Intersecting Inequalities and the Limits of Post-Mining Transition in East Kalimantan

DALA INSTITUTE

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Insights on Women and Marginalized Communities from Kerta Buana

Giovanni D. Austriningrum, Nitia G. K. Ayu, Komariah Ervita, Dewi S. Farrasyifa

Just Energy Transition in Coal Regions

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Mailing Address

Jl. Bumi Ayu, Gang Pungut Sari No.6 Sindu Kelod, Sanur
Denpasar Selatan
Bali 80228, Indonesia
Tel: +62 8111 3252 11
Website: dala.institute
Instagram: @dalainstitute
LinkedIn: Dala Institute for Environment and Society

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Editors: Sibel Raquel Ersoy and Maria Cecilia Bonnet (Wuppertal Institute)

Authors: Giovanni D. Austriningrum, Nitia G. K. Ayu, Komariah Ervita and Dewi S. Farrasyifa
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POKJA 30

PKBI Perkumpulan Keluarga Berencana Indonesia Daerah Kalimantan Timur

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Executive Summary

This report examines the livelihoods, resource access, and intersecting inequalities for women and marginalized groups, through a case study of Kerta Buana, a transmigrant village in Tenggarong Seberang sub-district, Kutai Kartanegara regency, East Kalimantan, as local communities perceive and experience coal mine closure as a sudden rupture to the local economy.

East Kalimantan is Indonesia's largest coal-producing region. Kerta Buana village was established in 1980 as a transmigrant settlement and developed a thriving agricultural economy. By the mid-2000s, large-scale open-pit mining had displaced 70–80% of its agricultural land, destroyed its primary water sources, and restructured its entire social and economic life around coal. In February 2022, a major mining company operating in the area formally ceased operations, initiating what is officially framed as a post-mining recovery phase. Among coal-affected communities in East Kalimantan, Kerta Buana stands out as a particularly legible site for examining what post-mining transition actually looks like on the ground: it combines sudden corporate closure, a diverse community composition (including transmigrant groups and women in the informal sector) and the layered, intersecting inequalities that shape who bears transition costs.

The study was conducted in three phases. A rapid literature review mapped key themes and gaps in existing scholarship on gender, coal economies, and just transition in Indonesia and internationally. Between April and June 2025, six online consultations and an in-person scoping workshop in Samarinda validated the research questions in dialogue with civil society organizations, local university researchers, local women groups, and regional planning actors. The scoping workshop selected Kerta Buana as the case study site on the basis of its varied mining status, community diversity, established local contacts, and safety and accessibility considerations. Primary qualitative fieldwork was conducted in August 2025, including 34 in-depth key informant interviews, four focus group discussions with a total of 42 women participants, participant observation, and a group interview with mining company representatives. The study engaged participants across a range of social positions: former mining workers, post-mining rice field beneficiaries, aquaculture operators, sex workers, women in informal trade, members of women's farmer groups, youth, local government officials, and company representatives. Of 76 total participants, the majority (52 participants) were women.

The analysis draws on four theoretical traditions: feminist political economy, feminist political ecology, intersectionality, and decolonial and postcolonial scholarship, organized around four interrelated dimensions of justice: redistribution, recognition, representation, and reparation. These are used as an analytical device to discuss the findings, not a claim to exhaust what justice requires.

Finding 1: Uneven and Compromised Access to Post-Mining Land and Resources

Post-mining agricultural programs in Kerta Buana, most notably the conversion of former mining pits into rice fields, reach only a small fraction of the population. Access is mediated through lottery systems combined with acknowledged informal insertions (*titipan*), allocating parcels to those with social proximity to village authorities rather than necessarily to those in greatest need.

The costs of farming degraded land, such as elevated labor premiums on coal-contaminated soil, machinery dependency, hydrological instability, and unverified contamination risks, fall almost entirely on farming households. Corporate and government communications emphasize productivity figures that obscure this labor intensification. Input support ends after three harvests, but the more fundamental question of land tenure, i.e. how long access lasts, under what conditions it may be revoked, and what happens when the concession formally returns to the state, remains unresolved

for all beneficiaries. This keeps communities in a condition of dependent access rather than secure entitlement. Women face compounded barriers: machinery-dependent cultivation disadvantages those without access to technical skills, and formal recognition of women's participation masks substantive exclusions rooted in degraded environments and gendered labor regimes.

Finding 2: Risky Survival and the Reproduction of Intersectional Vulnerabilities

For many residents, the post-mining closure situation did not feel like a 'transition', but a sudden rupture where benefits and risks were not evenly distributed: landless households could not return to agriculture; migrant families lacked extended kin networks; older workers faced age discrimination in recruitment; households without savings exhausted severance pay quickly.

Across aquaculture, informal small-scale trade, intensified unpaid care work, sex work, and informal extraction, post-mining livelihoods reproduce and deepen vulnerabilities rather than resolving them. Fish farmers who invested severance pay in floating cages on acid pit-lakes experienced harvest failure while simultaneously receiving official certificates recognizing them as 'examples of successful post-mining aquaculture'. Women absorbed the invisible costs of economic transition, expanding working days that combined income generation with domestic and care responsibilities, with little institutional recognition or support. Sex workers, whose livelihoods were structurally intertwined with the mining economy but never formally acknowledged, received no transition assistance and experienced heightened health and safety risks as informal protective arrangements dissolved after mine closure. The women's mushroom farmer group illustrates the structural limits of corporate community development support: real, if partial, benefits followed by premature withdrawal, leaving women to absorb the gap through compressed working days.

Finding 3: Youth, Exclusion, and the Normalization of Inequality

Young people in Kerta Buana are aware of environmental damage, governance opacity, and unequal access to programs. Yet open criticism is rare. Information about post-mining programs flows through village officials who act as informal gatekeepers. Women's programs are channeled almost exclusively through PKK (state-affiliated women and family welfare groups), designed for married women that leaves unmarried young women, adolescent girls, and young men without institutional recognition.

Mining remains the dominant framework for imagining a stable future. The ideal son-in-law, in the village's current social economy, is someone who works in mining; a gendered norm that renders agricultural and non-extractive alternatives less attractive and reinforces structural dependence on extraction. Young women who do enter the mining service economy, as contracted catering, laundry, or housekeeping workers, face precarious conditions, exclusion from company information and transition planning, and heightened risks of gender-based violence without effective institutional recourse. The condition young women named collectively in focus group discussions (the "toothless tiger") captures this condition: they have critical awareness, but that awareness could not translate into collective claims and action to demand accountability due to an absence of safe and effective channels.

Concluding Analysis

Mine closure in Kerta Buana has produced a reorganization of inequality amid a sudden rupture to the local communities' livelihoods: redistributing risk onto households, intensifying women's reproductive and care burdens, and narrowing the political space for accountability. The gap between what closure delivers and what justice requires is not only technical, but also structural and political. A consequential mechanism sustaining this gap is the systematic framing of corporate obligation as corporate generosity. Reclamation, livelihood programs, and environmental rehabilitation are regulatory requirements embedded in permitting frameworks; not gifts. Where communities understand themselves as receiving gifts, dissatisfaction can only be expressed as complaint; a request for more or better, rather than as critique and demands for accountability directed at the structure that produced the harm.

Recommendations

The following recommendations are addressed to regional and national governments, mining companies with post-mining obligations, and development partners working on post-mining transition and economic diversification in East Kalimantan.

1. Reframe post-mining obligations as regulatory duties, not corporate generosity. Government oversight bodies should establish clear standards for how companies communicate post-mining activities, and invest in accessible public information that helps affected communities understand what they are entitled to.

2. Expand the definition of affected persons beyond formal mine workers. Eligibility for transition support should be extended beyond formal employment status to encompass all those with documented economic dependency on mining operations, including informal traders, service workers, women in catering and laundry supply chains, aquaculture operators, and others in the informal economy, including sex workers.

3. Clarify and secure the terms of post-mining land access. Post-mining programs should publicly disclose the duration of access, conditions for renewal, and pathways toward longer-term use rights. Where land is eventually returned to state control, regional governments should proactively plan for transparent, participatory reallocation to affected communities.

4. Invest in social and care infrastructure as a prerequisite for women's participation. Reliable clean water, childcare, and health services are structural prerequisites for women's genuine participation in post-mining economic life. Post-mining monitoring should incorporate indicators on women's time poverty and care burdens alongside productivity measures.

5. Build participation structures that shift power, not fill quotas. Meaningful participation requires forums with binding decision-making authority, safe and independently monitored grievance mechanisms, and scheduling that respects care responsibilities. Women must be supported as political actors in transition governance, not only as beneficiaries of programs designed without their input.

6. Acknowledge and begin to address historical loss. Formal acknowledgement by mining companies and relevant government bodies of specific, traceable harms, i.e. the destruction of the irrigation system, the permanent alteration of groundwater, the enclosure of the majority of agricultural land, is a minimum requirement for shifting post-mining governance from corporate discretion to community entitlement and reparative obligation.

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Abbreviations and Acronyms

AMAN	Aliansi Masyarakat Adat Nusantara (Indigenous Peoples Alliance of the Archipelago)
BPS	Badan Pusat Statistik (Indonesian Central Statistic Body)
EU	European Union
FGD	Focus Group Discussion
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HIV	Human Immunodeficiency Virus
IDR	Indonesian Rupiah
IISD	International Institute for Sustainable Development
IKI	International Climate Initiative
IKN	Ibu Kota Nusantara (Indonesia's planned new capital)
ILO	International Labour Organization
JET	Just Energy Transition
LBH APIK	Lembaga Bantuan Hukum Asosiasi Perempuan Indonesia untuk Keadilan
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer, and other sexual orientations and gender identities
NGO	Non-Governmental Organization
PDAM	Perusahaan Daerah Air Minum (Regional Drinking Water Company)
PKBI	Perkumpulan Keluarga Berencana Indonesia (Indonesian Planned Parenthood Association)
PKK	Pemberdayaan dan Kesejahteraan Keluarga (Indonesian Family Welfare and Empowerment Organization)
Pokja 30	Forum Himpunan Kelompok Kerja 30 (Working Group Coalition 30)
PPDI	Perkumpulan Penyandang Disabilitas Indonesia (Indonesian Association of Persons with Disabilities)
PPL	Petugas Penyuluh Lapangan (Field Extension Officer)
PPM	Program Pengembangan Masyarakat (Community Development Program)

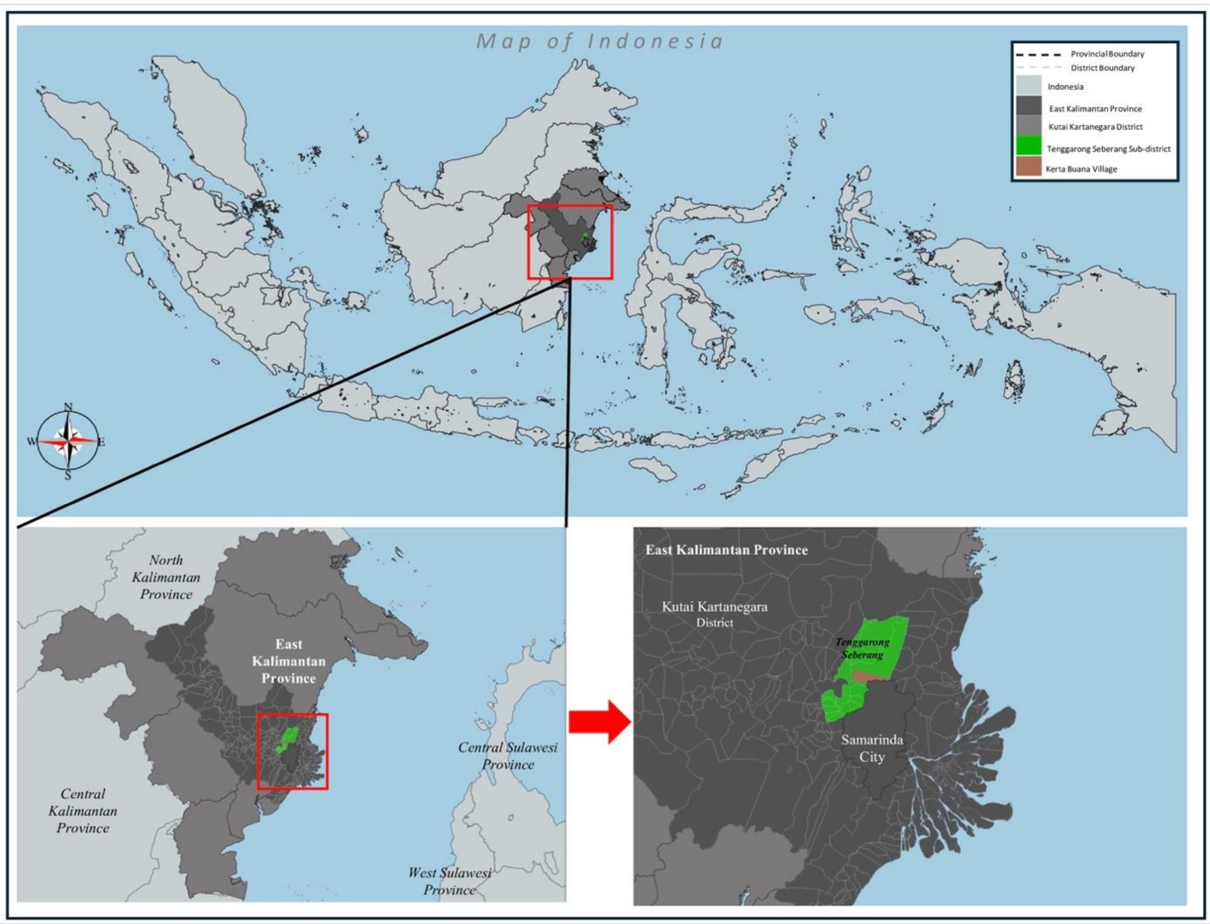
PSP	Pekerja Seks Perempuan (Woman Sex Worker)
PT	Perseroan Terbatas (Limited Liability Company)
PWYP	Publish What You Pay
STI	Sexually Transmitted Infection
UKL	Upaya Pengelolaan Lingkungan (Environmental Management Plan)
UPL	Upaya Pemantauan Lingkungan (Environmental Monitoring Plan)

1. Introduction

1.1 Coal Closure as a Social and Political Environmental Problem

The closure of a coal mine is rarely an ending. In Kerta Buana, a transmigrant village in Tenggarong Seberang sub-district of Kutai Kartanegara regency, East Kalimantan (see Figure 1 & Figure 2), the formal cessation of a major mining company (hereafter Company A)'s mining operations in February 2022 did not mark a complete departure from the extractive economy.

