed, small-scale miners and (other) local people tend to envision these spaces quite differently. In particular, the hard boundary between the concession and Ring 1 is disputed. *Sawah* (irrigated rice) is still sometimes planted on the concession, villagers travel there to collect forage to feed their goats, merchants even sell their goods—and of course, gurantil extract gold. In this way, processes of territorialization are accompanied by contestation, what is often locally framed as a “game of cat and mouse” (*permainan kucing dan tikus*).

This territorial contest also extends to the discursive and representational realms. Most prominent is the name of the region itself. Antam staff and other outsiders frequently refer to the area as Pongkor, a name that foregrounds the region's gold mining activities. Local people, on the other hand, tend to either specifically refer to villages and sub-villages or, more broadly, just call the region Bogor (the name of the much larger, encompassing regency). Similarly, the space designated as Antam's mining concession goes by different names. To Antam staff, this is the “*wilayah UIP*” (area of mining permit) or “*lapangan*” (the field, place of work), whereas local residents simply refer to it as “*gunung*,” the mountain. Finally, there is the issue of how to term small-scale miners. To Antam, they are always “PETI” (*pertambangan tanpa izin*, mining without permits) or “*penambang ilegal*” (illegal miners). Local people, instead, use the colloquial gurantil or, for those more politically engaged, “*pertambangan rakyat*” (community

⁷³ The same name is used for the entrance to Antam's mining tunnels.

⁷⁴ The dramatic securitization of *portal* and the road is a relatively recent phenomenon. Antam enacted the restrictions in 2015, following the security operation at Kampung Ciemas (see Chapter One).

mining). Interview respondents sometimes protested to me that Antam goes beyond renaming to claiming (*mengklaim*). Signs and plaques with Antam’s logo adorn mosques, roads, football pitches, electricity poles—anything that they have contributed funds to—throughout “Rings” 1 and 2.⁷⁵

These are the spaces Antam aims to exert authority over and those some local people aim to reclaim. The company has exerted constraints on behaviors, and some local people have found ways to circumvent them. Antam has outlined the expectations, and some have pushed back. The company aims to secure compliance and build legitimacy, both inside and out. For small-scale miners, it is about equipping themselves with the tools to advocate for their own vision of the future. Both are about creating certain types of extractive subjects—subject formation is, therefore, a key, but multi-sided, component of territorialization and contestation.

4. “Waking Up” Gurandil

According to Pak Basri, a senior official at Antam, small-scale mining is ultimately a problem of “mindset.”⁷⁶ And, congruently, he proposed that such problems should be solved through “brainwashing.”⁷⁷ In this way, Antam representatives are explicit about its project of remaking Pongkor’s subjects. Their goal is not merely to protect the company’s access to local gold, or even to eliminate unpermitted mining, but to transform thought patterns (*pola pikir*) and habits that they regard as the ultimate source of these problems. This is the conduct of conduct.

While Pak Basri’s word choice may seem alarming, it might simply (if unintentionally) be an atypically candid expression of what has become standardized “best practice” in the extractive industries over the past three decades. Major mining, oil, and gas operations are often highly disruptive to the communities in which they are situated. In many cases, this has spurred on-site forms of resistance, such as protests and blockades (Ballard & Banks, 2003; Bebbington & Bury, 2014; Bebbington & Humphreys Bebbington, 2018). Whereas overt oppression was previously the primary mode of facilitating extraction, more subtle forms of power— spearheaded by CSR activities, community development initiatives, and “stakeholder” engagement—are now the industry’s preferred form of managing local discontent (Frederiksen & Himley, 2019; Welker, 2014). This is often referred to as “maintaining a social license to operate” in the parlance of corporate mining (Owen & Kemp, 2013). Or, as Antam’s CSR officials proudly put it, a focus on techniques that are “*persuasif*” rather than “*represif*.”

But, these initiatives are about much more than “persuading” individuals or “maintaining” a social license. They are about *producing* persuadable individuals and *producing* a social license. They are active, generative processes. Marina Welker’s (2014) text is illustrative. She describes how community development programs attempt to reshape patronage-seeking villagers into self-reliant development subjects and corporate mining defenders. Frederiksen and Himley (2019) have identified this phenomenon more generally, citing the

⁷⁵ During my fieldwork, a banner was once posted on the side of the road that celebrated how Antam had created *one* new job for a local person, when they hired a gate keeper for the company’s Tarekpo park (see below for more on the park). On another occasion, a local artist was upset when, after the company had helped him sponsor an art workshop, Antam “claimed” all of the art that was produced.

⁷⁶ I frequently heard this word, adopted as a modern loanword from English, used to describe mining. From policymakers, to corporate mining security, to environmental activists, “mindset” was a key in producing and reproducing small-scale mining.

⁷⁷ Pak Basri used both the English word and an Indonesianized form, “*cuci otak*.”

production of “extractive subjects” as a key mechanism by which extractive industries cultivate local legitimacy and secure their operations. More abstractly, I follow scholars such as Stuart Hall (Hall, 1986), Donald Moore (Moore, 2005), and Tania Li (2007) in considering these attempts at “improvement” a combination of Gramscian hegemony and Foucauldian governmentality.

However, as described above, Antam has a legitimacy crisis unlike most extractive operations. Their goal is not simply to enable their own operations, but to demonstrate that they, rather than informal miners, are the most appropriate party to do the mining. Key to this objective is the project of “waking up” gurandil⁷⁸—convincing them to stop mining and instead buy into Antam’s vision of resource management and development. Stopping informal miners is a “law enforcement” initiative, but it is also productive for the company. It serves the twin purposes of reducing material impediments to Antam’s operations (competition for gold ores, security and safety concerns on the mountain, etc.) and diminishing political antagonism from local groups supportive of small-scale mining.

Additionally, it appears to be the belief of many Antam staff that this “waking up” is genuinely about improvement, about education, and about building righteous character. As discussed in Chapter Four, Antam relies on, and actively produces, a dichotomy between formal and informal mining that is framed through morality. Whereas the company’s activities are legal, use modern technology, adhere to environmental best practices, and promote national interests, small-scale mining is framed as illegal, backwards, dangerous, and immoral. Correspondingly, efforts to “wake up” gurandil extend far beyond lessons on mineral permitting. They are shot through with values—religious, patriotic, economic, environmental, health and safety—deemed desirable by the company. Antam views itself as an historic leader of national rural development, its state-backed mining operations beacons of modernity and progress in the Indonesian hinterlands.⁷⁹ It follows, then, that it is the company’s duty to transform gurandil—depicted as morally corrupt and backwards—into proper Indonesian citizens; to transform Pongkor from a Wild West “Texas” into a model of entrepreneurship, eco-tourism, and progress.

This project of “waking up” gurandil is the joint purview of two departments within Antam’s organizational structure: security and community development (ComDev). In engaging Pongkor’s community of gurandil, they are the stick and the carrot. Their duties are loosely spatially divided—the former on “the mountain” and the latter in the village. But, both use techniques largely aimed at reshaping local subjectivities. One department breaks old habits and the other helps build new ones.

4.1. On the Mountain

Nearly all small-scale gold extraction in Pongkor takes place on the concession, or, as gurandil call it, “the mountain.” Antam attempts to control all access to and activities within the concession, including continuous monitoring for signs of informal mining. In practice, however, security is not airtight—most gurandil have strategies that enable them to avoid regular run-ins with security (as described in Chapters Three and Four). When they are caught, they will

⁷⁸ Most commonly, the language used here was “*sadarkan*” (to make realize, to wake up from some misconception), but occasionally it was “*bangun*” (literally, to wake up or rise) or “reform.”

⁷⁹ Antam’s history, particularly relating to its Cikotok gold mine, was part of compulsory national education during the New Order. The site of the now closed Cikotok mine celebrates this history elaborately, with coffee table books, mining shafts turned into monuments, and narratives of “mini-Indonesia” being created in the hinterlands of Banten.

sometimes be brought to the district police office to face potential legal action. But, before this, they are subject to a process Antam views as equally significant: “socialization.” These are techniques of discipline that aim to do more than punish, but to reshape and reform gurandil subjectivities.