Figure 1. Geographical location of Tenggarong Seberang Subdistrict, East Kalimantan



Source: Prepared by the Authors.

It initiated instead a new phase of uncertainty, in which the physical, social, and ecological conditions that extraction produced continue to govern everyday livelihoods, reproduce inequality, and foreclose futures. Rehabilitation and agricultural programs are launched; community empowerment narratives circulate. Yet the fundamental social-environmental conditions that shaped forty years of life around coal mining, i.e. displaced land, destroyed water systems, gendered divisions of labor, and exclusion from decision-making, persist, reconfigured rather than resolved.

This report examines how mine closure is experienced as a sudden rupture to the local economy, how it reshapes livelihoods, resource access, and intersecting inequalities for women and marginalized groups, and what these dynamics reveal about the limits of dominant approaches to post-mining transition. It is part of a broader study, "Empowering Women and Marginalized Communities in Indonesia's Coal Transitions," initiated by the Wuppertal Institute within the IKI JET framework and implemented by the Dala Institute. The study is situated within East Kalimantan, Indonesia's largest coal-producing region and one of the central sites of the country's energy transition, where the tension between national transition narratives and ground-level realities is visible.

Figure 2. Coal landscapes in Tenggarong Seberang

Male miner statue in front of Company A's office (a historic icon according to staff); Neighboring village with wooden houses and roads along the Mahakam River shore; coal barges along the Mahakam River, a daily sight for villagers despite some mine closures. Source: Authors' Photographs (Fieldwork, August 2025).

Indonesia's 'just' energy and post-coal mining transition has produced extensive policy discourse: presidential decrees, provincial green economy frameworks, transition partnership agreements with international donors, and economic diversification plans for coal-dependent regions. Yet as the fieldwork in Kerta Buana documents, and as the literature review and the consultations and scoping workshop with civil society organizations, local university researchers, local women groups, and regional planning actors in East Kalimantan corroborate, this discourse rarely translates into meaningful structural change at the village level. What the region's communities experience is not a managed 'just' transition away from coal, but the withdrawal of one form of extractive order without replacement by the socio-ecologically viable alternatives that just transition discourses promise, which leaves behind a landscape of degraded land, contested water, precarious livelihoods, and governance structures still shaped by the logics of the mining boom. The language of 'transition', abstracted from these material realities, risks providing political cover for what amounts to corporate exit without restitution and policy reform without substantive redistribution.

This matters beyond East Kalimantan. Indonesia is one of the world's largest coal producers, and the conditions documented in Kerta Buana, i.e. conditional land access, invisibilized social reproductive labor, exclusion from transition planning, and the normalization of constrained futures, are likely reproduced across the country's coal-dependent communities. By centering lived experience and attending to how gender, class, generation, and migration shape the post-mining condition, this report contributes to a growing body of critical scholarship that refuses to treat transition as a technical problem and insists instead on its social, political, and distributive character (Sovacool et al., 2023; Walk, 2024; Caretta and Vela-Almeida, 2025).

Thus, the research questions emerge from a deliberate refusal to treat mine closure and transition as merely a technical event and management problem. Centering the lived experiences of women and marginalized groups in Kerta Buana, and taking seriously what those experiences reveal about power, history, and the conditions of in/justice, requires asking not only what happened after the mines closed, but who bears the costs, whose claims go unrecognized, and whose futures remain constrained by the logics of extraction long after extraction itself has ended.

1.2 Research Question

Despite growing national and regional discourse on energy transition, research on mine closure has tended to focus on macro-level policy and economic indicators and technical management. The socio-economic impacts on local communities, and on women and marginalized groups in particular, have received comparatively less attention, particularly at the community level and from the perspectives of those most affected. Thus, this study is guided by one main research question and three interrelated sub-questions:

Main question

How does coal mine closure reshape livelihoods, resource access, and intersecting inequalities for women and marginalized groups in Kerta Buana, and what do these dynamics reveal about the conditions for a just post-mining transition?

Sub-questions

1. How do intersecting inequalities of gender, class, generation, and migration shape access to land, water, and post-mining programs, and who bears the hidden costs of extractive legacies after formal closure?

2. How are women and marginalized groups positioned within, and excluded from, the governance and decision-making processes that define what post-mining transition looks like and for whom?

3. How do the politics of meaning-making around mining, including gratitude, normalization of constrained futures, and the framing of corporate obligations as generosity, foreclose justice-oriented claims and action in the post-mining landscape?

Answering these questions demands an analytical framework that is attentive to power relations, historical accountability, and the interlocking systems through which inequality is produced and reproduced, and that refuses to reduce justice to only technical program design or policy compliance.

1.3 Analytical Framework: Critical, Plural, and Transformative Perspectives on Just Transition

1.3.1 The Limits of Dominant Just Transition Frameworks

The concept of 'Just Transition' has a specific and partial genealogy. Originating in North American labor union movements of the 1970s and later adopted by the International Labor Organization, it was built around the figure of the formal male industrial worker facing job loss in high-carbon industries (García-García et al., 2020; Healy and Barry, 2017). Centered on employment, retraining, and wage protection, this framing has shaped the dominant policy architecture of coal phase-out globally, including in Indonesia. It systematically misses the majority of people whose lives are restructured by mine closure, such as women in informal economies, landless households, and migrant workers (Lahiri-Dutt et al., 2022). As the literature review conducted for this study shows, mainstream approaches to just energy transition in Indonesia tend to be technocratic and reformist: they emphasize coordination, regulatory compliance, and multi-stakeholder dialogue while assuming smooth collaboration among actors with deeply unequal power and contesting interests (Sudaryat et al., 2024; Bößner et al., 2024). What is missing is a deeper analysis of power relations, structural inequalities, and the historical contexts that produced those inequalities in the first place.

Critical scholars have increasingly argued that just transition must be understood as a political and transformative project; one that confronts, rather than accommodates, the structural relations through which extraction has operated (Bell et al., 2020; Walk, 2024). Drawing on the spectrum of just transition approaches[1] developed by Lahiri-Dutt et al. (2022:22), this report

[1] Lahiri-Dutt et al. (2022:22) identify four approaches to just transition along a spectrum: a *status quo* approach that substitutes old jobs with new green ones within existing market arrangements; a *managerial reform* approach that modifies rules and standards without challenging underlying power structures; a *structural reform* approach that emphasizes distributional justice, democratic decision-making, and collective ownership of new energy systems, but still works within rather than against existing socioeconomic arrangements; and a *transformative approach* that treats existing socioeconomic structures as the root cause of social and environmental problems, calling for development alternative pathways that address gender inequality, racism, and the North-South divide as inseparable from climate goals.

sits closer to the transformative end of that spectrum: it does not take existing political economic arrangements as a given, and it measures transition not by productivity metrics or green job counts but by whether the conditions of dispossession, invisibility, and exclusion that extraction produced are genuinely redressed.

This report assembles its analytical approach from four theoretical traditions held in conversation. The following subsections elaborate each of the four traditions and explain what they contribute to the analysis of post-mining transition in Kerta Buana. What emerges from that conversation is four interrelated dimensions of justice: *recognition, redistribution, representation, and reparation*. These dimensions draw on and extends Nancy Fraser's influential account of social justice as requiring both redistribution and recognition, and in her later work, representation as a third dimension (Fraser in Fraser & Honneth, 2003; Fraser et al., 2004). Fraser's framework is valuable because it refuses to reduce justice to any single dimension: economic inequality, cultural misrecognition, and political exclusion are treated as distinct but interrelated axes of injustice under capitalism. To these three dimensions, this study adds reparation as a fourth dimension, following Sovacool et al. (2023), whose work on energy justice integrates postcolonial and decolonial scholarship to argue that historical accountability for extractive harm constitutes a critical dimension of just transition, irreducible to redistribution, representation, or recognition alone.

The four dimensions are used here as an organizing device for discussing this specific case. They were chosen because they map directly onto what the evidence from Kerta Buana demands: *recognition* addresses whose labor is made visible, whose harm counts, and who is positioned as a claimant (beyond a beneficiary); *redistribution* addresses who bears the costs and who captures the benefits of both extraction and its aftermath; *representation* addresses who has authority to define what transition looks like and for whom; and *reparation* addresses what is owed for specific, historically traceable acts of dispossession that no forward-looking program alone can resolve. Together they are mutually constitutive: the adequacy of each depends on the others, and the failure of any one undermines the rest.

1.3.2 Four Critical Theoretical Traditions in Conversation: Recognition, Redistribution, Representation, and Reparation as Dimensions of Justice

Feminist political economy directs attention to the labor that sustains life but is systematically excluded from formal economic accounting. Social reproduction, or the everyday physical and emotional work of maintaining households, caring for dependents, managing food and water, and absorbing the costs of economic instability, is not peripheral to extractive economies but constitutive of them (Bhattacharya, 2017; Mezzadri, 2021; Investing in Women, 2023; Caretta and Vela-Almeida, 2025). In mining communities, women's unpaid care labor has historically subsidized the formal wage economy by reproducing the workforce and absorbing the health and emotional costs of hazardous labor, none of which appears in most company accounts or transition planning frameworks (Wikan, 2024). When mine closure contracts the formal economy, women's working days expand through intensified informal small-scale trade, informal food production, and extended care responsibilities. However, this expansion registers nowhere in post-mining monitoring or compensation schemes. Feminist political economy thus grounds the redistribution and recognition dimensions of justice used in this report: redistribution must account for labor that formal economies render invisible, and recognition must extend beyond cultural respect to encompass the material valuation of social reproductive work. Yet recognition of this labor is not only a matter of making it visible. It requires confronting how affected communities are systematically positioned as beneficiaries of corporate programs rather than as claimants with standing to define what redress looks like.

Feminist political ecology extends this analysis to the material relations between people and their environments, arguing that access to, use of, and control over land, water, and ecological systems is profoundly shaped by gender, class, and other axes of social difference (Rocheleau et al., 1996; Nightingale, 2011; Elmhirst, 2011; Siscawati, 2014). Environmental degradation and resource enclosure are not gender-neutral. They restructure the specific labor, knowledges, and social relations through which particular groups sustain their lives (Lahiri-Dutt & Mahy, 2007; Kotijah & Mustikaningrum, 2012). Post-mining reclamation that restores land to productivity without restoring secure tenure, reliable water, and community control does not constitute ecological or social recovery; it reconstitutes a landscape of conditional access under new management. Feminist political ecology insists that ecological restoration and social justice cannot be pursued separately. The representation of those most dependent on degraded environments in decisions about their restoration should be substantive, not only procedural.

Intersectionality, developed by bell hooks (1984) and Kimberlé Crenshaw (1991), and extended by Patricia Hill Collins (2019), insists that gender, race, class, age, migration, and ability are mutually constitutive systems of power rather than separate variables. Collins's matrix of domination captures this precisely: power operates through intersecting social and institutional arrangements, i.e. economic, political, cultural, that produce specific configurations of vulnerability depending on how they converge (Collins, 2000). In post-mining transition, this means refusing the category of "affected community" as a unified group and attending instead to how landless women experience closure differently from land-owning women; how migrant women without kin networks carry care burdens that locally-embedded women can partially distribute; how older workers face age-based exclusion from re-employment; and how sex workers face the intersection of economic marginalization, legal criminalization, and loss of informal protection (Mariana et al., 2013; Sandra, 2021). Intersectionality is deployed here not as a demographic checklist but as an analytical commitment to tracing how compounded vulnerability is structurally produced, and to resisting policy responses that address one dimension in isolation while leaving the interlocking systems intact.

Decolonial and postcolonial scholarship approaches justice from a different starting point altogether: not how marginalized groups can be better included in existing arrangements, but how those arrangements were produced, through what histories of dispossession, violence, and erasure, and what accountability for those histories would actually require (Whyte, 2020; Tuck and Yang, 2012). Sovacool et al. (2023) argue that pluralizing energy justice requires bringing

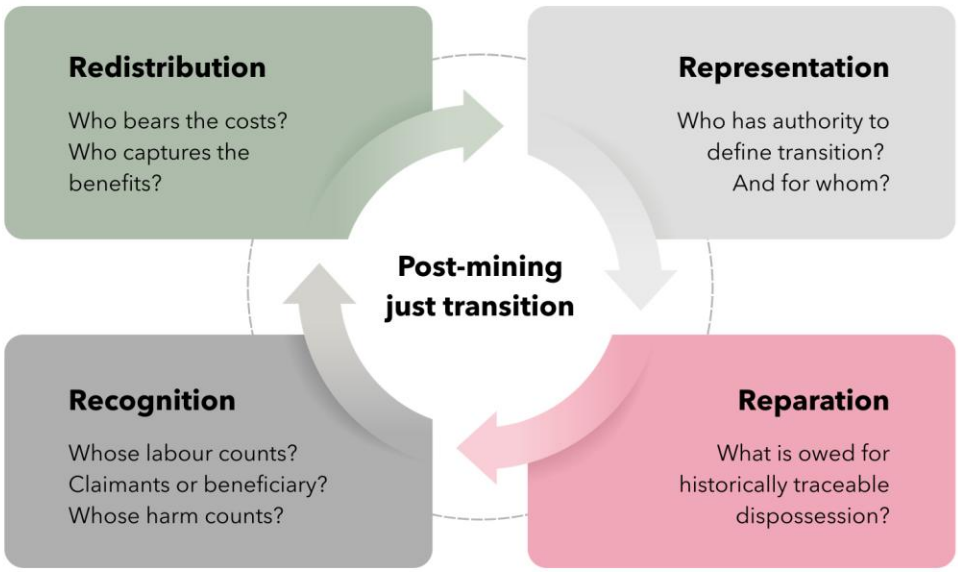
Indigenous, anti-racist, and postcolonial perspectives into genuine conversation with existing frameworks, not appended as additions but as challenges to the terms of debate. Indigenous scholars frame land restitution not as a redistribution problem but as a question of restoring relationships between communities and territories that extractive processes severed, relationships that cannot be reconstituted through program access or temporary tenure. Anti-racist and postcolonial traditions insist that recognition of cultural difference is insufficient when it leaves intact the racial capitalism and colonial institutional arrangements through which certain populations were made disposable to extraction (Pulido, 2017; Dunlap et al., 2024).

What decolonial and postcolonial traditions contribute is the concept of reparation as a distinct dimension of justice: concerned not only with what programs can be designed going forward, but with what is owed as a consequence of specific historical processes: formal acknowledgement of past and ongoing harm, accountability for the structures that produced it, and restoration of the material, ecological, and social conditions that extraction destroyed. We draw on these traditions with an awareness of this study's limitations. Kerta Buana sits within a broader and more complex territorial history this study does not fully address: transmigrant settlement in East Kalimantan occurred on indigenous lands through state policies whose colonial genealogy has been well-documented (Hardjono, 1977; Clauss et al., 1988; Tirtosudarmo, 1990), creating a layer of dispossession that precedes both transmigration and mining. A fuller decolonial analysis would need to engage that prior layer of dispossession This study does not address that, both because it falls outside the scope of our study and because the relationship between transmigrant and indigenous communities in this area requires dedicated research that we were not adequately positioned to conduct. Yet engaging with decolonial and postcolonial scholarship has shifted the terms of this study. It shapes what kinds of accountability we thought are legitimate to demand. The questions this study alone cannot answer are themselves a product of that engagement: who was here before, on whose terms was this land settled and managed, and what would justice look like if those questions were considered rather than deferred. We offer these as unfinished threads for future research, and for the broader conversation about what just transition in postcolonial regions can and should mean.

The four traditions and the dimensions of justice they ground are interrelated in ways that matter for both analysis and policy. Redistribution without recognition reproduces the invisibility of reproductive labor even as material resources are reallocated. Recognition without representation leaves the terms of acknowledgement in the hands of those who caused the harm. Representation without redistribution produces symbolic inclusion that leaves structural inequalities intact. And all three, without reparation, risk building new arrangements on the same foundations of enclosure and impunity that produced the original injustice. The discussion and recommendations that follow hold these dimensions together as an analytical lens through which the evidence from the field is read, and through which the demands of a genuinely just post-mining transition can be articulated.

Figure 3 below presents these dimensions as an organizing framework for reading post-mining transition in Kerta Buana, drawn from four theoretical traditions held in conversation throughout this report.

Figure 3. Four dimensions of justice: a framework for reading post-mining transition in Kerta Buana



Source: Authors' Diagram

1.4 Methods

This study was conducted in three phases: (1) a rapid literature review, (2) pre-fieldwork online consultations and an in-person scoping workshop with civil society organizations, local university researchers, local women groups, and regional planning actors, and (3) qualitative fieldwork and analysis. Each phase was designed to build progressively toward grounded, locally-rooted analysis.

1.4.1 Literature Review

A rapid literature review was conducted to map key themes, debates, and research gaps in existing scholarship on gender, coal economies, and just energy transition in Indonesia and internationally. The review prioritized Bahasa Indonesia sources and English sources by or including Indonesian authors, supplemented by relevant English-language scholarship, particularly from feminist political economy, feminist political ecology, and critical just energy transition studies. Three thematic streams guided the review: gendered labor and household dynamics; resource access and migration; and governance and participation. The review identified a consistent gap: existing literature, whether mainstream or critical, rarely centers social reproduction and informal labor as constitutive rather than incidental to extractive economies, and rarely applies intersectional analysis to the compounded vulnerabilities of women across class, generation, and migration status in coal-dependent regions.

1.4.2 Pre-Fieldwork Consultations and Scoping Workshop

Between April and June 2025, the Dala Institute conducted a series of pre-fieldwork consultations and a scoping workshop with local and regional actors in East Kalimantan. This phase was designed to establish contextual and locally-grounded foundations for the research, validate its research questions, and select a case study site. Six online consultation meetings were held with stakeholders and experts from Mulawarman University, Working Group Coalition 30 (Pokja 30), Publish What You Pay (PWYP) Indonesia, and Yayasan Mitra Hijau (Green Partnership for the Blue Planet). An in-person scoping workshop was subsequently held in Samarinda in June 2025, attended by representatives from LBH APIK (Indonesian Women's Association for Justice Legal Aid) East Kalimantan, PPDI (Indonesian Association of Persons with Disabilities) East Kalimantan, WALHI (Indonesian Forum for the Environment), AMAN (Indigenous Peoples Alliance of the Archipelago) East Kalimantan, Pokja 30, Mulawarman University, and the Regional Development Planning Agency of East Kalimantan..

The consultations and workshop surfaced critical contextual insights that directly shaped the study's analytical orientation: the gap between provincial transition discourse and ground-level realities; the role of elite and ruling class capture and corporate dependency in undermining meaningful transformation; the gendered dimensions of exclusion from transition governance; and the prevalence of environmental and social harm that official accounts systematically underreport. Based on these findings, Kerta Buana village in Tenggarong Seberang sub-district, Kutai Kartanegara regency, was selected as the primary case study site, for its varied mining status, long-term extractive dependency, diverse community composition, presence of a recently closed major mining operation, established local contacts, and safety and accessibility considerations. Together, these characteristics made Kerta Buana a particularly legible site for examining the uneven dynamics of post-mining transition.

1.4.3 Qualitative Fieldwork and Analysis

Primary fieldwork was conducted from 21 to 31 August 2025, with follow-up interviews extending into September 2025. Fieldwork spanned Kerta Buana and three surrounding villages in Tenggarong Seberang sub-district, Tenggarong City, and Samarinda. The research design drew on intersectional feminist and qualitative methods to center lived experiences of women and marginalized groups as both empirical evidence and analytical resource.

Data were generated through 34 in-depth key informant interviews (KIIs) using a life-history inspired approach across different occupations, genders, generations, and ethnicity backgrounds; 3 community-level focus group discussions (FGDs) with a total of 24 women participants from distinct social groups including a women mushroom farmer group (Javanese transmigrant background), young women (from diverse and mixed Bali, Javanese, Banjar, Kutai, Lombok, and Dayak ethnicities), and a Lombok neighborhood women community members; 1 FGD with 18 regency- and provincial-level government and private sector stakeholders, and participant observation across field sites. Light participatory methods, including sticky note exercises, rounds of reactions and comments, and group drawing, were employed in FGDs, to create space for candid and grounded expression beyond what formal interview settings typically allow (see Figure 4). The research team also conducted a group interview with four representatives of Company A, covering external relations, senior leadership, general support, and community development, who additionally shared corporate documentation and presentations on the company's post-mining programs.

Figure 4. Snapshots from group discussions and interviews with community members

Source: Authors' Photographs (Fieldwork, August 2025).

The study engaged participants across a range of social positions: former mining workers, small-scale farmers on post-mining rice fields, aquaculture operators, sex workers, women in informal trade, members of women's farmer groups, youth group members, local government officials, and representatives of Company A. In total, the team engaged 76 participants across interviews and FGDs, of whom the majority (52 participants) were women. Participant observation in domestic and public spaces supplemented interview and FGD data, allowing the team to document the texture of everyday life in the post-mining landscape.

Ethical considerations informed fieldwork design and execution. Free, prior, and informed consent was obtained from all participants, with anonymization applied consistently. The team attended carefully to power dynamics within KIIs and FGDs, particularly the presence of community leaders, husbands, or employers whose attendance could inhibit candid expression, and adjusted facilitation accordingly. Sensitive topics including illegal mining, corruption, sex work, and debt were approached with care, respecting informant-defined boundaries while acknowledging their analytical relevance. Findings are presented with attention to these dynamics, and where direct quotation is used, anonymized codes are applied to protect participant identities.

Data was processed through live note-taking, daily field reflections, and systematic transcription and coding. An intersectional coding framework guided analysis, with categories aligned to the three research questions and the four dimensions of justice structuring this report. Inter-coder reliability was periodically checked across the team.

Finally, this study is structured as an 'instrumental case study' (Stake, 1995). Kerta Buana is examined not as an end in itself, but as a lens through which to illuminate structural dynamics likely operating across coal-dependent communities in East Kalimantan and Indonesia. The case was selected carefully (through the aforementioned scoping process) because its particular constellation of conditions would yield fruitful findings pertaining to the research questions (Mills, Durepos & Wiebe, 2010; Stake, 1995). Findings about uneven access to post-mining land and resources, the gendered and intersectional distribution of survival costs, and the normalization of extractive dependency among youth are offered as structurally transferable propositions, or dynamics likely operating across coal-dependent communities beyond Kerta Buana. Findings tied to the specific history, community composition, and corporate actors of this village are presented as context-specific.

1.4.4 Limitations

The study has several acknowledged limitations. The short fieldwork duration constrained the depth of rapport-building and limited opportunities for follow-up interviews. Voices of people with disabilities were underrepresented. Ethnic diversity was partial, with Kutai, Dayak, and Banjar perspectives less captured than those of the majority Lombok, Balinese, and Javanese transmigrant communities. Perspectives from people with diverse gender identities and sexualities are also largely absent from this study. Although the research team's safe space guidelines used in consultations, scoping workshop, and FGDs explicitly committed to non-discrimination on the basis of gender identity and sexual orientation, engaging with LGBTQ+ communities without adequate safeguards and preparation in East Kalimantan carries real risks in a context shaped by criminalizing social and religious norms, surveillance by local authorities, and the absence of formal protections. During the scoping workshop, this constraint surfaced in conversations with local stakeholders, several of whom flagged both the presence and the invisibility of gender-diverse individuals in coal-affected communities (for instance in the informal sex work economies surrounding mining sites) and the difficulty of conducting research with these groups without exposing them to harm. The study therefore cannot claim to represent the full range of gendered experiences of post-mining transition, and future research, conducted with adequate time, trust-building, and protective infrastructure, should prioritize this gap. These limitations are acknowledged throughout the findings and have informed the scope and tentativeness of claims made.

2. Context: The Trajectory of Kerta Buana

2.1 National and Regional Contexts

Indonesia is one of the world's largest coal producers, with 2,450 mining concessions handed out across the country, of which approximately 280 concessions are already operating, covering 3.8 million hectares (Friends of the Earth International, 2023). Coal mining is concentrated in four provinces with the highest transition vulnerability: East Kalimantan, South Kalimantan, and South Sumatra (Taş et al., 2025; Wuppertal Institute, 2025). Coal mining is a significant but geographically concentrated source of employment in Indonesia. Official estimates place direct employment at between 167,000 and 400,000 workers depending on whether transport, reclamation, and other mining-related activities are included (Wuppertal Institute, 2025). East Kalimantan accounts for nearly 40% of coal mining workers nationally, with the sector representing 11% of total provincial employment (Indonesia Business Post, 2023; IESR, 2022). These figures capture only formal employment. The informal workforce dependent on mining economies, including small-scale traders, service workers, and others in supply chains, remains uncounted and is likely substantially larger.

Women are vastly underrepresented in the industry's formal employment, comprising only 4% of formal coal industry employees and 7% of the broader mining sector formal workforce (Taş et al., 2025). While exact numbers of mines projected to close by 2030 are not publicly consolidated, analyses estimate that approximately 30,000 coal workers could be displaced between 2020 and 2040 due to the energy transition (Indonesia Business Post, 2023). These national-scale exposures frame the transition challenge as widespread and socially uneven, not confined to a few isolated sites.

In East Kalimantan, home to approximately 319 coal mines (more than any other Indonesian province), mine closures have typically followed one of two patterns: a gradual, planned wind-down with phased rehabilitation, or an abrupt corporate exit characterized by rapid cessation of operations, patchy remediation, and limited community consultation (Public Eye, 2023; Wuppertal Institute, 2025). Under Indonesian law, reclamation is mandatory at all stages of mining activity; however, enforcement has been inconsistent, with evidence that former mining sites are frequently left abandoned (Wuppertal Institute, 2025). Existing analyses attribute failed land rehabilitation to loopholes in legislation and limited oversight capacity at the regional level. Government regulations require companies to submit and implement post-mining plans, but communities often inherit degraded land and compromised water systems while promised livelihood programs fail to translate into durable, locally controlled alternatives (Wuppertal Institute, 2025).

In Tenggarong Seberang sub-district, a major mining company (Company A) began underground mining operations at the Embalut site in 1982, then transitioned to open-pit mining in the 2000s, continuing until formal cessation of mining operations in February 2022 (Indo Tambangraya Megah, 2025; Imelda, 2021; Murlianti et al., 2022, 2024; Pekerja Tambang, 2012). The company is a 99.99% subsidiary of PT Indo Tambangraya Megah Tbk (ITMG), Indonesia's third-largest coal producer (IDNFinancials, 2025; Banpu, 2007). The company's closure followed an abrupt corporate exit pattern but with quite extensive planned remedial programs. Its post-closure program, which includes transformation of post-mining land into rice and corn farming areas, integrated livestock zones, and recreational zones, with 80% of mine closure programs planned to be completed after three years, is considered more extensive than typical industry practice (Indo Tambangraya Megah, 2025). However, the company has been documented in conflicts with local communities: in 2005, Embalut village residents blocked mining routes demanding compensation (DPRD Kutai Kartanegara, 2005); in 2012, approximately 150 Kerta Buana villagers blocked company roads over unresolved land issues, contaminated water, and unfulfilled clean water promises (Minerba ESDM, 2012).