Pak Tetep, an informal mining ore porter, explained this experience to me, describing his punishment after being caught while crossing one of Antam’s roads on the concession. The security team first confiscated the 60-kilogram sack of ore he had been hired to carry down the mountain on his shoulder. Having lost this freight, it was unlikely he would be paid by its owner in the village. Next, his shoes, headlamp, and hauling sticks—the essential tools of his trade—were taken. His hands were bound behind his back with plastic ties and, standing in the middle of the road, he was ordered to sing. “*Indonesia, tanah airku, tanah tumpah darahku...*”⁸⁰ This rendition of *Indonesia Raya*, the national anthem, was followed by another coerced patriotic act: a recitation of Pancasila, the foundational philosophy of the Indonesian state. Afterwards, Pak Tetep was set free and allowed to walk (barefoot) home. He was grateful they did not bring him to the police, a form of leniency often afforded to porters. But simultaneously he reflected on his fear, his humiliation, and the question of why he had to make a livelihood in a manner he knew was illegal.⁸¹

Pak Arief, a coordinator of Antam’s field security activities, explained the socialization process to me from the opposite perspective. He first outlined that “theft” on the mountain, like “theft” more generally, derives from two factors: intent and opportunity.⁸² While Pak Arief said his job in security was to limit opportunities for small-scale mining, it quickly became clear that he also worked to reshape gurandil intents. He proudly suggested that every time he “meets” a gurandil on the concession is an opportunity to “give education,” “make illegal miners aware,” and “influence a change in their behavior.” Pak Arief has several favorite methods for “planting” this “potential.” After catching a miner on the mountain, he will often engage them in debate. Testing their knowledge of the law and common moral codes, he seeks to point out contradictions and compel them to agree with his perspective. In addition to the nationalistic tools described above, Pak Arief likes to offer religious lessons from the Quran. He asks gurandil to recite well-known verses on theft and then reflect, out loud, on comparisons with their current activity. Similarly, he has memorized lines from the national mineral code. Caught miners are forced to stand and repeat these passages after being lectured on them.

Other security officials told me of their preferred metaphors.⁸³ Pak Basri said he often likens the mining concession to a house: “Would you enter someone’s home without first saying ‘*As-salamu alaykum*’ and receiving the response ‘*Wa ‘alaykumu s-salam*’? In the same way, you must not enter the concession without first receiving permission.” Uniquely, this “house” is also considered an “*obyek vital nasional*” (vital national object), a designation frequently deployed to justify exclusion of small-scale miners. Security officers again draw on the theme of nationalism to shame gurandil, trying to impart to them that they are not only stealing, but stealing from the

⁸⁰ “Indonesia, beloved homeland, land where my blood was shed...,” my translation.

⁸¹ Gurandil caught in more compromising circumstances (for example, inside one of Antam’s industrial mining tunnels) endure much more—both in terms of legal consequences and discipline. In some cases, these miners have been forced to strip down to their underwear and undergo interrogation near-naked. Others have been arrested, presented at press conferences with ominous black masks over their faces, and sentenced to years in jail.

⁸² In Indonesian, the words used were *niat* and *kesempatan*.

⁸³ Including some cruder analogies, such as: “A woman who is not married is unclaimed—she is there to be taken and not owned by anyone—but once she is married there is a letter, a legal document that says she is claimed. The same is true of the land that Antam uses.”

Indonesian people. One senior security official proudly told me that he walks captured gurandil through a series of simple questions until they are forced to verbally declare themselves a thief of the nation's treasures. Even entering the concession, as I inadvertently did, is deemed a threat to national security. One senior security official uses this narrative to dispel miners' claims that local people should control local resources (discussed further in section 5), saying that *all* Indonesian citizens are "local" when the resources are *national*. Antam's security forces view these forms of re-education as core to their work on "the mountain."

4.2. In the Village

The project to "wake up" gurandil continues in the village, here spearheaded by Antam's Community Development (ComDev) department. A major initiative of this team is to "*alih profesi gurandil*," to "shift the profession of gurandil" into other livelihoods. But Antam's ComDev programs are also much wider in scope. They aim to "improve" local communities in a variety of ways, often by reshaping the individuals within them. These endeavors may be fueled in part by genuine interest in helping local people, but they simultaneously offer the strategic promise of reducing the number of active gurandil and undercutting their local political support. They are techniques deployed to consolidate Antam's territorial control and to secure compliance with their vision of the proper order of space, people, and things in Pongkor.

Pak Jefry, a ComDev official, described to me the theory behind mining community development programs. He wrote four words in English on the whiteboard, "Charity, Infrastructure, Capacity Building, Empowerment." He explained that these contributions are a sort of temporal progression. Mining operations start with charity and infrastructure when they open and move, throughout time, to more of a focus on capacity building and empowerment. Antam's Pongkor mine was currently towards the end of its life, and thus the focus needed to be on the last two. They were both the most complex forms of contribution and the most important. In a sense, they involve a transformation bestowed by the mine that would allow local people to "become independent" (*mandiri*), a phrase Pak Jefry used several times. He further explained, "We give it to the people and say, 'hey, let's wake up,' so that they don't just become beggars."⁸⁴ Pak Basri preferred to use the term "brainwash," but repeated the sentiment that local people needed to be made ready for Antam's aid. He expressed frustration with projects previously implemented in one village, saying "everything we have done for them, they have changed." For Pak Basri, gurandil first needed to be convinced to stop mining and only then could Antam provide any form of material support.

One strategy for achieving this goal is promoting alternative livelihoods. As Pak Basri emphasized to me, it was vital that gurandil "must change—to farmers, to merchants, to anything that isn't mining." Antam employees frequently claimed that "everyone in Pongkor used to be farmers," a narrative that—setting aside the fact that it is not quite accurate⁸⁵—suggests that gurandil have other, more "natural" livelihoods that they could easily return to. Shifting their

⁸⁴ Antam staff recognize this transformation is a challenge and pursue multiple methods for enacting it. For example, Pak Jefry said it is best to "cut off one generation" and focus on young children, going to schools and teaching them about the environment. Another official proposed the reverse tactic, suggesting that elders and village leaders needed to be converted first, and then the community would follow. Pak Basri was proud of his new strategy, which involved having ComDev staff live in villages deemed resistant to change.

⁸⁵ People from Pongkor have been involved in waged, non-farm work since the Dutch colonial era. This includes labor on agricultural plantations, working in logging operations, and circular migration to urban employment opportunities in Bogor, Jakarta, Sukabumi, and other cities. See Chapter One for additional details.

“mindset,” showing them the way, and perhaps enticing them to make a change is all this transition should take. In reality, these planned transitions have proved much more difficult. Antam’s sheep raising initiative, in which the company purchased a number of highland sheep and distributed them to local farmers, demonstrates some of these challenges. Interview respondents often laughed remembering this program. They noted that Antam’s training programs completely ignored the political-economic constraints most would-be farmers faced. The company built an elaborate demonstration site, including a large barn to house sheep, but did not detail how individuals could adapt the system on a smaller, less capital-intensive scale. Local people also complained that only elites with privileged access were given sheep. Moreover, the program seemed pretentious and wasteful—why were expensive highland sheep distributed rather than conventional goats, which local people are already adept at raising? And finally, there were technical challenges—many of the sheep—perhaps used to higher elevations—quickly died. Similar to Welker’s (2012) findings in the case of the Newmont Mining company, Antam’s “back to the land” programs have often done more to fuel critique than genuinely produce alternative livelihoods.

If one set of alternative livelihood programs aimed to reinvigorate Pongkor’s supposed agricultural past, another put forward a vision of an entirely novel future—a future named “agrogeodutourism.” The “grand concept” of agrogeodutourism (typically in English but occasionally partially Indonesianized as “*agrogeoduwisata*”) was invented by Antam staff to combine conventional ecotourism with the region’s unique geological history and (hypothetically) revitalized agricultural activities. It is the orienting theme of the ComDev department’s activities and also the official title of their 5-year planning document. Antam and the regional government would construct facilities for a new “geopark” (with an Antam museum as its focal point, described further in section 6), while the people of Pongkor could take advantage of new, tourism-fueled livelihoods. One official summarized, “Once the gold is gone, everyone will run to tourism.” In interviews, I often hinted some skepticism that a location known for mining could easily be transformed into one famed for ecotourism, but ComDev staff were typically more concerned about local people’s ability to participate in it. They once referenced the iconic terraced rice fields of Bali, worrying that people in Pongkor “did not understand how to view their *sawah* as tourism.” To better prepare them, ComDev has offered a suite of workshops, where local people are trained to make handicrafts, trophies, Sundanese *kujang* blades, dolls, snacks, and other souvenirs. Pak Jefry also highlighted how youth education is key to the strategy—he hopes that ComDev’s “environmental education” school programs can help transform local kids into future “tourist guides.”