Another prominent mining company (hereafter Company B), its operations officially inaugurated in April 2006, continues active mining operations in the same sub-district, in close proximity to Kerta Buana (KutaiKartanegara.com, 2006). It has also been documented in conflicts with local villagers over mining impacts, reflecting common tensions in the region (Nasir et al., 2022). Compared to both companies, industry-typical Corporate Social Responsibility (CSR) and Community Empowerment Programs (PPM) focus on partnership programs, community development, and environmental rehabilitation but commonly emphasize technical rehabilitation and individual livelihood support while paying limited attention to structural issues such as land tenure, water rights, and gender-differentiated care burdens (Sulkifli et al., 2023; Wuppertal Institute, 2025).

Among coal-affected communities in East Kalimantan, Kerta Buana was selected because it combines several features that make post-closure dynamics especially legible: the village was established in 1980 through a government transmigration program with families allocated 2 hectares of farmland; it transitioned from a rice farming center before 2000 to a mining-dependent economy as open-pit mining expanded (Siburian, 2017; Murlianti et al., 2022, 2024); it experienced a recent, sudden cessation of a major operator (Company A) in February 2022; it has documented post-mining programs on record with measurable outcomes (i.e. agricultural transformation) (Indo Tambangraya Megah, 2025); and it offers practical access for fieldwork in Tenggarong Seberang sub-district. This combination enables detailed tracing from corporate decision to on-the-ground social-environmental realities, making it a legible site for examining the structural dynamics of post-mining transition.

2.2 Pre-Transmigration and Indigenous History

Before Kerta Buana was established as a formal administrative unit, the region was part of the territory managed by the Kutai Kartanegara Sultanate. Historically, the area known as Teluk Dalam was primarily occupied by Kutai and Dayak groups who lived through subsistence activities, including farming, hunting, fishing, and gathering forest products such as rattan, wood, and honey (Murlianti et al., 2024). Under the Sultanate's traditional land laws, specifically the *Bradja Niti*, land was categorized into various classes of ownership and use, with the Sultan holding ultimate authority over the *Bumi Allah* (Earth of God) (Siburian, 2017).

During the colonial era, the region's administrative trajectory was shaped by the 'Lange Contract' of July 17, 1863, signed between Sultan Soelaiman and the Dutch government (Siburian, 2017). This agreement established the Kesultanan Kutai as a *Daerah Swapraja* (self-governing region), where the Dutch utilized a system of indirect rule. Under this arrangement, the Sultan maintained authority over internal affairs while the colonial government used the Sultanate as a mechanism to secure its own economic and political interests in the region.

This era also saw the birth of demographic engineering in Indonesia. The transmigration program actually has its roots in the colonial '*kolonisatie*' policy, which began in 1905. While the stated goal was to reduce population pressure in Java and Bali, the primary colonial objective was to provide a steady supply of cheap labor for private Dutch-owned plantations and mines in the outer islands. Following Indonesia's independence, the program was rebranded as 'transmigration' in 1950, shifting its focus toward national unity and regional development (Hardjono, 1977; Clauss et al., 1988; Tirtosudarmo, 1990).

The formal end of the Sultanate's administrative power in 1960 transitioned these traditional territories into state-controlled land under the Basic Agrarian Law (Siburian, 2017). The New Order regime then facilitated aggressive exploitation of natural resources and labor in the name of national development. During the 1970s, the landscape was dominated by large-scale forestry concessions, as the government prioritized timber exports for foreign exchange. Companies such as PT Lamiri and PT Mahakam Kutai Timber exploited the region's dense tropical forests, leaving behind a landscape of logged-over thickets (Murlianti et al., 2024). This "Forestry Era" set the stage for later extractive projects, as the government viewed these former concessions as "empty" lands ready for demographic engineering and industrial conversion.

2.3 Geographical Origins and the Transmigration Vision (1980)

In 1980, the government designated the area as Unit L4 (Teluk Dalam IV), a transmigration settlement in the Tenggarong Seberang District of Kutai Kartanegara (Murlianti et al., 2022). Thousands of families were relocated from Bali, Lombok (Sasak), and East Java, alongside a small percentage of local transmigrants. The state's vision was to transform the former timber lands into a national rice granary, promising each family a two-hectare package consisting of a home lot, Lahan I (primary agricultural land), and Lahan II (secondary land).

The reality upon arrival was grueling; settlers found that their assigned lands were not ready for planting but were instead thick peat and swamp land that required years of manual labor to clear (Siburian, 2017). Many early transmigrants were overwhelmed by the physical challenges and the presence of unfamiliar pests, such as forest rats and golden snails, leading some to return to their home islands (Siburian, 2017; Murlianti et al., 2024).

2.4 The "Golden Age" of Agriculture and Early Coal Extraction (1980s–1990s)

Despite the ecological challenges, the Balinese settlers adapted their traditional *Subak* irrigation system, a communal water management practice rooted in Balinese Hindu philosophy that coordinates rice cultivation across households (UNESCO, n.d.), to the local terrain (Murlianti et al., 2022). By the late 1980s, the village had successfully transformed into a primary rice production center, earning Kerta Buana the nickname 'The Bali Village of East Kalimantan' (see Figure 5). This era was also marked by cultural harmony between Balinese Hindus and Lombok Muslims, leading to its secondary title as the 'Pancasila Village'.

Figure 5. Houses of Balinese transmigrants with household temples, some with statues

Source: Authors' Photographs (Fieldwork, August 2025)

During this period, coal mining existed but remained secondary to agriculture. In 1982-1983, Company A began underground mining operations (Imelda, 2021; Murlianti et al., 2022, 2024). This initial phase of extraction was largely complementary to the agricultural economy. Many male transmigrants worked as manual miners to earn start-up capital for their farms, while women managed the households and fields (Siburian, 2017; Murlianti et al., 2024). The underground mining did not initially erode the village's agricultural land or water sources.

2.5 The Shift to Open-Pit Mining and Environmental Enclosure (2000–2015)

The turning point for Kerta Buana occurred in the early 2000s, coinciding with Indonesia's shift toward neoliberal energy policies and regional autonomy (Siburian, 2017). In 2003, Company A transitioned to open-pit mining, expanding its concession to 2,973 hectares. The closure of its underground operations (see Figure 6) led to mass lay-offs, pushing many transmigrants who had relied on mine work as supplementary income, pushing them back to farms that were increasingly difficult to sustain. In 2004, another company (Company B) began large-scale open-pit operations from the north of the village, eventually controlling a massive 20,380-hectare concession (Murlianti et al., 2022).

Figure 6. Remnants of Company A's underground mining infrastructure (1982-2000s)

Source: Authors' Photographs (Fieldwork, August 2025)

This shift to open-pit methods required the systematic enclosure of living spaces. The destruction of Mount Malang, a socio-ecologically vital hilly area, resulted in the loss of the village's primary irrigation and clean water sources (Murlianti et al., 2022). By the mid-2010s, Kerta Buana was effectively surrounded by 14 mining pits, some located less than 500 meters from residential areas. The environment was characterized by constant dust pollution, frequent flooding, and seismic vibrations from blasting that caused structural damage to homes and sacred sites, culminating in the collapse of the Prajapati Temple in 2019 (Murlianti et al., 2022, 2024).

2.6 Contestation, Resettlement Failure, and Erosion of Agriculture

As mining expanded, the village entered a period of intense social contestation. Between 2003 and 2005, a plan for village resettlement was proposed but failed (Siburian, 2017; Murlianti et al., 2022). Disagreements over compensation rates and the deep cultural value of Balinese family temples made relocation untenable for many.

A significant cultural divergence emerged in response to corporate pressure for land release during that period:

- **Balinese Transmigrants** historically viewed land through the philosophy of *Tri Hita Karana*, seeing it as a sacred heirloom to be guarded for future generations. They were often more resilient, utilizing the presence of family temples (*merajan*) as 'territorial shields' to resist selling. When they did sell, often because the land was too polluted to cultivate, they typically reinvested the money into land elsewhere to maintain their status as landowners.

- **Lombok Transmigrants**: Influenced by a worldview that saw worldly assets as temporary loans from God, many in this group were more easily persuaded to sell. This led to the phenomenon of the 'eviction pilgrimage' (*haji gusuran*), where land compensation funded Hajj trips or business ventures. However, due to a lack of industrial and business experience, many of these ventures ended in bankruptcy, leaving the former farmers as a landless laborer class.

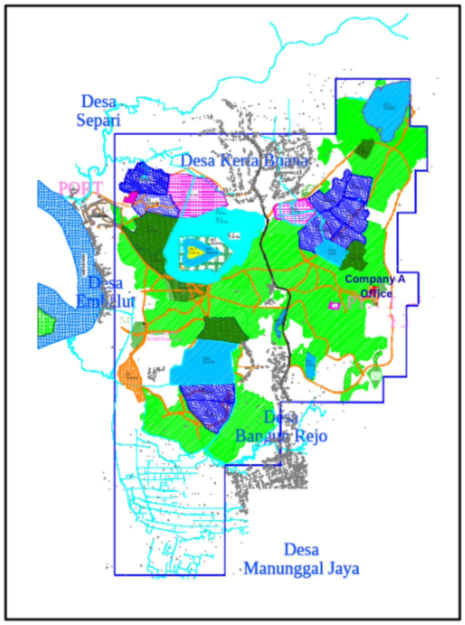
This dynamic led to an emergence of a class of 'farmers without fields' (Murlianti et al., 2022, 2024). By 2015, 70-80% of the village's agricultural land was under mining companies' property. Former land-owning transmigrants were forced into precarious livelihoods as farm laborers or turned to high-risk informal mining.

Despite these initial differences, literature sources and this study's fieldwork indicate a convergence in attitudes as the extractive mining economy continued. As mining pits encircled the village, rendering traditional agriculture increasingly loss-making and unsustainable, both groups eventually began to prefer eviction to obtain compensation. This shift was accompanied by a period of intense land speculation, which started around the 2003–2005 resettlement negotiations. During our fieldwork (2025), we heard that many villagers had built 'pretend houses' on empty plots or house yards. These were simple wooden houses built specifically to ensure that the compensation payout would be significantly higher than it would be for a vacant land plot. This preference for eviction highlights the systematic marginalization of the agriculture sector, where residents felt compelled to navigate a constrained future by extracting as much financial capital as possible from a landscape they could no longer farm.

2.7 Company A's closure of mining operations (2022)

A significant shift in the village's trajectory occurred in February 2022, when Company A formally ended its mining operations at the Embalut site after nearly 40 years of activity across a 2,973-hectare concession covering four Ring 1 villages: Embalut, Kerta Buana, Bangunrejo, and Separi (Siburian, 2017; Zakaria, 2022; Interview with Company A, 26 August 2025). This closure was driven primarily by the depletion of coal reserves in the concession area. Under Indonesian mining regulations, companies are required to conduct reclamation and revegetation after operations cease, with the possibility of implementing alternative land use under community development programs (PPM). At Company A, this has taken the form of converting former mining areas into rice fields, agricultural demonstration plots, and repurposed pit infrastructure. Figure 7 shows the spatial distribution of post-mining land repurposing plans and targets as of 2025.

Figure 7. Spatial distribution of post-mining land repurposing targets of Company A



No	Layer	Land Utilize	Volume (ha)
1		Revegetation	858.62
2		Void	153.14
3		Rice Field	74.00
4		Cow Farm	206.00
5		Animal Feeder Land	113.00
6		Corn Farming	100.00
7		Fruit Garden	27.00
8		IFS	16.00
9		Poultry Farm	3.67
10		Agro Tourism	6.00
11		Reclamation on Ex Mining Facilities	12.00
12		Support Facilities	41.51
		TOTAL	**1,610.94**

Source: Company A's presentation, 26 August 2025. This map is reproduced as provided by Company A. Color differentiation between some categories is limited in the original source.

While the company has transitioned into a regulated four-year 'post-mining stage' involving environmental management and the securing of mine voids, this phase does not represent a clean break from the region's extractive past. Instead, it has initiated a complex era of 'landscape reconfiguration' where the community must navigate the physical and social debris of decades of intensive extraction (Zakaria, 2022; Integritas Kaltim, 2023).

Box 1. Field Focus: Two Post-Mining Landscapes

The fieldwork centers its observation and analysis on two specific post-mining sites within Kerta Buana that illustrate the contested nature of post-mining 'reclamation' and 'recovery':

The Reclaimed Agricultural Site (Ex-Company A)

The former mining area of Company A has been part of a high-profile reclamation project to convert ex-mining land into productive rice and corn fields. By 2025, the 74-hectare target for reclaimed rice fields had been reached. Reporting from multiple media outlets documents the progression: from a 3-hectare pilot in 2023 (Integritas Kaltim, 2023), to 20–22 hectares actively harvested in September 2024 (Kompas TV, 2024; Sumantri, 2024; Tempo, 2024), to 50 hectares harvested in August 2025 out of a total 74 hectares of prepared land (Zairin, 2025). All figures are drawn from media releases and have not been independently verified. Corporate and government narratives frame this as a prestigious achievement in post-mining sustainable development and community empowerment.

The Void-Lake and Raw Water Source (Ex-Company B)

The second focal point is a massive ex-mining pit owned by another mining company arriving later, Company B, which has transformed into a permanent lake. Critically, because mining operations destroyed the village’s natural streams and lowered groundwater levels to the point that traditional wells (previously 15m deep, now requiring 40–50m) are often dry, this pit-lake has become the primary source of raw water for the local water utility, managed by the Regional Drinking Water Company (PDAM) (Siburian, 2017; Murlianti et al., 2022).

Table 1 presents a chronological overview of Kerta Buana's trajectory from its pre-transmigration history through the current post-mining phase, tracing the key milestones through which an agricultural-oriented settlement was progressively transformed by successive waves of coal extraction and their aftermath. The timeline summarizes the historical narrative presented in this section, drawing on the sources cited above, primarily Murlianti et al. (2022, 2024) and Siburian (2017), supplemented by fieldwork findings and company documentation.