Conveniently, Antam has packaged many of these ideals into a single place: Taman Rekreasi Pongkor, more commonly known by the acronym Tarekpo.⁸⁶ This space, a carefully manicured park built adjacent to Antam’s waste water processing plant, serves as a representation of all that Antam has given to the region as well as a model for the local community to follow. Like Ibu Tien’s Taman Mini, it simultaneously obscures the region’s challenges and invites visitors to enact a world that simply leaves these blemishes behind.⁸⁷

⁸⁶ In English, Pongkor Recreation Park. In another display of territorial contestation through rhetoric, this area is referred to by the acronym Tarekpo by Antam staff, but is more frequently referred to as *taman buah* (fruit park) by local residents. Perhaps more even more politically, local residents also continue to refer to it as IPAL, the acronym for *Instalasi Pengolahan Air Limbah* (Waste Water Processing Installation), because it is built on top of and adjacent to Antam’s waste processing plant.

⁸⁷ Taman Mini “Indonesia Indah” (“Beautiful Indonesia” Mini Park) is an amusement park in Indonesia developed under the leadership of Siti Hartinah, also known as Ibu Tien, the wife of New Order President Suharto. It attempts

Tarekpo physically embodies the future Antam hopes to see in Pongkor. Its grounds include a nursery and orchard for fruit trees, barns to demonstrate sheep husbandry, a modern mini mosque, and several bridges and artificial waterfalls for selfie tourism. Rainbow-colored pathways, made with bricks of compressed mining tailings, wind up hillsides still contoured by the terraced rice paddies previously planted there. For much of my period of fieldwork, Tarekpo seemed relatively empty. The one exception was during Antam's 50th anniversary, when the park hosted a celebration with contests such as "Nanggung's Got Talent" and an Instagram competition with the theme "Tarekpo for all"—events that I found bizarre for a community who repeatedly expresses concerns about basic livelihoods.⁸⁸ One senior CSR official reflected on the role of Tarekpo in Antam's community development efforts. The park, he suggested, would produce a "multiplier effect for both local people and the environment" (multiplier effect in English).

Despite the green lawns and colorful installations, what always impressed me most about Tarekpo was its preponderance of signs. Nearly everything in the park seems an opportunity for Antam to communicate—or perhaps, teach a lesson—to its visitors. Approaching the start of the rainbow pathway, one encounters a post with eight signs, four attached on either side. All but the first (the park's hours) and last ("and always take care") are pointed proscriptions or prescriptions—don't bring animals, don't destroy plants or collect fruit, do not put garbage in the trash receptacles, don't sell goods, don't hunt, and don't vandalize. Reminders and further instructions are posted at regular intervals throughout the park—please sign in, don't sell goods, put trash in the receptacle, no swimming, always stay with your parents, maximum 20 people, keep the environment clean. The message is clear: certain behaviors common in the village are not permissible here. Other signs chronicle Antam's accomplishments. One installed at multiple places in the orchard presents a table of the number of fruit trees planted—Durian, 198; Mangosteen, 80; Longan, 70; and so on. Banners near recreational bridges and other installations visually depict Antam's contribution. Three temporally sequential images of the location are given, each labeled "before," "process," or "now," to illustrate the transformation of the space. In the corner, they textually project the future they believe they are enacting: "Agrogeoedutourism."

to encapsulate the Indonesian nation by visually representing cultures, architecture, dress, and practices from across the archipelago. It was explicitly built with the intent to cultivate nationalism through the theme of "unity in diversity," Indonesia's national motto (see Hitchcock, 1998; Pemberton, 1994)

⁸⁸ During which the telling slogan, "Golden Years Toward Golden Future," was posted in English throughout the park.



Figure 22: This sign greets visitors to Tarekpo park, instructing them on what behaviors are or (mostly) are not acceptable in the park.

Local police forces (*polsek*), tasked with monitoring gurandil activities *off* the concession, also play a key role in shaping village subjectivities. Small-scale miners are wary of getting caught by the police. They will conceal equipment they have at home and take side roads to avoid run-ins with police patrols when outside. But the district police office, like Antam, also dabbles in the “quieter registers of power.” During my fieldwork they initiated a project called “Save Cikaniki,” a phrase—always written in English and often accompanied by a hashtag—that refers to the local river. One half of the initiative involved placing large banners at strategic sites around the Pongkor area. Similar to Antam’s technique, these banners combined moral, legal, religious, and environmental discourses to discourage the dumping of mining waste into the

river. Atop a photo of children playing in the river, the center text reads “Let’s save the Cikaniki River, for our lives and for our grandchildren.” Above and below are Quranic verses, first in Arabic and then in Indonesian, that urge environmental stewardship, a legal warning and citation of Indonesia’s basic environmental law, and the emblems of local police units and Antam. The other half of the “Save Cikaniki” initiative was more direct: it was simply a police raid on households built alongside the river.



Figure 23: A large, roadside sign posted by the local police unit and Antam. Its contents encourage people to “save” the river, a message that is implicitly about not conducting small-scale mining activities beside the waterway. This message is conveyed in Indonesian, Arabic, and English, and draws on legal, environmental, and religious values.

5. The Political “Community Miner”

While company and state officials often frame small-scale mining as a problem of the mind, gurandil themselves claim it is “*soal perut*”—a problem of the stomach. In this way they advance a structural argument, rather than an individual one. They collect gold not out of greed or poor judgement, but because they feel they have “no other choice”⁸⁹ if they want to meet their families’ needs.⁹⁰ However, I view this counter claim as precisely an example of the mental

⁸⁹ The refrain “*tidak ada pilihan lain*,” “there is no other choice,” is frequently heard as a justification for small-scale mining around Pongkor.

⁹⁰ In this chapter, I have no space to talk about the differentiated nature of small-scale mining—with many participants who are genuinely impoverished and others who are rich. See Chapter Two for a more in-depth discussion of diversity within informal gold production.

component of small-scale mining—not a corrupt mindset, but rather an emergent political “community miner” (*penambang rakyat*) subjectivity. Just as Antam and associated state forces have sought to produce more amenable extractive subjects, segments within small-scale mining have aimed to reshape miners into a unified counter-territorial force. This always-incomplete transformation occurs through Islamic sermons, around late-night cups of coffee, and via formal organizing efforts. In the end, remade gurandil are no longer opportunistic miners, but skilled political agents who argue for a world that is the mirror image of that envisioned by Antam.

Endeavors to produce a gurandil subjectivity come from varied and uncoordinated sources, but they pursue a relatively common objective: to transform small-scale miners from a heterogeneous set of people who happen to pursue a common livelihood into a community identified and unified by shared interests and injustices. According to this perspective, gurandil should not simply be people who try to make a living via gold, but should be aware of the conflict with Antam, understand it through a particular set of frames, and situate and advocate for themselves within it. They should view and present themselves not as people of Bogor Regency or as the rural poor, but as small-scale “community miners.” This sentiment was succinctly exemplified by a young man who I witnessed inextricably shout “*Hidup gurandil!*” (Long live gurandil!) at the conclusion of a weekly religious gathering.

As Tania Li (2000) highlights in her analysis of two groups in Sulawesi, “articulating” identity (drawing on Stuart Hall) is always a historically and contextually contingent process. It also involves “engaging simplifications” to draw connections with broader discourses while simultaneously accentuating certain differences to produce boundaries (T. M. Li, 2000, 2002). Likewise, the promotion of gurandil subjectivities have been conditioned by previous histories of organizing and struggle in the region. Countering Antam, gurandil, too, learn to connect their interests to various broader discourses—neocolonialism, entrepreneurship, community-based resource management, environmentalism, religious law, and more. This change is represented by a discursive shift occurring nationally in Indonesia, with more and more small-scale miners demanding they be called “*penambang rakyat*” (community miner) rather than “*penambang ilegal*” (illegal miner).

5.1. Antecedents and Organizing

Politically engaged gurandil did not simply emerge out of a vacuum. Several historical moments have laid precedent for their advocacy and several institutions have worked towards their organization. The first major conflict between Antam and small-scale miners erupted in December 1998 in the wake of nationwide protests leading to the fall of Suharto’s New Order era. An Antam security officer allegedly shot a trespassing informal miner in the foot, sparking anger among other mining participants and local residents. They stormed Antam’s headquarters to protest, forcing all of the staff to flee, and ultimately set fire to the company’s administrative buildings. The company responded with an aggressive crackdown on gurandil operations and a revamping of its security forces, leading to a period of relative quiet. Once informal mining resumed, local people continued to harness the power of demonstrations and became more strategic with their interventions. For the next ten years or so, protests were a regular feature of life in Pongkor. I was told the most frequent manifestation of these protests was the “*demo ibu-ibu*,” or women’s demonstrations. When a man was caught trespassing on the concession, a group of miner’s wives would quickly gather and march towards to company’s headquarters. They hoped to intercept the security vehicle before the captured miner had entered into legal

processing. If they could, they would often be able to compel the miner's release. The women felt their gender gave them an advantage—no Antam staff would be brave (*berani*) enough to tell a wife or mother that their husband or son could not come home.

Other forms of local protest have not been about gold, but over the use of land and other local resources. For example, community members protested the tightening of restrictions in forest areas adjacent to Pongkor's villages when Mt. Halimun-Salak National Park was created in 1992. With the guidance of urban NGOs, including Walhi and RMI (*Rimbawan Muda Indonesia*), they mounted protests and legal fights, ultimately allowing them to regain access to some forest areas for agroforestry (Siscawati, 2012). Many of the same individuals involved in the fight over national park land are today vocal critiques of Antam. A second example is conflict over tracts of land within the villages. Local farmers have been critical of unused plantation land (typically referred to as HGU, *Hak Guna Usaha*, land). In one instance, a community farmers group worked, again with some outside legal aid, to secure recognition of squatters' rights to use this land (Lund & Rachman, 2017). Participants in this struggle are similarly leaders in advocating for local people, including those who depend on small-scale mining for livelihoods, in confrontations with Antam and the state. During my research in 2017-2018, I encountered another movement to secure control over local resources. Representatives from the NGO SawitWatch, a group which monitors oil palm plantations in Indonesia, were training community members to use GPS devices. Their plan was to map community use of state land, with the hope of receiving formal rights to the land, as part of an application to Indonesia's national land reform project. This history of resource conflicts has produced a social context in which people are knowledgeable about and willing to fight for local resources. Similar rhetoric, strategies, and even some of the same individuals have been involved in the fight for access to gold, with some advocates aspiring for legalization of Pongkor's small-scale mining activities.

Recently, there have also been attempts specifically to organize Pongkor's gurandil. When I visited the Pongkor in 2016, the Association of Indonesian Community Miners, or APRI (*Asosiasi Pertambangan Rakyat Indonesia*), was in the process of creating a local branch of the organization in the region. APRI is an Indonesian membership group that advocates for small-scale miners, including but not limited to those involved in gold extraction, on a national scale. Broadly, they aim to create pathways for improving and formalizing the work of small-scale mining in Indonesia. The organization claims to represent millions of miners in the country and is recognized by government agencies as a key stakeholder group on small-scale mining issues. Similar to previous interventions by land rights and environmental groups, APRI aimed to help organize Pongkor's residents so that they could argue for legal access to local resources, in this case gold ores. The organization designated a local leadership group, collected hundreds of names to become members, and produced a document, entitled "People's Management of Gold Mining to Uplift the Community," to petition the government for legal access to the mining area. Moreover, it facilitated the spread of a new, more positive label for gurandil: *penambang rakyat*, or community miner. By the time I returned to Pongkor in 2017, APRI's organizing initiative had fallen apart. Many people I spoke with suggested that pressure from Antam made it impossible for the local APRI branch to fulfill its goals. Despite this, smaller groups have continued to carry their torch, working to organize gurandil, critique the company, and advocate for the formalization of small-scale mining.

5.2. Inverted Discourses and Counter-Claims

Situated in this milieu of resource and land conflict, gurandil have become increasingly political, learning to counter Antam's arguments point-by-point. Om Ferry, for example, countered Antam's claim of exclusive ownership of Pongkor's gold during our interrogation by referring to Article 33 of the 1945 Indonesian Constitution: "The land, the waters and the natural resources within shall be under the powers of the State and *shall be used to the greatest benefit of the people.*"⁹¹ While Antam officials emphasized the first clause, Om Ferry claimed it was invalid without strict adherence to the second. Others dispute the notion that Antam is managing resources for the benefit of the Indonesian nation, let alone local people. They liken Antam to Freeport-McMoRan and other multinational mining corporations, frequently understood as neocolonial operations that take advantage of their country. Several people told me that Antam was majority owned by the United States or France, rather than the Indonesian state. Finally, some remove the state entirely, opting for a higher authority. To them, Pongkor's gold is not state property, but gifts given by Allah that all humans have a right to use and enjoy.

One of Antam's key claims, like those of industrial mines around Indonesia and the world, is that the major extractive operation would bring development to Pongkor, an otherwise peripheral region. In addition to new jobs and infrastructure, the mine aims to stimulate this development through a suite of CSR and ComDev programs. Politically active gurandil, however, have learned to invert the discourse of development. Many argue that small-scale mining—not Antam's industrial mining—is responsible for any progress the region has made over the past few decades. Gurandil I spoke with would often point out roads, small bridges, or mosques that had been constructed using money sourced from small-scale mining. In some cases, these were charitable gifts from Pongkor's handful of extremely successful small-scale miners. In others, they were deliberate efforts organized by the community to tax small-scale mining revenues. For example, every small-scale mining group might have to contribute one sack of ore per day towards a local road-paving project. More broadly, it was clear to everyone in Pongkor region that small-scale mining incomes lifted up the well-being of people in the region. Money from gold pays for meals, school fees, and medical expenses and supports thousands of ancillary jobs. Moreover, it has served as the capital from which countless businesses and other livelihoods have been launched. While Antam's version of development appears as ecotourism, university scholarships, or bureaucratically burdensome micro-loan programs, gurandil activists highlight that small-scale mining money has often met more immediate and impactful development needs.

Other respondents reversed Antam's narrative of ethical superiority. Reflecting on the company's frequent moral denigration of gurandil, a friend responded by telling me that he could never work at a place like Antam. Only his job in informal gold processing would allow him the freedom to properly pray five times a day and spend each afternoon helping local children with their Qur'anic recitations. Moreover, most local leaders who have attained the ultimate spiritual achievement—the hajj—did so by accumulating wealth through informal gold mining. These wealthy mining hajjis, in turn, reinforce an image of morality through frequent charitable contributions. Mirroring and sometimes exceeding Antam's work, they sponsor religious feasts, pay for mosque renovations, and give alms to widows. One mining boss even opened his private tunnel to the public as a form of *zakat* (Islamic alms) during Ramadan.

⁹¹ The original text of paragraph 3, Article 33 of the 1945 Constitutions reads "*Bumi, air dan kekayaan alam yang terkandung didalamnya dikuasai oleh Negara dan dipergunakan untuk sebesar-besarnya kemakmuran rakyat.*"

When confronted with claims about the use of mercury and cyanide in small-scale mining, some miners counter with evidence of Antam's own environmental misdeeds. They describe how Antam, too, uses toxic cyanide in its gold processing and highlight that Antam's installations have caused far more forest loss than gurandil mining. Others suggested that Antam's mining and exploration activities have altered subterranean water channels, rendering previously-reliable springs dry and leaving neighborhoods without access to water. Most prominently, they point to Antam's massive tailings dam. This installation, used for hosting and processing chemical-laden mining waste, is precariously situated above several communities in Pongkor. Local residents worry that an accident could someday see tailings come crashing down upon their homes. Occasionally, typically after heavy rains, mass fish deaths will occur in aquaculture fish ponds in these communities, stoking claims and fears that waste is overflowing the dam. With respect to the environment, one gurandil summed up, "The people are always scapegoated. We haven't destroyed nature like [to the degree] Antam has. In fact, it is us who are always hit with the negative effects and never the positives."

Others have rejected the vision of agrogeotourism. They refer to Antam's Tarekpo park by its other name—IPAL, the waste water treatment plant—and joke that there's no use in an orchard whose fruit cannot be eaten. A local religious leader expressed further concern about the unanticipated effects of tourism. Inverting Antam's narrative of miner immorality, he framed Pongkor as having traditional values which could be threatened by an influx of urban visitors. He told me incredulously that several discarded condoms had been found at Tarekpo, evidence that tourism would bring a corrupting influence to Pongkor's youth. His message was precisely opposite of that proposed by Antam: that the community needed less engagement with urban, "modern" Indonesia, not more.

Having rebutted Antam's arguments, often by co-opting and inverting the very discourses the company uses to critique small-scale mining, political community miners conclude with a different vision of mine management. Rather than centralized, state-backed industrial extraction, they tap into discourses of community-based natural resource management—perhaps drawing on parallel movements for land access in the region, as well as decentralization trends prominent nationwide in the early 2000s—to demand that local people manage local gold. Antam is envisioned as a neocolonial enterprise, with revenues escaping to Jakarta (or in some versions, even to foreign countries) and jobs only given to highly educated, non-local elites. In contrast, Pongkor's people are framed as "*putra daerah*," local sons who have a right to local resources. Interview respondents told me that gurandil "just wanted to taste a bit of their homeland" or likened themselves, using a common Indonesian proverb, to "mice starving in a barn of rice." Moreover, community mining advocates argue that it does not need to be this way. They point to previous evidence of successful community-based mine management, such as the miner taxation schemes that have funded public infrastructure development. At various points, they have also proposed alternatives to Antam's control of "the mountain." In the mid-2000s, for example, village leaders put forward the idea of a "village pit," a portion of the concession set aside for local small-scale miners (Lestari, 2011). In 2016, with the help of APRI, they outlined a plan to apply for a legal small-scale mining permit. Even the least ambitious advocates argue that gurandil should have control of the mining area after Antam closes its operations. When the company departs the region, it will leave behind countless small gold veins, too small to be profitable for an industrial operation but still valuable to small-scale producers. Around prayer sessions and cups of coffee, Pongkor's increasingly political gurandil are thus learning not only

to dispute Antam’s claims, but to lodge concrete proposals for community-based, rather than industrial, management of local ores.