Table 1. Historical Timeline of Kerta Buana (Unit L4)

Year	Milestone	Key Dynamics
Pre-1980	Indigenous & Forestry Era	Land managed by Kutai and Dayak groups; colonialism; forestry concessions dominate.
1980	Transmigration Settlement	Kerta Buana established; transmigrants arrive from Bali, Lombok, and Java.
1982–1983	Underground Mining Begins	Company A starts underground mining; coal extraction complements agriculture.
1987–2000	The "Rice Barn" Peak	Successful irrigation system; known as 'Bali Village' and 'Pancasila Village'.
2003	Open-Pit Transition	Company A shifts to open-pit; destruction of Mount Malang irrigation sources.
2004	Company B Concession Expansion	Company B begins massive northern operations (20,380 ha).

Year	Milestone	Key Dynamics
2003–2005	Resettlement Failure	Disagreements over temple values and compensation; 'eviction pilgrimage' begins.
2006–2009	Mass Layoffs	Company A closes underground operations; transmigrants return to struggling farms.
2010–2019	Peak Contestation	14 mining pits encircle village; 80% of fields under corporate property; Temple collapse
2022	Company A Closure	Formal end of operations in Embalut; start of 4-year post-mining security phase.
2023–Present	Post-Mining Phase	Focus Site 1: Conversion of Company A voids into rice and corn fields.
	Water Dependency	Focus Site 2: Reliance on Company B pit-lake as the primary raw water source for the village.

Kerta Buana thus represents a unique transitional landscape where 'energy transition' is experienced as a layering of extractive legacies. Company A's mine closure is one episode in a decades-long extractive trajectory that has reconfigured the community's social-environmental structure. This context emphasizes that the intersecting inequalities currently faced by women and marginalized groups are rooted in the loss of the environmental commons and the uneven redistribution of wealth, including during the 'coal boom' that preceded the current transition (Murlianti et al., 2022).

The focus of this research on reclaimed fields and pit-lakes explicitly highlights the tension between corporate-led 'sustainability' and the lived reality of social, economic, and ecological vulnerabilities. For women and marginalized groups, the transition is marked by a normalization of constrained futures, where survival depends on navigating a landscape defined by industrial scars and a fundamental loss of the environmental commons.

3. Findings

3.1 Uneven and Compromised Access to Post-Mining Land and Resources

The transformation of extractive landscapes into so-called 'productive' post-mining sites has become a central pillar of corporate rehabilitation narratives in Indonesia's coal-mining regions. These narratives present post-mining interventions as evidence of environmental recovery and renewed livelihood opportunities. Yet villagers lived experiences reveal a less linear reality. Rather than marking a clean break from extraction, post-mining landscapes often generate new forms of conditional and precarious access to land and water that continue to shape livelihoods, social differentiation, and vulnerability.

This finding focuses on post-mining rice fields developed by Company A in Kerta Buana (see Figure 8), where former mining pits have been converted into irrigated agriculture and promoted as key livelihood benefits for surrounding communities. While the company has also developed post-mining corn fields, these are largely cultivated by beneficiaries from neighboring villages and company staff stated it had shown more limited success; accordingly, this analysis centers on rice cultivation, where engagement by Kerta Buana residents is most concentrated and where empirical material from interviews and field observations is richest.

By examining how access to post-mining rice fields is allocated, experienced, and contested, this finding shows how 'post-mining benefits' materialize not as secure restitution, but as uneven and compromised access to degraded land and water under conditions of limited choice. The focus on rice fields thus is not presented as representative of all post-mining interventions in the area, but provides a grounded entry point for understanding how post-mining interventions reproduce new forms of precarity rather than resolving the socio-ecological disruptions caused by extraction.

3.1.1 The Official Narrative of Post-Mining Agriculture: Productivity and Environmental Recovery

In September 2025, Company A's post-mining agricultural program at its Embalut site received prominent media coverage as a model of successful mine rehabilitation. A news report described how the company had transformed 174 hectares of former coal mining land into productive agriculture: 74 hectares of rice paddies and 100 hectares of corn cultivation within approximately three years (Ayuningtyas, 2025). The article emphasizes impressive productivity figures, particularly for rice cultivation, with yields averaging 4.8 tons of milled dry grain per hectare per season and some plots reportedly reaching 7 tons, figures presented as exceeding yields from non-reclaimed rice fields.

The official narrative explicitly challenges assumptions about mining's irreversible environmental damage. Post-mining agriculture is framed as evidence that degraded landscapes can be rapidly restored to high productivity, generating livelihood opportunities for surrounding communities. According to the report, the program supports 126 farmers from four nearby villages, with the company providing capital and facilities for three planting seasons, including seedlings, pesticides, fertilizer, tractors, irrigation infrastructure, and training. After this period, farmers are expected to manage cultivation independently while retaining full harvest proceeds. As a company representative explained, these fields are part of a broader transition strategy to move “slowly toward non-mining activities” [Interview with Company A, 26 August 2025].

The aforementioned news article also highlights positive farmer testimonies to reinforce this narrative of success. One farmer who had cultivated reclaimed land for approximately 1.5 years stated, “The quality is better here, the rice is cleaner” (quoted in Ayuningtyas, 2025). Harvested grain reportedly sells for IDR7,700–8,500 per kilogram, commonly purchased by local middlemen before being distributed to markets outside East Kalimantan.

Technically, the program is presented as overcoming the limitations of post-mining soils through soil pH neutralization, intensive fertilization, and pest control, including regular rodenticide application (Ayuningtyas, 2025). Irrigation water is sourced from ponds formed during mining operations and regulated through newly constructed water gates, which are also described as contributing to flood prevention for surrounding villages. According to Company A’s Head of Mining Engineering at the Embalut site, the integrated agriculture program emerged from public hearings as one of the community’s expressed needs (quoted in Ayuningtyas, 2025).

Taken together, this public narrative constructs a compelling story: mining companies can rapidly convert extractive landscapes into productive agricultural spaces that exceed pre-mining yields, demonstrate environmental responsibility, and deliver tangible benefits to local communities. However, as the following section shows, villagers’ experiences, particularly regarding access to post-mining rice fields, reveal a more uneven and conditional reality that is largely obscured by aggregate productivity figures and success-oriented framing.

3.1.2 Access and Allocation of Post-Mining Rice Fields

Available data (BPS Kutai Kartanegara, 2023; Astagina, 2023) indicate that participation in Company A’s post-mining rice field program represents only a small fraction of the village population. Media reporting on reclamation activities in Kerta Buana documents approximately 74 hectares of reclaimed land managed by seven farmer groups involving 148 participating farmers. When placed against available population estimates for Kerta Buana (approximately 1,900 households and over 5,600 residents) beneficiaries account for roughly 3% of the village population. The overwhelming majority of residents remain non-beneficiaries. This figure indicates a structural inadequacy at scale.

While the company has also developed post-mining corn fields (with beneficiaries predominantly drawn from Separi village), both farmer accounts and company staff acknowledge that corn cultivation has been significantly less successful than rice due to soil conditions, uneven terrain, and water constraints [Interview with Company A, 26 August 2025].

Thus, the corn fields do little to alter the overall picture of limited and uneven access to viable post-mining livelihoods.

The question of who gains access to Company A's post-mining rice fields reveals competing accounts of how beneficiaries are selected. Beneficiaries describe a lottery-based allocation mediated through village governance structures. A farming group leader (A06), explains: "Initially we were gathered by the hamlet head and RT [neighborhood unit head], then there was a lottery. There was someone who gave suggestions about rice field allocation so there wouldn't be quarrels among neighbors" [Interview, A06, 25 August 2025].

Participation in the lottery, however, was shaped by uncertainty and risk. Some community members chose not to enter due to doubts about land viability and fears of contamination. As a result, those who ultimately gained access represented a subset of residents willing to experiment with compromised land rather than the full population affected by mining. The informant (A06) elaborates:

> All villages could access the rice fields. This open pit had impacted the villages, so it was divided into several blocks, each half a hectare. At first everyone could get it, but seeing the condition of the former stockpile, some thought, 'will rice even live?' so they didn't try. I thought that too at first, but I tried... why shouldn't rice grow? [Interview A06, 25 August 2025].

Company representatives offer a contrasting account that emphasizes formal eligibility criteria. According to Company A staff, beneficiaries were selected objectively based on residency, landlessness, non-employment with the company or the state, and economic need [Interview with Company A staff, 26 August 2025]. Yet this claim of objectivity is immediately qualified by the acknowledgement that informal insertions, or *titipan*, were unavoidable: "Although one or two *titipan* can't be avoided. From the four villages, even though their lives are already good, they became group leaders because of their knowledge" [Interview with Company A staff, 26 August 2025].

This admission reveals a clear prioritization of technical capacity over economic vulnerability, particularly in leadership selection. the farming group leader (A06) profile illustrates this contradiction. He and his spouse are both retired Company A employees receiving pensions, have previously received displacement compensation, and have since established a two-hectare palm oil plantation elsewhere in Kalimantan. They employ laborers and have sufficient resources to send their children to the police academy [Interview A06, 25 August 2025]. These circumstances sit uneasily with the stated criteria of economic need and non-employment with the company.

He nonetheless frames his trajectory through a narrative of sustained corporate benevolence:

> Company A's service is very great. Now they've made rice fields for us. We were given severance, ... we were given a week's training to open businesses. How to be entrepreneurs, farm; some have trading businesses, sell meatballs. There are certificates too. Until now Company A pays attention and their service is great [Interview A06, 25 August 2025].

By contrast, non-beneficiaries we interviewed commonly describe their exclusion as simply "not selected" in the lottery, an outcome attributed to luck rather than to contestable decision-making. While many are aware of *orang dalam* (insiders) and *titipan*, they express little interest in challenging these practices. Contestation risks social conflict with neighbors or village authorities over what are widely perceived as modest and uncertain benefits from degraded land.

The normalization of *titipan* as a routine feature of allocation effectively forecloses critique, recasting exclusion as misfortune rather than as the result of opaque criteria and informal power. The coexistence of formal eligibility rules, lottery mechanisms, and acknowledged informal insertions points to a hybrid allocation system in which multiple logics operate without clear hierarchy or transparency. For non-beneficiaries in mining-affected villages, where livelihoods have been displaced and surrounding lands degraded, exclusion from post-mining programs narrows already limited economic options. Yet the lottery framing depoliticizes this exclusion, presenting it as random chance rather than as a policy outcome shaped by unequal access, knowledge, and networks.

Figure 8. Former open-pit mining site, developed through the eviction of hamlets in Kerta Buana Village and located near local settlements, now converted into rice and corn fields.

Source: Authors' Photographs (Fieldwork, August 2025)

Importantly, neither company nor government sources provide publicly available data on the total number of eligible households, nor on how eligibility criteria were operationalized in practice. The absence of such data reinforces the opacity of the allocation process and complicates claims that exclusion results from neutral or objective mechanisms such as lotteries. Non-beneficiary status constitutes the norm for residents in a village that has experienced extensive land dispossession and livelihood disruption due to mining.

3.1.3 Hidden and Uneven: Social-Environmental Risks and Burdens of Post-Mining Agriculture

While corporate and government officials celebrate high productivity and farmer satisfaction, our interviews document significant challenges and hidden costs that complicate this picture. For many beneficiaries, the provision of ostensibly 'free' inputs conceals substantial financial, physical, and temporal burdens that are unevenly distributed and often underestimated.

The rice fields allocated through the reclamation program sit on land that served as coal stockpile and open-pit extraction areas for multiple years. Remediation has addressed surface topography but not soil composition or subsurface drainage: the land requires significantly more labour input (estimates from farmers suggest 25-33% above typical paddy land) due to degraded soil permeability, reduced water storage capacity, and damaged capillary systems in the soil (Thamrin & Raden, 2018; Greenpeace Indonesia, 2016).

A female plot recipient (A01) who received a half-hectare parcel describes the economic realities behind land preparation and cultivation:

> Women are disadvantaged. Tractors are indeed provided, but women are unfamiliar with tractors. Their [tractor operators'] labor costs IDR 1,000,000 per half-hectare. That's not including fuel yet, sometimes we have to provide it. Planting is also usually made expensive. If you plant outside there, it's only IDR 800,000 per half-hectare. But according to friends, there are many coal stones that make feet injured, many thorns. Many bushes, lots of thorns, the planting workers can't handle it. So, planting and tractor work already cost IDR 2,000,000 per half-hectare. If the location is different, the story is different again. For regular rice fields, they only ask IDR 1,500,000 [Interview A01, 25 August 2025].

The degraded condition of former mining land translates directly into elevated production costs. Labor premiums of 25-33% above standard rates reflect the physical difficulty and risks of working coal-contaminated soils: sharp stones, dense brush, unstable ground, and thorn-infested plots that exhaust workers and cause injuries. Although tractors are provided, their operation costs, fuel, and hired labor fall entirely on farmers, disproportionately disadvantageous for women who lack access to machinery skills and must rely on hired operators at premium rates.

The program formally allows women to manage land in their own names. However, material conditions undermine this inclusion. Machinery-dependent cultivation, elevated labor costs, and hazardous terrain reproduce gendered disadvantages in practice. As in other extractive contexts, formal recognition of women's participation masks substantive barriers rooted in technical requirements, labor regimes, and degraded environments (Caretta and Vela-Almeida, 2025; Lahiri-Dutt, 2023).

Beyond cost, farmers consistently describe the land as physically difficult and unsafe to work. Respondents characterized the soil as "muddy and unstable", prompting requests for better-constructed access paths to allow vehicles to enter the fields. These demands expose gaps in the portrayal of reclaimed land as 'ready to farm'. Beneath a thin agricultural layer, the ground remains structurally compromised. As one respondent explained: "Many mining excavations are that deep. People can sink. There's no proper base. What I fear is children playing near these deep points" [Interview A01, 25 August 2025].