6. Clean and Green: Corporate Mining Remade

Gurandil politics can be persuasive for individuals not involved in small-scale mining—even for Antam’s employees. Some take pity on local people experiencing hardship, while others are tempted to make a little money on the side by turning a blind eye to unsanctioned gold extraction. The gurandil “mindset,” it seems, can spread. As Pak Basri once told me, “When we discuss illegal gold mining, we must always be clear in our mind. We must not have our thoughts polluted.”⁹² Or, as a member of Antam security staff put it, the gurandil mindset was a “virus that had to be operated on before it contaminated others.” This danger, in part the result of the emergence of a political “community miner” subjectivity, has led to a third project of subject formation; a readjustment in the company’s territorializing tactics. Antam attempts to resist this “polluting” influence through internal reforms. Recent programs aim to consolidate company cohesion and inculcate values seen as modern, moral, and rational. Meanwhile, the company’s offices are filled with artifacts that reproduce and reinforce the narratives which Antam believes give it the legitimacy that small-scale mining could never have. I view this project in terms of twin themes: clean and green. Antam must be clean—free of corruption, morally right, technologically modern, and an effective steward of the nation’s resources. Simultaneously, it projects itself as green, not merely by adhering to environmental standards, but by presenting itself as a leader in conservation and ecotourism.

6.1. Antam the Example

The lobby of Antam’s regional office is a monument to its organizational values. Positioned around the space are installations that embody “*pernyataan komitmen*”—declarations of commitment—from Antam’s annual planning meetings. Each provides a creative, visual display of the unity and shared dedication of Antam’s departments. One incorporates multi-colored paint handprints from each department head; another is an arrangement of small cacti, one for each organizational unit; in a third, the company is represented by a model wooden ship with each department designated as a key functioning component. On a wall, a plaque reads “*PONGKOR PEDULI*” (PONGKOR CARES), with each letter of “*peduli*” signifying a broader value: *P-Produktivitas*; *E-Efisiensi & Inovasi*; *D-Dedikasi*; *U-Utamakan Keselamatan Pertambangan* (Prioritize Mining Safety); *L-Lingkungan* (Environment); *I-Integritas*.⁹³

I heard these buzzwords almost every time I spoke with Antam staff. They are framed as values that unify the company, orient its employees, and differentiate it from informal mining. But this “*komitmen*” has not always been so strong. As described in Chapter Four, Antam and associated security forces have historically had difficulty preventing their employees from participating in, or seeking rents from, small-scale mining. This made effective policing of gurandil nearly impossible and meant persistent disruptions for the company. As Pak Basri put it, “the key to overcoming the problem of illegal mining is to be clean. To have internal integrity first.” A serious endeavor to “clean” Antam began in 2013 with a dramatic change in leadership.

⁹² Many of these types of conversations, I assume, were implicitly about me.

⁹³ The fact that I do not have to translate most of these terms is indicative of how Antam selects and portrays its values—they are modern and international; they represent “best practices” accepted around the world.

With new key staff in place, efforts to shape and maintain values were institutionalized. These programs, Pak Basri told me, emphasize “*komunikasi, kordinasi, dan merah-putih* (nationalism)” and prevent employees from getting “too friendly” with local people. One of the leaders of Antam’s security operations told a similar story. When he arrived at the company he found the security forces in disarray and has since dedicated himself to their professionalization. He proudly spoke about using military training techniques in this “cleaning” process—anyone who doesn’t stand up straight at work is sent back to basic training. Surveillance, too, plays a key role in maintaining internal discipline. Antam’s security force of over 230 individuals is composed of five different policing units—Antam’s internal security team, a contracted security company, visiting provincial police, visiting military police, and a staff of local security laborers. Varying training and allegiances are meant to encourage self-monitoring.

But creating a clean and committed Antam means more than just reforming security. This project of internal subject formation extends to staff involved in administration, mining operations, and engagement with the local community. Daromir Rudnyckyj (2009) provides an eloquent analysis of a parallel case. At Krakatau Steel, another Indonesian state-majority-owned enterprise, consultants combined Islamic values and Euro-American business management knowledge to implement a “*reformasi spiritual*.” A body of employees seen as indolent was inculcated with capitalist ethics by reframing work as a religious practice. Work at Antam, too, is frequently interpreted through frames of obligation. Employees are taught to see themselves as moral and spiritual examples for the community, representatives of modern business and environmental best practices, and stewards of the nation’s vital resources.

Attempts to shape model Antam employees are both pedagogical and embodied. As in Rudnyckyj’s (2009) case, Antam staff participate in regular corporate training programs and workshops. These trainings appear as much an endeavor to inculcate company values as to provide practical skills. In many cases, they also serve to reproduce distinction, to elevate Antam and its staff above *gurandil* and other local people by connecting them with business administration trends from Jakarta, international mining best practices, or the UN’s Sustainable Development Goals. Other processes of subject formation involve bodily discipline. For example, staff are encouraged to join group workout sessions, performed in large arrays in front of the Antam office buildings, in the morning before work. Like Rudnyckyj’s Krakatau steel case, religion also plays a key role. Antam’s local headquarters include a large mosque. And, though local villages often identify strongly with religious piety, Antam staff differentiate themselves from Islamic practice common in the area by having highly regimented prayer times and practices. The company also performs this piety through visible acts of charity, such as contributions to religious feasts or mosques. Like the “PONGKOR PEDULI” plaque, other artifacts around the Antam offices spread the message of how and why Antam employees are models for the community. Posters align Islamic ethics with business efficiency, desk calendars catalogue the company’s efforts in tree planting, and signs warn of the public health dangers of smoking (a true rarity in Indonesia). Most of all, they remind Antam staff that their work is for the good of the nation. One plaque hung on the wall reads, “Proud to be Pongkor... for Indonesia!” These programs, performances, and reminders all work towards building a portfolio of characteristics—modern, ordered, efficient, pious, environmentally friendly, clean—that both encourage Antam staff to see themselves as different from *gurandil* and other local people, and simultaneously obligate them to serve as an example for a community deemed disorderly and backwards.



Figure 24: A painting hung on the walls of Antam's Pongkor offices. The painting, commissioned by Antam, depicts an idealized version of Pongkor. On the left, local residents are shown enacting the company's vision for "agroedutourism" in the villages. They make handicrafts for sale, collect agricultural products, and are pious religious adherents. On the right, Pongkor's concession is devoid of local people and is instead depicted as a space for industrial mining and wildlife.

6.2. Geopark Pongkor and the Mining Museum

Like many mining companies, Antam also lauds its environmental "best practices," certifications, and awards. Internally, these heavily documented achievements prove that Antam is not a destructive force (as it is often framed by Indonesian activist groups), but a green beacon of modern, science-based sustainability. Staff frequently told me about the company's receipt of the "PROPER Gold" award, the highest designation offered by an Indonesian government program that evaluates company sustainability. Artifacts around the office continually reinforce this perspective as well. Grass green wall calendars depict Antam staff planting trees and video monitors in the lobby list Antam's CSR contributions over displays of lush agricultural fields and clear flowing streams. Furthermore, the company's juxtaposition with informal mining has stimulated a more paternalistic tone. Antam staff, largely urban, non-local people, feel compelled to urge longstanding Pongkor residents that local land and water need to be saved "for our grandchildren." And it is the mining company that visits local schools to provide environmental education. Ironically, the resource extraction operation is not on the defensive about its environmental record, but rather frames itself as the region's key advocate for environment.

This narrative was taken to a new level with the conception of the Geopark. Almost overnight, Antam's CSR office was transformed into the headquarters of "Geopark Pongkor

Secretariat.” I had previously heard about loose plans for the geopark, an initiative that combined Antam’s agrogeoedutourism vision with regency government support to officially designate the wider region (spanning 15 districts) a park showcasing unique geological features. I was surprised, however, to see Antam’s central role in administering the park and the speed at which it had undertaken this endeavor. When I first saw the new Geopark office in August 2018 barely a month had passed since I was interviewing CSR officials in the very same room. The office had been dramatically redecorated in the intervening weeks—a banner over the door proclaimed its new role, floor-to-ceiling images exalted the region’s “geo-diversity, bio-diversity, and culture-diversity,” and newly printed informational pamphlets sat ready for distribution. With this sudden transformation, Antam refashioned itself (in part) as a conservation unit and remade its staff from mining CSR officials into ecotourism experts.

A core attraction of the Geopark is the Pongkor Mining Museum—an underground museum meant to celebrate this, Java’s largest gold mine, and typically framed as the centerpiece of Antam’s agrogeoedutourism plan. I was astonished to see promotional materials for the museum at the new “Secretariat.” For months, Antam staff had been telling me that the museum was not yet ready and thus I could not visit it. With brochure in hand, I was finally able to convince them to offer me a tour. Around a week later, as my tour began, I came to understand their reticence. The entrance to the museum, a modern steel and brick wall reading “*Museum Tambang Pongkor*,” is constructed a foot in front of the aging, concrete mine entrance. It is a façade in both the literal and figurative senses. Behind it is not a museum, but an actively worked mining tunnel. This serves as an excellent educational opportunity for geology and mining engineering students, who, reasonably, it seems are the only visitors ever allowed to enter. But, absent some dramatic changes, it does not seem the Pongkor Mining Museum will be ready for general tourists anytime soon. The mining museum might not be able to draw tourists to the Geopark or fuel a new economy built on agrogeoedutourism. But, in at least one sense, this doesn’t matter. It propels a narrative and a belief that Antam is a leader in ecotourism.



Figure 25: A small park area constructed immediately outside the entrance to one of Antam's main tunnels, designed to be part of the Pongkor Mining Museum.

7. Co-Constitutive Extractive Subjects

This chapter uses the conflict over gold in Pongkor to augment understandings of how processes of territorialization and contestation are not simply struggles to control space, but also to shape subjects within space. The terrain of these conflicts is not merely “the mountain,” but the dispositions of the people who use it, too. Moreover, these processes of subject formation are multiple, interrelated, and not simply top-down.

Antam has endeavored to consolidate territorial control by “waking up” gurandil and “improving” the mindsets of local people. It uses both its security operations and ComDev efforts in an attempt to shape conduct from within. A process of counter-territorialization has emerged among gurandil. Key to this is the reformulation of small-scale mining from a livelihood to an identity. Small-scale miners should situate themselves through the conflict with Antam and learn to advocate for themselves as “community miners,” often by inverting the same discourses deployed by Antam. Simultaneously but also in response, the company has to remake itself to assert its role as a clean and green national leader by inculcating and continually reinforcing this vision for Antam staff.

These processes of subject formation do territorial work. They are not just something that inevitably happens in the context of resource extraction; not just the effects of mining on local people. Rather, they are part of broader processes of territorialization and counter-territorialization; of contests over who gets to set rules about the ways people interact with space and resources, and also the governmental question of how to get people to comply with those rules. Antam attempts to shape the local population and its own staff in ways that will make it easier for them to control Pongkor as its own territory. These efforts are meant to increase compliance with their rules, improve enforcement against informal mining, and shore up internal legitimacy, ultimately all about maintaining their exclusive use of local gold. Small-scale miners' political advocacy makes their own territorial claims—that local people should manage local resources—and their organizing ultimately aims to institutionalize this in law. To make small-scale mining in Pongkor legal, to have space from the concession allocated for their own use.

This builds on theorizations of how processes of territorialization are always understood as incomplete and contested. In the same way, governmental projects associated with resource extraction (which are necessarily spatial) are also undermined and reconfigured. Just as small-scale miners can produce territories (Peluso, 2018), they can counter corporate territorial expansion. Part of this process is the shaping of new, extractive political subjects to counter corporate governmentality. In other words, this is further evidence that territorialization is as much derived from authority as it is used to produce authority (Rasmussen & Lund, 2018). A key method for Pongkor's *gurandil* to contest Antam's authority and enact small-scale mining legitimacy is through the production of their own extractive territories and subjects.

Finally, these dynamics present an opportunity to extend current theorizations of extractive territories and subjects. Frederiksen and Himley (2019) propose the term “extractive subjects” to show that dispossession is enacted not only through coercion, but also the production of consenting subjects. The case of Pongkor adds to this evidence, but also illustrates how extractive subjects are more diverse. Their production is not simply the purview of states or companies, nor is it exclusively to the end of dispossession. Subjectivities are also remade by those who contest (or compete with) corporate resource extraction. And mining corporations, too, internally produce extractive subjects.

Moreover, these subjectivities are made and remade relationally. Kirsch (2014) argues that mining companies have legally and tactically responded to their critics in iterative and dialectical fashion. Pongkor's extractive subjects in formal and informal mining have, likewise, emerged in response to one another. They are interrelated and co-constitutive. Antam attempts to inculcate particular values by drawing on nationalistic, religious, development, and environmental discourses. Small-scale miners understand these arguments and, in response, invert these discourses to critique Antam. Within Antam, there are worries that staff will have their mindsets “polluted” by small-scale mining. So, Antam managers cultivate an understanding that draws a clear distinction between proper, model miners and illegal ones. This leads to some surprising results. In contrast to the example of the domineering mining company, the case of Pongkor shows how small-scale miners have ironically become co-authors of Antam's identity and conduct. The subjectivities of people in Pongkor—whether small-scale miners, corporate mining employees, or villagers—are being made relationally. These extractive subjectivities are co-constitutive. Entanglement in Pongkor is therefore not simply about political economy, mining practices, or territories (as described in other chapters), but also about identities and dispositions. In Pongkor, Antam and *gurandil* are reflections of each other.

CONCLUSION

1. An Uncertain Future

When I left Indonesia in October 2018, one question from my research remained unresolved: what might Pongkor's future hold? This was a question I always asked during my interviews. To the small-scale miners, did they hope to continue the gurandil way of life? Did they aspire to a small-scale mining future for their community? To the corporate mining employees, would the current wave of suppressing informal mining activities, started with Operation Humanity in 2015, endure? I quickly found that another question always loomed over these concerns: how long would Antam stay?

In 2018, Antam staff's answer to that question was "not long." The company's mining license was set to expire in 2021 and the dominant narrative among employees was that reserves were dwindling and it was time to move on. To Antam's CSR and ComDev teams, this meant preparing the Pongkor community for a future beyond mining, too. Oriented around the "agrogeoedutourism" strategic plan, this meant building out tourism potential in the region, with the Pongkor Mining Museum and Geopark Pongkor at its center. Many small-scale miners had a different perspective. With Antam gone, it would be time to return local resources to local people. Gurandil could work the company's old tunnels, just as some do now, to extract remnant traces of gold. Absent the company, small-scale mining in Pongkor could flourish—perhaps it could even get legal mining permits. When I ask Pak Jefry, an Antam ComDev team member, about this, he and his colleagues responded with dismay. They feared that Pongkor would one day become like Cikotok. The Cikotok mine, Antam's former flagship mine and a symbol of New Order nationalist pride, was considered to be a lesson for current mine closure planning. After Antam left Cikotok, small-scale mining groups took control. They scavenged, with decent success, old Antam and Dutch colonial tunnels. Even the dirt around Cikotok's processing facilities was scooped up—it too contained significant amounts of gold. This was precisely the opposite of what Pak Jefry and his colleagues intended for Pongkor. Instead, as Pak Basri, the senior security officer, told me, Antam would never really leave Pongkor. It would serve as the region's steward for decades to come, with the Pongkor Mine Museum as its anchor.

While many small-scale miners dreamed of Antam leaving, other gurandil were wise to Antam's intentions. To them, it was obvious. Why would the company relinquish control of valuable resources? Moreover, they had already lived this story. A decade ago, similar suggestions had swirled around Pongkor—Antam's license was going to expire and they would leave. Instead, Antam extended their license for a further ten years at the last minute. In August 2019, this history repeated itself. News reports emerged that Antam would be renewing its license again, adding another ten years to the clock (Sugianto, 2019). The company's president declared that, despite dwindling reserves, there was still enough gold to mine for at least two or three additional years and, moreover, there was additional exploration to conduct. He believed that more gold sat below the concession in an area on current national park land (Al Hikam, 2019). It is easy to imagine that this area might be one of the locations that Pongkor's gurandil have been mining for the past two decades. The drama over gold will thus go on.