The reclaimed fields thus rest atop a honeycomb of former mining pits, creating risks of collapse or drowning, particularly for children. While remediation processes described in public accounts emphasize soil treatment, such as fertilizer, lime, and organic inputs, they omit these structural instabilities and the safety hazards they pose. Importantly, these risks are not borne only by land recipients. Rice field laborers, who are not direct beneficiaries of the program, also absorb the dangers of working unstable and contaminated terrain. While we did not interview laborers directly, beneficiary accounts suggest frequent injuries from stones and thorns, pointing to a broader redistribution of risk beyond officially recognized participants.

Water management presents another persistent challenge. Media accounts highlight irrigation sourced from mining-created ponds equipped with water gates, framing this as a dual benefit for agriculture and flood prevention. Company representatives similarly emphasize infrastructure provision, noting that water tanks are regularly filled during dry seasons [Interview with Company A staff, 26 August 2025]. Yet farmers describe hydrological instability as a central constraint: "When rainfall is high, it's uncontrolled; when there's drought, the rice fields need adjustment. There needs to be water storage for drought and containment during heavy rain" [Interview, A06, 25 August 2025].

Although irrigation channels and dams exist, farmers must manage fluctuating water availability with limited resources. Rules governing water sharing, such as waiting one's turn and not redirecting flows while others are irrigating, assume stable water supply conditions that the degraded hydrology cannot reliably sustain. The reliance on periodic water deliveries coordinated with military personnel further underscores the fragility of the system, substituting logistical intervention for durable irrigation infrastructure.

Interviews and informal discussions with local social-environmental activists and critically engaged village youth reveal a deeper layer of uncertainty that remains largely unaddressed: the absence of systematic health and contamination testing. Despite widespread awareness that the land was formerly used for coal extraction, neither beneficiaries nor local authorities reported having access to soil or rice contamination tests, nor health assessments related to prolonged exposure. While Indonesia's Ministry of Environment Regulation No. 20 of 2025 requires mining companies to conduct environmental monitoring, including semi-annual monitoring of water quality, pH levels, and potentially pollutant rocks, with annual reporting to the Ministry of Environment or Governor, the regulations do not mandate health testing for communities or contamination testing of agricultural products before post-mining land is repurposed for farming (Rodyanto, 2025). Such testing is prohibitively expensive for most Indonesian Non-Governmental Organizations (NGOs) and is rarely funded by the state, which focuses monitoring requirements on company environmental compliance rather than public health outcomes.

In this context, mining companies, government actors, and villagers tend to normalize uncertainty, proceeding with cultivation in the absence of evidence rather than on the basis of safety assurances. In the short term, the lack of visible illness is often taken as proof of harmlessness; yet without baseline data or longitudinal monitoring, potential long-term health effects (whether from heavy metals in soil, water, or crops) remain unknowable. This uncertainty itself constitutes a hidden cost of post-mining agriculture. Risks are rendered invisible, deferred, and collectively absorbed by farming households and laborers who lack the means to verify the safety of the land on which their livelihoods now depend.

3.1.4 Temporal Limits, the Promise of "Smart Farming", and Depoliticization of Post-Mining Land Access

Both the news article and our interviews confirm that Company A provides agricultural inputs for only three planting seasons, after which farmers are expected to manage cultivation independently. The article frames this as comprehensive support leading to self-sufficiency. An informant's account aligned with the framing: "We received ex-mining land. Seedlings, medicines, fertilizer; everything provided by the company for three harvests. After that, it stopped after three plantings" [Interview A01, 25 August 2026].

However, the defined endpoint of input support stands in sharp contrast to the absence of clarity regarding land tenure itself. All beneficiaries interviewed shared a common uncertainty: they "do not know until when" they can continue using these post-mining plots. While the three-harvest subsidy period has clear temporal boundaries, the more fundamental question, whether land access is temporary or permanent, and under what conditions it might be revoked, remains unanswered. This unresolved temporality shapes all investment decisions, discourages long-term improvements, and constrains farmers to short-term strategies oriented toward immediate harvests rather than land stewardship. Rather than fostering autonomy, such arrangements keep beneficiaries in a condition of dependent gratitude, with continued access hinges on corporate discretion.

This temporal precarity is further reinforced by company representatives' articulation of future post-mining livelihoods. In interviews, Company A staff emphasized that once coal operations are no longer viable, post-mining development would involve "many discussions," including technologically intensive smart farming and export-oriented agricultural products. Cherry tomatoes grown in greenhouses were highlighted as particularly promising due to their competitiveness in export markets. In this vision, smart farming would absorb local labor and position the company as an intermediary, both as employer and as aggregator or buyer of produce from company-managed greenhouses.

The promise of export-oriented smart farming presumes continued corporate involvement, capital investment, and market mediation, while leaving unresolved the basic question of villagers' rights to land and water in the present. For current rice farmers navigating degraded soils, high production costs, and ambiguous tenure, such visions remain abstract and inaccessible. In practice, they extend the logic of conditional access: livelihoods are imagined not as rights secured through land restitution, but as opportunities contingent on future corporate strategies and technological upgrading. The shift from subsidized rice cultivation to speculative export-oriented smart farming reproduces dependency across time, transforming post-mining 'benefits' into an ongoing negotiation over access rather than a durable resolution of dispossession.

Beyond the physical, economic, and infrastructural constraints documented above, villagers' responses also reflect a broader normalization of limited choice shaped by how post-mining land is governed. Under Indonesia's concession regime, mining land is formally allocated by the state to companies for extraction and rehabilitation purposes. At the village level, this arrangement is widely understood as granting companies long-term authority over land use decisions, including what forms of post-mining livelihoods are possible.

Within this governance framework, reclaimed land is not commonly perceived as land that could be claimed, redistributed, or renegotiated by communities. Instead, access is understood as conditional and program-based, or something that must follow company-designed schemes approved by government authorities. Villagers' acceptance of temporary access, unclear duration, and selective inclusion is therefore less a matter of individual preference than an outcome of institutional arrangements that render alternative claims difficult to imagine, let alone pursue.

As a result, participation in post-mining programs is framed as an opportunity to be grateful for, while exclusion is normalized as ordinary rather than political. The absence of contestation does not signal satisfaction, but reflects a historical depoliticization of land questions in extractive regions, where corporate control, sanctioned by state allocation, comes to appear natural and unquestionable. This normalization of conditional access also helps explain why incomplete or failed rehabilitation elements rarely provoke open critique. When post-mining land is understood as fundamentally belonging to the company, shortcomings in program design or sustainability tend to be interpreted as unfortunate limitations rather than grounds for claims or accountability. Field observations point to incomplete or abandoned elements of rehabilitation. Cattle pens constructed as part of post-mining livelihood support now stand unused (Figure 9), suggesting a gap between program design and long-term sustainability.

Figure 9. Post-mining livelihood support cattle pens now largely unused, with only a few cows grazing nearby.

Source: Authors' Photograph (Fieldwork, August 2025)

This widespread acceptance of conditional access, however, is not universal. Beyond the immediate beneficiaries navigating program constraints, there exist critical local voices. One of them is that of an informant we spoke to, a lawyer and environmental activist and a long-term resident, illustrated in Box 2.

Box 2. "Not a Gift, but an Obligation": Reclamation, Resistance, and Fading Memories

A lawyer and environmental activist born in the Kerta Buana offers a fundamental challenge to how post-mining programs are conceptualized in energy transition discourse. When asked about Company A's current restoration efforts, i.e. converting former mining sites into rice fields, corn plantations, and livestock areas, his response cuts through the rhetoric of corporate social responsibility and benevolence:

That is not a 'gift' or generous initiative, but an obligation. There is no debt of gratitude when communities receive agricultural land back. This should already be mentioned in their UKL and UPL [Environmental Management and Monitoring Plans]. When they destroy from the beginning, it becomes their obligation. Mining changes the community's economic chain by replacing it with a new economic chain. When that is destroyed or finished, they must take responsibility for replacing it. It must be returned to the original condition, according to their promises.

From his perspective, smaller reclaimed plots under administrative allocation do not represent generosity but a partial and diminished restoration; an incomplete restitution of previously held rights, situated within a longer history of broken state promises to transmigrant farming communities. Farmers were brought from distant regions to transform swamps and burned forest areas into productive agricultural land. "Working from zero, even from minus," as he describes it. Yet this memory is fading.

Most research only records what is happening now, but doesn't look at how communities were originally brought to Kerta Buana. That memory is starting to fade. … East Kalimantan, once food self-sufficient with one of the region's largest rice processing units, now imports rice. The collapse occurred post-2010 when IUP (mining permit) regulations allowed regional governments to freely issue mining licenses. The long-term impact of this economic transformation, when coal runs out, was not calculated by the state.

He added that the agricultural restoration visible in Kerta Buana today did not only result from regulatory compliance or corporate goodwill alone, but also from community resistance. In 2016, the community members, including him, blocked Company A from selling coal, making their product difficult to sell internationally. That action made former mining areas become rice fields again. "That is actually the result of us forcing them. It used to be all pits. If there had been no resistance since 2012, the entire area around the village would just be pits, without closure." This resistance came at significant personal cost: intensive police summons, forced mediation attempts, and threats that made the informant disappear into hiding for some time. He avoids local-level negotiations because "when discussions get too heated, they pressure me personally and my family."

Women played crucial tactical roles in these actions. In some villages, women's rejection is stronger. "When agricultural areas disappear, the first to lose livelihoods are women." Among Balinese and Javanese communities in Kerta Buana, especially, women perform core agricultural labor, such as seedling preparation, weeding, crop maintenance, often with children in the fields. Thus, water contamination represents a particularly gendered burden. Communities that once had free access to clean springs and wells now "must pay for what should be God's gift, due to state negligence." This economic burden falls disproportionately on women managing household water needs and agricultural production.

Source: Interview B14, 9 September 2025

The limitations of post-mining land access push many households to seek income beyond the rice fields. When agricultural plots are insufficient, uncertain, or inaccessible, survival depends on diversifying into other forms of work, often informal, short-term, and weakly protected. It is within this broader terrain of economic uncertainty, extending across Kerta Buana and surrounding villages, that adaptive livelihood strategies emerge. The next finding examines how these strategies, while enabling short-term income, simultaneously reproduce intersectional vulnerabilities shaped by gender, age, and class in the post-mining economy.

3.2 Risky Survival and the Reproduction of Intersectional Vulnerabilities

For the local communities, the closure and slowdown of coal mining activities in Kerta Buana and surrounding villages did not unfold as a gradual transition but as a sudden rupture. Across group discussions, residents repeatedly described the experience in terms of immediacy and shock. As a woman participant put it, “When the mine slowed down, money immediately stopped circulating ... Everyone was affected.” [FGD Women Mushroom Farmer Group, 26 August 2025]. Another said, “It wasn’t a gradual decline. It’s like it just dropped all at once” [FGD Lombok Women Community Members, 27 August 2025].

Figure 10. Local micro and small enterprises in the informal economy, including food kiosks, vehicle washing services, and stalls selling everyday tools and household items.

Source: Authors’ Photographs (Fieldwork, August 2025)

For decades, mining structured local economic life. It generated direct employment while sustaining a wide network of indirect livelihoods, such as food vendors, transport workers, boarding house operators, subcontracted service providers, with many women working in informal sectors tied to mining activity (see Figure 10). When mining activity declined, cash circulation contracted sharply. Household purchasing power fell, and alternative employment proved scarce. In this context, residents did not speak of 'transition' but of survival. As one woman explained bluntly: “What matters is that we can eat today” [FGD Lombok Women Community Members, 27 August 2025]. This orientation toward immediate subsistence reflects the narrowing of livelihood space. Rather than facilitating pathways toward reparation or recovery, post-mining conditions pushed many households, especially those already marginalized, into short-term strategies that carry heightened economic, environmental, and bodily risks.

Crucially, the shock was not evenly distributed. Intersectional positioning shaped the depth of vulnerability. Landless households could not simply return to agriculture. Migrant families lacked extended kin networks and secure tenure. Older former workers faced age discrimination in recruitment, as companies increasingly preferred younger labor. Poor households without savings exhausted severance pay quickly. These overlapping constraints produced layered precarity rather than a uniform downturn.

3.2.1 From Mining Wages to Unstable Waters: Aquaculture on Degraded Landscape

In Kerta Buana Village, one of the most visible post-mining adaptations has been freshwater aquaculture in a former mining pit. This pit is an artificial lake formed after coal extraction by Company B, a large mining company operating in the area, distinct from Company A, which continues to operate in Kerta Buana. When open-pit coal mining ends, excavation sites are often left as deep water-filled craters. In the absence of full and continuous ecological rehabilitation, these pits gradually accumulate rainwater and runoff, forming what are commonly referred to as 'ex-mining lakes'. One Company B's ex coal mining pit have been informally repurposed by some former mining workers, who invested severance payments into floating cages (*keramba*) and reside around the lake without formal land titles (see Figure 11).

What was once an extractive site has thus been transformed into a livelihood space. However, as the following account in shows, the socio-ecological legacy of mining continues to shape and constrain these post-mining economic activities.

Box 3. Fish farmers' precarious livelihoods in ex-mining lake

A 44-year-old former heavy equipment operator and driver who migrated from North Sumatra to East Kalimantan with his wife in 2009 described how he used his severance pay to establish floating fish cages after the mine closed in 2016. Although he remained interested in returning to mining, he explained that he was effectively excluded due to age: companies now prefer younger workers, and being over forty placed him beyond recruitment thresholds.

The transition to aquaculture occurred without meaningful institutional support. "Since the pandemic, no official aquaculture field extension officer (PPL) has ever visited the site, despite the area formally falling under their supervision." Government assistance, when provided, consisted only of fish seeds or nets, not accompanied by feed, training, or technical guidance. "Such support is not enough and ineffective."

Environmental instability compounded financial risk. He reported that "Periodic increases in acidity and sulfur-like odors have sometimes caused mass fish deaths." Despite significant investment, particularly in feed, no harvest was achieved, resulting in complete financial loss. "The fish group experienced total crop failure across all ponds in the area."

What is particularly striking is the gap between lived experience and official representation. Although these failures were reported, "the PPL reports submitted upward portrayed the group as 'successful,' masking the realities on the ground." He recalled being invited to an official event in the regency capital and receiving a certificate recognizing him as an example of successful post-mining aquaculture. "I was invited to an official event in the regency capital and given a certificate for being an example of successful post-mining aquaculture, when in reality we were experiencing harvest failures." He showed the research team the framed certificate displayed on a plastic cabinet inside his wooden house, describing the recognition as "sad and ironic. "No support was ever given to me and my neighbors afterwards."

According to him, this reflects a broader pattern: government attention tends to concentrate on already successful producers. Fish farmers along the Mahakam River produce "fat, larger fish" because water quality is significantly better than in ex-mining lakes. Their fish can be sold at higher prices, making them more visible as success stories. In contrast, farmers operating in degraded post-mining waters face ecological constraints. Fish could only be sold to small local shops, while buyers preferred larger fish. Meanwhile, daily living conditions remained insecure: "Cooking water had to be purchased, while bathing and sanitation relied on lake water, of which the safety is uncertain." Housing stood on company property land under informal arrangements.

Vulnerability intensifies where landlessness, age, and migrant status intersect. This former worker was not only over forty and excluded from formal employment; he was also renting housing on company land and dependent on environmentally unstable water bodies for income. Severance pay, intended as compensation and a buffer for transition, became risk capital absorbed by degraded ecosystems.

At the household level, the burden of this risk was not borne by him alone. His wife was actively involved in the aquaculture work: monitoring the cages, helping with feeding, checking fish conditions, and assisting in maintenance. At the same time, she continued to shoulder primary responsibility for domestic labor, including cooking, cleaning, and managing household needs in conditions where even clean water had to be purchased. The shift to fish farming therefore did not simply represent a change in occupation. Productive and reproductive work intensified simultaneously, particularly for women.

Rather than diversification, aquaculture redistributed ecological and financial risks downward onto households with limited buffers, while also reinforcing gendered labor burdens. The environmental instability of the lake translated directly into economic uncertainty and unpaid care labor expansion inside the home.

Source: Interview A02, 24 August 2025

Figure 11. 4 A fish farmer group based in a hamlet around Company B's ex-mining lake, where residents farm fish despite lacking clear legal rights to land and water.

Source: Authors' Photographs (Fieldwork, August 2025)

3.2.2 Reinforcing Women's Multiple Burdens Under Economic Contraction

As household incomes declined and post-mining programs failed to reach the majority of households, women absorbed the shortfall through two simultaneous pressures: intensifying their unpaid care and reproductive labor at home, while also expanding income-generating activities in an increasingly constrained economy. Together, these responses function as a hidden subsidy. They make the inadequacy of post-mining programs survivable, and in doing so rendering that inadequacy politically invisible. Yet the conditions for income generation had themselves deteriorated. Shrinking purchasing power limited households' earnings. As one woman running a small shop explained: "Sales are slow now ... Everyone is struggling too. Some days I open, some days I don't" [Interview A13, 27 August 2025].

Women consistently described exhaustion from combining income generation with unpaid domestic labor. One stated: "In the morning I cook, during the day I sell, in the afternoon I take care of the house. It's exhausting, but what else can we do?" [Interview A17, 23 August 2026]. This "what else can we do?" reflects constrained options rather than entrepreneurial aspiration.

Low-income women face compounded barriers: limited access to credit, lack of training, reduced consumer demand, and ongoing care responsibilities for children, elderly parents, or sick relatives. They also mediated household stress and financial uncertainty. In line with gender norms that position wives as responsible for maintaining household stability, women were expected to manage shrinking budgets, negotiate small debts, reassure children about school expenses, and ease tensions when income declined. In this way, they became the household's emotional and financial shock absorbers during crisis. For landless households, women's informal income often became the primary buffer against crisis. For migrant women without extended family networks, childcare and eldercare remained solely household responsibilities. Older women faced mobility constraints and limited digital literacy, reducing their ability to expand markets online.

These patterns resemble what Gibertini (2025) described as "hustle lifeways": continuous, multi-sited labor undertaken not as aspirational entrepreneurship, but as a survival strategy embedded in economic insecurity. Women combined informal small-scale trade, unpaid care work, and community obligations in a constant effort to stabilize the household. Rather than signaling empowerment, this expansion of work reflects survival under contraction, where productivity intensifies even as security diminishes.

The women oyster mushroom farmers group in the neighboring Bangun Rejo village (see Figure 12) illustrates both the genuine value and the structural limits of corporate's post-mining community development support [FGD Women Mushroom Farmer Group, 26 August 2025].

Figure 12. Cultivation house of the women oyster mushroom farmer group

Source: Authors' Photographs (Fieldwork, August 2025)

The group received start-up capital from Company A (IDR 15 million in the first round, IDR 17 million in the second, and IDR 11 million in the third) to establish oyster mushroom cultivation, a livelihood the women themselves had proposed because it was manageable alongside domestic responsibilities: sheltered work, no heavy machinery, and a short cycle from cultivation to harvest to sale. The company prominently celebrated the group as a success, and the women themselves speak warmly of the support, expressing genuine pride in what they built and a clear desire to scale up, as the daily demand from nearby blocks alone already exceeds what they can supply. Company A also provided one-off assistance for a children's arts center. Yet beneath this appreciation lies a candid recognition of unresolved dependency. As one participant stated directly, the company had promised to accompany them until they were independent, but she said, "we are not yet independent, but supports were redirected", partly due to interference from local government. What the women now need, i.e. a shredding machine, a press, a spinner, processing equipment for value-added mushroom products, sustained market linkages, remains unmet. Thus, the group finds itself in a position where corporate withdrawal has foreclosed the next stage of growth that the initial investment made imaginable.

Meanwhile, their labor continues to absorb the gap: waking at 02.30 to prepare meals for husbands on distant night shifts, tending fields, managing households, and selling food online through WhatsApp and Facebook before midday. As one participant put it plainly, "women work 24 hours", against the 12-hour shift that defines local men's formal working day. This looks less as 'hustling' for entrepreneurial diversification. Productive, reproductive, and social labor folded into a continuous working day, sustained by shrinking returns and support that ended too soon.

3.2.3 Gendered Exclusion and Heightened Risk: Female Sex Workers After Mine Closure

Economic contraction also reshaped the landscape of sex work in explicitly gendered ways. Female sex workers (PSP) were already structurally marginalized prior to mine closure. Their work operated in a stigmatized and criminalized grey zone, excluded from formal labor recognition and social protection schemes. Transition policies often narrowly define 'affected workers'. Although economically intertwined with mining activity, sex workers were never officially acknowledged as part of the mining-dependent workforce. The pre-existing and continuous marginalization meant they had no access to severance pay, retraining programs, or formal transition assistance when the industry declined. They are rendered invisible in formal compensation frameworks.

When mining slowed, their vulnerability intensified. A female sex worker we interviewed, whose clientele historically included mining and transport workers, reported sharp income declines after closure. One woman sex worker described the shift starkly: "Before, you could still wait for clients. Now you have to go out and look for them yourself." [Interview A14, 28 August 2025]. Another explained the difference in terms of health checks: "In the localization there were health checks. Now you're much more anxious" [Interview A15, 28 August 2025].

The 'localization' refers to a designated red-light area where sex workers previously lived and worked in a concentrated space. Although stigmatized, this arrangement allowed periodic health checks by local health officials and NGO outreach workers. However, as mining activity declined, the area gradually became deserted. With fewer clients and many residents leaving, the localization grew increasingly quiet and was eventually abandoned by many of its occupants. As a result, remaining sex workers shifted to more dispersed and mobile arrangements, working along highways or through online platforms, where routine health monitoring, collective visibility, and informal protection networks no longer exist. Income instability has thus been accompanied by heightened health and safety risks. As the mining closure destabilized the infrastructure of relative protection, many women moved from localized settings to roadside work or online chat platforms such as MiChat. This increased exposure to violence, non-payment, and health risks, including Sexually Transmitted Infections (STIs) and HIV.

Intersectional positioning again matters. Older sex workers face declining demand in competitive markets. Single mothers shoulder sole responsibility for children. Poor women without savings have limited mobility options. Migrants without local identification encounter barriers to health services and assistance. Some are pushed to migrate to other mining or urban areas, increasing risks of trafficking and exploitation. Mine closure, in this sense, redistributes extractive risk onto women's bodies under more precarious conditions, as the absence of recognition as 'workers' compounds vulnerability.

3.2.4 The Normalization of Danger in Informal Mining Activities

Under mounting pressure, some residents turned to unregulated sand mining and other informal extraction activities. These practices are widely recognized as dangerous and legally precarious, yet normalized as necessary. As one woman [A13] stated plainly: "Yes, it's dangerous, but what other work is there?" This rhetorical question again captures the narrowing of choice.

Young men with limited education may accept hazardous labor as the only available income source. Older workers with declining health face physical risk but lack alternatives. Households indebted from failed aquaculture ventures are more likely to accept dangerous work to repay loans. Survival strategies adopted under distress thus frequently increase exposure to environmental harm, occupational hazards, and legal precarity. Risk is not only accidental as it becomes structurally embedded in post-mining livelihood options.

In conclusion, this finding shows that across aquaculture, informal small-scale trade, intensified unpaid labor, sex work, and informal extraction, a consistent pattern emerges: post-mining livelihoods reproduce and deepen vulnerabilities along intersectional lines. These dynamics do not stop at immediate survival. They shape how inequality is experienced and normalized over time. As households navigate debt, unstable work, gendered burdens, and limited participation in decision-making, young people grow up within a social environment where constrained choices appear ordinary. It is within this landscape of normalized constraint that the next finding is situated.

3.3 Youth, Exclusion, and the Normalization of Inequality

This finding examines how post-mining governance reshapes the everyday lives, opportunities, and future orientations of young people, particularly young women, in the village. While post-mining programs are often presented as inclusive and oriented toward recovery and sustainability, our fieldwork shows that young people experience uneven access to information, limited participation in village decision-making, and a narrowing range of livelihood options. These dynamics do not take the form of direct or formal exclusion. Instead, they operate through informal gatekeeping, economic dependence on mining, and the gradual normalization of inequality. Over time, these conditions encourage adaptive silence, cautious attitudes, and acceptance of constrained choices, even among young people who are aware of environmental damage, governance problems, and social injustice.

3.3.1 Uneven Access and Informal Gatekeeping

Post-mining programs and company-supported initiatives are commonly framed by companies and local authorities as resources meant for the local communities. In practice, however, access to information and participation is highly uneven. Young people repeatedly described learning about programs only after they had already been allocated or implemented. Information typically flows through village officials, who act as informal gatekeepers in determining who is informed, invited, or prioritized.

As one young woman participant explained:

> There is information, but it is not shared openly with everyone. For example, the company channels funds through the village, but sometimes village officials say there is no program. We usually find out only after a program has already come in [FGD Young Women, 25 August 2025].

This pattern produces exclusion not through formal rules, but through opaque communication and proximity-based access. Programs tend to circulate within familiar networks rather than being publicly announced or transparently managed. As a result, access is shaped less by need or capacity than by social relations and administrative closeness to village authorities.

Gendered dynamic plays in the types of programs that are most visible and repeatedly offered. Company-supported initiatives are frequently channeled through the PKK (state-affiliated women and family welfare groups), which is widely regarded as active, organized, and administratively reliable. Trainings such as baking or makeup courses are often designed for married women and reflect both institutional assumptions about women's roles and, in some cases, the expressed interests of PKK members themselves. The issue also lies in their one-off or repetitive nature and the absence of complementary support. Without follow-up assistance, such as access to stable markets, equipment, childcare support, mentoring, or sustained capital, these courses rarely translate into durable livelihoods. Even when similar trainings are offered multiple times, they tend to circulate within the same social group, reinforcing a narrow and normative model of women's economic participation rather than expanding opportunities.

Moreover, the reliance on PKK as the primary conduit for women's programs implicitly defines which women count as legitimate beneficiaries. Unmarried young women, adolescent girls, and young men fall outside this institutional frame, leaving their needs, capacities, and aspirations largely unrecognized. Figure 13 offers a glimpse into the everyday landscape of Lombok transmigrant hamlets in Kerta Buana, communities whose members are among those often sidelined by the selective inclusion that characterizes post-mining program delivery. As a result, inclusion operates in a selective manner: certain groups are repeatedly reached, while others remain sidelined or invisibilized. Rather than expanding participation, this pattern reproduces existing social boundaries and reinforces a narrow imagination of women's economic roles. What is framed as empowerment thus risks becoming a form of administrative inclusion that is symbolically important but substantively limited, especially in the absence of diversified and long-term support.

Figure 13. Generations of Lombok transmigrants living in Lombok hamlets, where original transmigration house structures are sometimes still visible.

Source: Authors' Photograph (Fieldwork, August 2025)

While some participants acknowledged the availability of credit schemes linked to government programs or local financial institutions, these options were often described cautiously and only in later conversations. Access to loans, rather than alleviating economic insecurity, frequently introduced new risks of indebtedness, particularly in the absence of stable income streams or guaranteed markets. The sensitivity surrounding debt meant that such experiences were not always readily disclosed, especially to researchers perceived as external. Nevertheless, these accounts suggest that credit-based 'empowerment' mechanisms may quietly shift financial risk onto households, further entrenching vulnerability rather than enabling recovery.

3.3.2 Mining as the Only 'Realistic' Future

Uneven access to programs is compounded by the dominance of mining as the village's primary economic sector. For many young people, mining is not simply one livelihood option among several. It is perceived as the most reliable, and often the only realistic, pathway to economic security. As agriculture has declined and alternative sectors remain underdeveloped, mining has become the main reference point for imagining a stable life and future. This perception is reinforced through everyday social norms and expectations. During fieldwork, many informants, especially moms and young men remarked that an 'ideal son-in-law' in the village is someone who works in mining ("*mantu yang dianggap ideal warga desa sini, ya yang kerja di tambang*"). Mining employment thus extends beyond income generation to shape social status, marriageability, and respectability.