Antam's consolidation and extension of its legal control over Pongkor's resources portends a broader challenge for Indonesia's small-scale gold miners. Even with forms of small-scale mining permitting in WPR and IPR, with mounting pressure from advocacy groups, and

with growing acceptance among some local governments and segments of some national agencies, how can small-scale miners claim resources when state-corporate extraction already has such a firm grasp on Indonesia's underground territories? Indonesia's land is famously already over allocated. Mining, timber, and agricultural concessions cover large swaths of the country. These overlap with each other and with other jurisdictions, such as forests and conservation areas, so frequently that the Indonesian government created the One Map Policy in 2011, an initiative aimed specifically at clearing up such land use ambiguities. Though uncertainty remains, it is clear that significant portions of land have already been allocated to companies. A 2014 report by the Rights and Resources Initiative, for example, suggested that 30 percent of all Indonesian land was controlled by extractive industries (Alforte et al., 2014). Representatives from JATAM, a prominent Indonesian anti-mining organization, suggest that 44 percent of Indonesian land is under some form of existing mineral license (Naim et al., 2019). In May 2020, an amendment to the mining code further expanded the power of companies to control land. Under the new policies, mining corporations can automatically extend their licenses two times for an additional twenty years. Furthermore, the amended rules eliminated the limit on the geographic size of individual mining permits, which was previously capped at 15,000 hectares (Jong, 2020).

Interestingly, the 2020 Mining Law Amendment also increased the potential size of WPR and IPR, small-scale mining permits. But the point remains, how will small-scale miners be able to claim resources when so much space has already been allocated to mining and other extractive companies? My research in Pongkor points to the flaw underlying this model of mineral claiming and permitting. A first come, first served system will not be able to accommodate evolving demands for small-scale access to the underground. Small- and large-scale mining operations are not distinct, parallel competing operations. Nor do they exist on equal footing with similar access to the state. As shown by Pongkor's history, detailed in Chapter One, small- and large-scale mining grew alongside and through each other, entangled. Moreover, the benefits of small-scale mining often appear as a complement to, rather than replacement for, large-scale mining. As described in Chapters Two and Four, small-scale mining offers more accessible, flexible, and different types of livelihood opportunities, though employment in mining in general is increasingly insecure. As described in Chapter Three, small-scale miners may occupy the same under and above ground concession spaces as industrial mining, but often they work marginal veins that would not be pursued by a company. The case of Cikotok (and Pongkor's potential future), additionally, show how small-scale miners can squeeze additional gold out of a mining location even after industrial companies have given up.

All of this points to the fact that permitting of small-scale mining in the current system, where companies have already snapped up concessions on most of the valuable land, is not likely to fix gold mining conflicts. More creative policymaking is needed, starting with an understanding that small- and large-scale mining cannot be treated as distinct. This is true on a global scale. As Geenen and Verbrugge argue (2020), formal and informal mining are being shaped by the same broad political-economic forces in international gold production. But, as I argue in this dissertation, the interrelation of large and small also takes more local, intimate, and historically-situated forms in particular places, like Pongkor. These insights should form the basis of formalization initiatives that reach outside the box of typical mineral policy, such as proposals for permitting based not on exclusion, but co-existence between large- and small-scale gold mining (e.g., Hilson et al., 2020; Yakovleva & Vazquez-Brust, 2018). The drama between large- and small-scale mining operations is not just in Indonesia, but playing out across the

world, in Colombia, Brazil, Peru, Madagascar, Ghana, Burkina Faso, Papua New Guinea, the Philippines, and many other contexts with significant gold deposits. Pongkor's lesson for these places is that key dynamics between overlapping formal and informal mining operations are just as likely to be found in the things they have in common, than in the features that make them appear distinct.

2. Key Contributions

This dissertation demonstrates why—counter to predominant scholarly, policy, and popular representations—small- and large-scale mining must be understood and managed as interconnected, rather than as distinct entities or spheres. Across its constituent chapters, I have shown their entanglement through the case of Pongkor, a mining region in West Java, Indonesia, where a state-owned mining company, Antam, and thousands of small-scale miners called *gurandil* compete over the same gold ores. The chapters detail how all of Pongkor's mining operations are shaped by the same intertwined history and broader political-economic contexts, while simultaneously shaping each other through interpersonal connections, flows of money, labor, and knowledge, competing forms of territorialization, and subject formation processes. In presenting this analysis, I offer a corrective to current popular narratives of small-scale mining. I critique and propose amendment to policies that manage small- and large-scale mining as distinct. And, I complicate scholarly accounts of mining conflict, small- and large-scale mining interactions, and binary depictions of formal and informal economies.

The case of Pongkor shows that, as with most resource conflicts, history is a vital starting place for understanding mining dynamics and competing claims to ore. In Chapter One, I detail how Antam and small-scale mining activities have been entangled since the beginning of gold mining in the region in the 1980s. Understanding this starts with examining key historical roots that stretch back even further. Dutch colonial and then early Indonesian state management of land around Pongkor facilitated creation of a state-owned mining concession and simultaneously a community of residents who were dependent on cash wages (and thus primed for future mining livelihoods) rather than farming. Early industrial mining operations, such as the Cikotok mine first operated by Dutch, were also key antecedents. Not only is Cikotok vital to the story of Antam's creation as a company, but movement of mining labor and knowledge from Cikotok helped stimulate the start of small-scale mining in Pongkor. The explosion of small-scale miners in the late 1990s, following the Asian financial crisis, highlights how informal mining is simultaneously situated not only these local and national dynamics, but also global political-economic shifts. The government crackdown that followed in the year 2000 temporarily seemed to bring conflict between Antam and *gurandil* to a conclusion, but the late 2000s and 2010s showed how small-scale mining can adapt—in its geography, its division of labor, and its technology—to navigate policing pressures. A remaining question is, will the aftermath of the 2015 Operation Humanity policing raid share a similar fate? Early evidence suggests so, as *gurandil* activities have undeniably continued, if in different spaces and altered forms. All of this points to the fact that small-scale mining is more than simply a livelihood, counter to what Antam community development and alternative livelihoods programs aimed at “reforming” informal mining around the world might suggest. Rather, they are deeply historically, culturally, and political-economically engrained in life and community in Pongkor.

This historical analysis offers broader lessons for analyzing and managing small-scale mining in other contexts. For one, it shows that small-scale mining does not simply emerge

naturally or inevitably from the presence of gold ores, as was often implied by Indonesian government administrators when they used the saying “*ada gula, ada semut*”—where there is sugar, there will be ants. Rather, it is the product of specific historical processes, both local and global, that must be traced in order to understanding small-scale mining’s emergence and persistence. In particular, the case of Pongkor shows how the state and formal mining industry can be culpable in producing informal mining. To take just the most obvious example, it is clear that small-scale mining would not have started, at least at not at the same time or in the same way, without Antam’s import of mining labor (and inadvertently, small-scale mining knowledge) from Cikotok. Mining policy and policing must take this fact into account. Often, it is not the case that small-scale miners “invade” or “encroach” upon industrial mining concessions, as it is frequently described in popular and scholarly literature (e.g., C. Aspinall, 2001; Okoh, 2014), but rather that companies have generated conditions that make this likely. Governments and mining corporations, then, must be held partly responsible for producing small-scale mining conflicts and expected to contribute to equitable solutions.

A second takeaway from this history regards the relationship between policing and small-scale mining persistence. The world over, coercive policing remains one of the most visible way informal mining is managed, at least in the instances where law enforcement becomes a priority. Violent crackdowns, such as the 2015 raid on Ciemas, show why these are often more dramatic performance than enduring solution. As detailed most heavily in Chapter Two, small-scale mining is an extremely diverse and flexible activity. Pongkor’s history shows how, at multiple times and in different ways, this flexibility has enabled the persistence of gurandil activities despite Antam and the Indonesian state’s attempts to eradicate it. To other mining contexts, both inside and outside of Indonesia, this reality should guide management endeavors to focus on understanding root causes, diverse and particular mining practices, and perhaps what forms of small-scale mining can be considered be acceptable, rather than simply focusing on eradicating its most visible signs and symptoms.

Taking a more nuanced approach to small-scale mining is also vital given the diversity of people, positionings, and practices involved. Chapter Two describes how Pongkor’s small-scale mining economy is highly heterogenous and differentiated. There is both opportunity and insecurity in gold mining, though increasingly more and more people are enduring its challenges rather than striking it rich. This, I argue, can be explained by understanding most small-scale miners as laborers who either work flexibly at subsistence levels, rather like extractive peasants (Lahiri-Dutt, 2018b), or are exploited by unequal labor relations when working for wealthier financiers. Thus, I implore mining researchers and policymakers to be attentive to inequalities within the sector. Not all miners or mining is the same, and the effects of interventions—whether formalization or criminalization—are also uneven. Likewise, scholars of mining and development will find no easy characterization of mining livelihoods. As others have pointed out (Lahiri-Dutt, 2018b; Peluso, 2017), mining participants may behave more like peasants, like smallholders, like workers, or like entrepreneurs. I argue that most important is a focus on laborers. More generally, I point to the importance of understanding the positioning, both within the gold production process and with regards their general social standing, to analyzing mining opportunity and insecurity. Furthermore, I build on Verbrugge and Geenen’s (2020) analysis demonstrating that large- and small-scale mining are similarly affected by pressures on global gold production by highlighting the work at large-scale mining companies is, too, increasingly insecure. Finally, the case of Pongkor shows how these dynamics combine when, as described

further in Chapter Four, mining labor and mining money move back and forth between large- and small-scale operations.

The case of Pongkor also allows me to contribute to political-ecological understandings of natural resource conflicts, territories, and identities. In Chapter Three, I grapple with the question of how competing claims to resources differ when the resources are underground. Literature on mining conflict has conventionally focused on above ground concerns, such as land use or the distribution of benefits (Ballard & Banks, 2003; Jacka, 2018). However, in the case of Pongkor, it is the actual underground—both spaces in it and the resources it contains—that are the focus of conflict. I draw on recent literature on vertical territories (e.g., Bridge, 2013; Elden, 2013; Marston, 2019) as well as new analyses of the underground and the geological (e.g., Squire & Dodds, 2020; Yusoff, 2013) to extend Bruce Braun’s (2000) analyses of how the specific features of the subterranean shape underground territories. By examining ways of accessing, navigating, and knowing the underground in Pongkor, I show that, like analysis of above ground resources (e.g., Vandergeest & Peluso, 1995), even territories made of solid rock are open to competition. Antam and the Indonesian state, despite their exclusive right to Pongkor’s ores in law, must constantly work to exclude unauthorized resource users. They attempt to remove trespassers from the grounds of the concession, occupy and control subsurface volumes, and guard and surveil knowledge of underground (Chapter Three). Additionally, they try to govern Pongkor’s residents from the inside out by refashioning unlicensed miners into more amenable development subjects (Chapter Five). I demonstrate how contests over underground territories, in Pongkor but also likely in other places where small-scale mining occurs, pivot on the material nature of the subterranean. Following a common political-ecological theme (Peluso, 2012), understanding mining conflicts and underground territories necessitates understanding “the difference nature makes.” In the case of the subterranean, this calls attention to the portals between the surface and subsurface, to the vagaries of volumes of rock or air, and to varying geological ontologies.

Additionally, Pongkor shows how small-scale mining is generating new resource-rooted identities. In Chapter One, I describe the historical processes by which mining became more than a livelihood in Pongkor. The word *gurandil* signifies more than just a type of work; it is a type of lifestyle. In Chapter Five, I show how it is also increasingly part of a new political subjectivity. This is one among several, I argue, that are co-constitutively produced by mining dynamics in Pongkor. Frederiksen and Himley (2019) coined the term “extractive subjects” to describe how persuasion, seduction, and manipulation are increasingly used, alongside coercion, to facilitate large-scale resource extraction. I bring this concept to Pongkor, considering how Antam uses its CSR, community development, and security activities to shape more amenable subjects in the local community. Unlike elsewhere in Indonesia (Welker, 2014), this is less to augment Antam’s “social license to operate” than to consolidate control over its resource territory by reducing small-scale mining activities.

But, I argue, extractive subject formation in Pongkor goes beyond this more familiar top-down governmentality. *Gurandil* are evidence of another form of emergent, newly political subjectivity, one in which miners learn to not just avoid Antam, but to argue against it for legalization. They draw on Antam’s own tactics, inverting their discourses to demand that people manage local resources. This is part of a broader process in Indonesia, and perhaps the world, where small-scale miners are organizing and advocating for themselves. Again, small-scale mining can be seen as much more than just a livelihood—it is also a community and sometimes a political positioning. Finally, I show that new subjectivities are also formed within Antam itself.

The company finds itself needing to reimagine itself as not just a modern mining corporation, but a clean and green leader for the community. Extractive contexts are thus not simply producing new, more amenable subjects in the community, but the community is producing newly political subjects and reshaping identities within mining corporations.

Together, these dynamics show multiple ways that the formal and informal mining spheres cannot be separated. Despite this, binary narratives splitting mining in two are dominant. And though small-scale mining is increasingly gaining a foothold for some forms of legalization, it remains understood as something distinct, unusual, and perhaps inconvenient, rather than part and parcel of gold production around the globe. Nowhere was this absolute distinction more explicit during my research than in the halls of Antam's offices. Senior corporate leaders insist on labeling small-scale miners as illegal and, as I described in Chapter Five, attempt to eradicate feelings of sympathy among their staff. However, as I argue in Chapter Three, the line between Antam and Pongkor's *gurandil* is always blurry. Intimate and familial ties span the two operations, while labor, money, and information readily cross back and forth between them. These interconnections are everyday—they are simply part of life in Pongkor, informing daily activities and livelihoods, in ways that, if sometimes subtle, could not simply be eliminated through staff training, CSR activities, or corporate reform.

Beyond Antam's faulty interpretation, this everyday entanglement shows why Pongkor's situation might not be so easily described as a resource "conflict," or at least not one with always easily discernable parties or interests. Rather, it builds on evidence, such as that brought together in Peluso and Watt's volume *Violent Environments* (2001), that context-specific features and particular interactions must be traced to understand *moments* of conflict, rather than assuming, as Antam do, that small- and large-scale mining will always be at odds. It also further develops the reasoning for mining policy that considers small- and large- together, rather than as distinct, parallel, or competing. In the realm of political economy, it offers another layer to critiques of analysis of formal and informal sectors (e.g., Castells & Portes, 1989; Chen, 2012; Guha-Khasnobis et al., 2006). This framework, often with the assumption that the informal economy should be absorbed into the formal economy (Siegel & Veiga, 2009), remains dominant in analysis and policymaking for small-scale mining. (Or, where the analytical framework is not used, at least the rhetoric is.) Pongkor reveals how false this dichotomy is and provides opportunities for moving forward with "formal" and "informal" as a heuristic, as I attempt to do here, rather than a fundamental understanding of global gold production. Further research can explore opportunities for this entanglement in other resource sectors, from the relatively similar dynamics of timber and fishing, to agriculture and urban informal economic spheres.

3. Supporting Mining People

This dissertation does not answer the persistent ethical question in Pongkor, "Who should be able to access and use local gold?" I can offer no prescription about whether Antam or small-scale miner management of local ores will lead to better outcomes. However, the text does help us to understand who attempts to control the underground, how, and with what consequences. I trace the narratives and discourses deployed to mobilize competing resource claims, the practices employed to try and realize these claims, and the social relations, local histories, and political-economic dynamics in which they are embedded. One conclusion that this analysis definitively points to is that small-scale mining is here to stay—in Pongkor, elsewhere in Indonesia, and around the world. Small-scale mining is not a strange coincidence, nor a "wild" practice

disconnected from the rest of social reality, nor an inevitability akin to “ants” rushing to “sugar.” Rather, it emerges from histories and conditions that the state and formal mining industry helped produce. That is, small-scale mining often exists when and where it does today because of the actions of the very entities that are sometimes intent on removing it. Moreover, counter to many popular depictions, most small-scale miners cannot be described as greed-driven environmental criminals. Instead, many are laborers simply trying to get by and taking advantage of a livelihood that offers flexibility when little other work is available. In other words, small-scale miners are better understood as *people* navigating tenuous political-economic positionings and uncertain livelihoods, rather than a category of miners defined by their use of rudimentary extractive methods.

These findings remind us of the need to humanize small-scale miners throughout the globe. Today, over 134 million people in more than 80 countries depend on small-scale mining for their livelihoods (World Bank, 2020). Most still work informally, without recognition or permission of their countries’ governments. Often, the best-case scenario is that they are ignored, but in many contexts they are more likely to be criminalized. Like the gurandil in Indonesia, many are increasingly asking how mineral codes and policies might be amended so that natural resources, as outlined in article 33 of the Indonesian Constitution, are “used for the greatest benefit of the people.” As in Pongkor, the broader historical and political-economic processes that produced them, as well as the social and cultural rootedness of miner ways of life, mean these millions of miners are not going away anytime soon. The fact that small-scale mining continues to be plagued by challenges—environmental concerns, dangerous labor conditions, exploitation and rent-seeking, among others—is all the more reason that these communities be engaged rather than neglected. Gurandil stories and everyday life enable us to see the intricacies and contingencies of gold mining—large, small, and the dynamics that have produced them together—often obscured by binary legal definitions, dramatic media reports, or technical assessments. The case of Pongkor, thus, helps us see the value of learning about and from miners as people.

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