When Company A ceased operations, this imagination and dependence did not disappear. Instead, many eligible former workers and young people sought employment in other mining companies operating around the village or in more distant sites, extending their mobility rather than exiting the extractive economy altogether. This dependence shapes how young people orient their aspirations. A young woman who had completed an internship at a mining company described her intention to continue seeking work in the sector, noting that her prior experience had already shaped her expectations of what a 'proper career' looks like [FGD Young Women, 25 August 2025]. Other participants similarly emphasized that mining had replaced farming as the village's main source of livelihood.

Economic dependence thus operates not only at the level of income, but also at the level of imagination and social standing. It defines what kinds of work are seen as viable, respectable, and secure, while rendering other possibilities, such as agriculture-based livelihoods or other-than-mining enterprises, less attractive or seemingly unrealistic. In this context, post-mining initiatives that fail to meaningfully diversify economic options risk reinforcing, rather than reducing, long-term dependence on extractive industries.

An informant's account as a third-generation transmigrant and a participant of 'Millennial Farmer' program under the Ministry of Agriculture points to a structural failure in agricultural regeneration that compounds the post-mining livelihood crisis for young people. Despite building an independent mushroom enterprise supplying producers across East Kalimantan and into the Indonesia's New Capital (IKN) corridor, and despite holding regional leadership positions in the Millennial Farmer program, he describes being effectively alone in his commitment, noting that young people in the village do not seriously consider agriculture because it offers no certainty: prices are unregulated, government intervention is absent, and *tengkulak* (middlemen) capture the margins that should accrue to farmers. His diagnosis is: without commodity-level intervention, price guarantees, and organized production communities, young people rationally avoid agriculture and wait instead for mining company recruitment. The problem, as he frames it, is not individual motivation but a systemic absence of the regulatory infrastructure that makes farming a viable intergenerational project. It is a vacuum that post-mining programs offering three seasons of input subsidies do nothing to fill, and that risks ensuring the next generation inherits neither functional farms nor the organizational knowledge to build them.

His own enterprise has found a partial solution to local labor scarcity that is itself revealing. Residents near the mining economy measure wages against company salaries and treat local agricultural work as a waiting room before the next recruitment call. Therefore, his solution relies primarily on migrant workers from Java on 11-month contracts, housed and fed on-site and paid around IDR 3.5 million per month. He also hires local women, engaging them on a piece-rate basis, called in when needed and paid per unit of output rather than per hour.

These arrangements are pragmatic and, from his perspective as an employer, constitute a fair and workable business practice. Yet, they quietly reproduce the same segmentation that characterizes the broader post-mining economy: mobile migrant workers filling roles local residents consider beneath their aspirations, and women absorbing flexible, interruptible labor on terms that fit around their domestic responsibilities precisely because those responsibilities are never redistributed. He is candid about the logic: “women are easy to find for this kind of work” [Interview A08, 25 August 2025]. But his success, real and locally significant as it is, has been built partly on the availability of precarious labor. Under deeply unequal post-mining conditions, even well-intended and successful ‘alternative’ enterprises tend to reproduce rather than resolve the vulnerabilities of those at the bottom of the labor chain.

3.3.3 Limited Space for Youth Engagement and Capacity Building

Despite being frequently described as the 'future of the village' by government officials and villagers from the older generation, young people lack sustained spaces for learning, organizing, and contributing to post-mining development. There are no permanent forums, structured mentoring programs, or consistent forms of technical assistance tailored to youth. Instead, young people are often approached only when additional participants are needed to fill quotas in existing trainings [FGD Young Women, 25 August 2025].

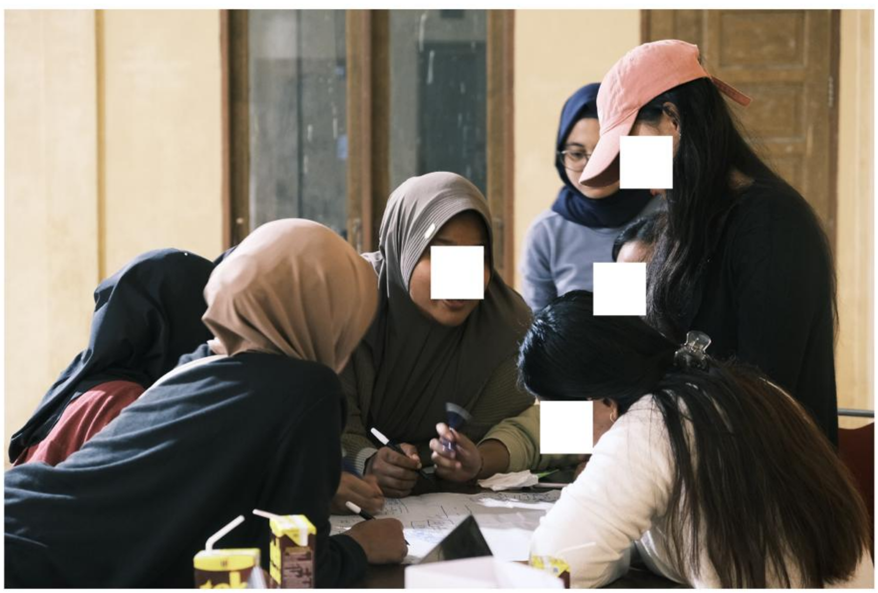
Some youth groups have successfully submitted proposals, i.e. to request support for sports events or religious activities such as *Nyepi* (Balinese Hindu Day of Silence. However, these experiences are episodic and heavily dependent on individual initiative rather than institutional support. Several participants noted that they had never received training on how to write proposals, making the requirement itself a barrier rather than an enabling mechanism. What is often interpreted by village authorities as a lack of motivation among youth is better understood as the result of structural constraints: limited information, unclear procedures, and the absence of consistent guidance. Without institutionalized support, participation becomes difficult to sustain, and responsibility for engagement is shifted onto individuals rather than shared as a collective responsibility.

3.3.4 Careful Criticism, Adaptive Silence, and Gendered Ambivalence in Post-Mining Life

Although many young people are aware of the social and environmental impacts of mining, such as land loss, dust pollution, cracked houses from blasting, abandoned pits, and inconsistent reclamation, open criticism remains rare. In the young women group discussion, participants said they frequently adopted a 'neutral' or '50:50' position, acknowledging both the benefits and harms of mining while avoiding direct confrontation. This cautious stance reflects a tension, where mining is recognized as environmentally damaging, yet it is also the economic backbone of the village and the primary source of household income.

Crucially, this tension is not only economic but institutional and social. The absence of clear, safe, and effective complaint mechanisms further discourages public criticism. Without formal avenues for reporting grievances or negotiating demands, voicing concern is widely perceived as risky. As one participant explained, problems are more often shared through informal conversations or circulating rumors rather than collective claims, due to fear of social and economic repercussions. This condition was captured metaphorically by young women participants through the image of a 'toothless tiger'. They are aware of harm and capable of recognizing injustice, yet lacking the means to act decisively or speak openly [FGD Young Women, 25 August 2025, Figure 14]. Criticism, in this sense, does not disappear; it is displaced into private spaces, softened into neutrality, and stripped of its collective force.

Figure 14. Young women participants discussing and drawing together during a focus group discussion on their experiences, challenges, and future aspirations.



Source: Authors' Photograph (Fieldwork, August 2025)

Over time, repeated exposure to environmental damage, opaque governance, and unequal access to resources leads many young people to treat these conditions as normal or unavoidable. Allegations of corruption, such as discrepancies between infrastructure budgets and actual implementation, are widely known, yet rarely provoke collective action. A participant noted, "People talk about it, but nothing really happens afterward" [FGD Young Women, 25 August, 2025]. This response should not be read as indifference. Rather, it reflects an adaptive response to constrained circumstances, where silence and caution function as strategies of self-protection rather than apathy.

Among young women, these dynamics take on a distinctly gendered form. They face persistent expectations that women will eventually 'return to the kitchen' and that pursuing higher education could be unnecessary or excessive. Such norms generate frustration and emotional hurt, but they also delimit the forms of resistance considered acceptable. Speaking out too openly risks being read as inappropriate, ungrateful, or disruptive, and as violating dominant ideals of the 'good girl' or 'proper future wife' who is compliant, supportive of family stability, and non-confrontational toward male-dominated authority structures. These expectations discipline not only behavior but also aspiration, shaping who can speak, how, and at what cost.

Some young women adopt individual strategies aimed at securing recognition within existing structures, such as seeking internships or employment in mining companies. These efforts reflect agency and aspiration, yet they function primarily as coping mechanisms rather than pathways for structural change. By proving themselves within the extractive economy rather than challenging its dominance, young women navigate constraint without fundamentally altering the conditions that reproduce gendered and economic inequalities.

As a result, young women’s positions in the post-mining landscape are marked by ambivalence rather than clear alignment. On the one hand, mining provides economic stability, enabling access to education and a relatively secure standard of living. On the other hand, they directly experience pollution, degraded infrastructure, land loss, and safety risks in their everyday lives. Post-mining initiatives such as agriculture or fisheries are viewed with cautious optimism, yet they have not displaced mining’s central role in shaping local futures. This ambivalence reflects not indecision, but a continuous negotiation between economic dependence, ecological awareness, and socially enforced limits on critique.

The following box presents an illustrative case that adds to the preceding analysis. Focusing on young women employed in mining service chains, it shows how patterns of exclusion, normalization, and precarity are experienced in everyday working lives.

Box 4. Young Women Workers’ Precarity in Mining Service Chains

Many young women from villages surrounding mining concessions work as contracted workers for subcontracted companies providing catering, laundry, and housekeeping services for predominantly male mining workers. This marks a shift from earlier periods, when such services were sourced from informal, home-based small businesses run by local women. Today, mining companies increasingly outsource these services to formal, established catering firms, often companies whose owners are socially or economically connected to the mining company itself. Access to these jobs is mediated through informal and nepotistic practices. Young women commonly require a referral from a respected village head to be hired, a practice widely normalized but one that reinforces exclusion and dependence on social proximity.

Once employed, young women face highly precarious working conditions. They work long hours (typically nine hours per day, seven days a week), live in company-provided accommodation within the mining complex, and receive only seven days off every six weeks. Holidays are not exempt. Their employment contracts are short-term and insecure, offering little protection or bargaining power. Although they work inside mining sites, as they are hired by the subcontracted company, they are not recognized as 'core' company workers. As a result, they are routinely excluded from company information-sharing and consultation processes, including any information about mine closure, retrenchment plans, or post-mining programs. They also receive little to no training beyond their assigned domestic service tasks, leaving them unprepared for transition when mining operations decline or end.

These conditions also expose young women to heightened risks of sexual and gender-based violence. As one young woman worker, explained: “Many male mining workers are working far from their hometowns and their wives. There are rarely women around them, so they flirt with us. They catcall us, touch our hands, ask us out.” Although she recognizes that behaviors such as catcalling can constitute sexual harassment, she tends to brush them off as “still normal”; a response that reflects the normalization of everyday violence in the workplace and the absence of effective institutional protection.

One case she recounted illustrates further the institutional gaps they face. A young laundry worker was sexually harassed when a male worker pulled her bra strap. The incident was first reported to the company, but was handled informally through a ‘familial’ (*kekeluargaan*) approach, limited to the perpetrator’s apology with no further action. Only after he reportedly began vomiting nails (*muntah paku*), *a phenomenon that is not a metaphor but a literal physical event, interpreted as black magic retribution sent by the woman's ethnic customary authorities, was he then dismissed from his job*. Beyond its gendered dimension, this story shows that in the absence of accessible, trusted, and gender-sensitive institutional mechanisms, young women are compelled to seek justice through informal and male-dominated customary authorities. This reliance underscores the failure of both corporate and state institutions to provide meaningful redress for them. At the same time, young women had to navigate layered governance landscape with different forms of authorities, risking to heighten their own gendered vulnerabilities.

Source: Interview A07, 25 August 2025

4. Concluding Discussion

The three findings presented in this report describe one problem from three vantage points. Local communities perceived and experienced coal mine closure as a sudden rupture to the local economy and their livelihoods. What followed that rupture was not recovery but a reorganization of existing inequalities, such that the burdens of transition fell disproportionately on those already most marginalized by extraction. When rupture hit a community ideologically invested in mining as the only viable future, many perceive it as temporary rather than a signal to exit the extractive economy, or build something different. That is why, even after closure, many young people sought work at other mines rather than building alternative livelihoods. The structural conditions gave them little reason to think and do otherwise. Alternative livelihoods were scarce, undercapitalized, and burdened by environmental damage the company left behind. There was also little imagination of what was possible, i.e. of livelihoods organized around democratic collective control and environmental sustainability where communities decided what to produce, how, and for whom; rather than unequal exchange and extraction.

Post-mining initiatives exist in Kerta Buana, such as reclaimed rice fields, beneficiary groups, aquaculture on pit-lakes, and in some cases deliver real, if partial, benefits. But across all three findings a consistent pattern emerges: access is limited, conditional, and opaque; costs are externalized onto households; and the political space in which these conditions might be named and contested is systematically narrowed by the framing of obligation as generosity and survival as gratitude. The majority of households excluded from post-mining rice field access did not simply go without. They survived because women's unpaid and informal labor expanded to absorb what corporate programs did not provide. And the environmental costs of incomplete remediation did not disappear. The findings illustrated how it transferred onto households, for instance onto those who had invested their severance pay in aquaculture and lost it to contamination the company left unaddressed.

Reading these findings through the four dimensions of justice that inform this report, namely redistribution, recognition, representation, and reparation, illuminates not only what is happening in Kerta Buana but why, and what addressing it would actually require.

4.1 Redistribution: Who Bears the Costs?

Who bears the costs when coal mines close? Across our findings in Kerta Buana and its surrounding, we find a pattern of uneven redistribution. Risks and costs flows toward households who struggle to maintain their survival and livelihoods, and within those households, women's labor often become the buffer that absorbs the economic contraction and rupture brought by mine closure.

Feminist political economy helps explain why this is not accidental (Bhattacharya, 2017; Mezzadri, 2021). What sustains extractive economies is never only the predominantly male formal workforce, but also the full ecosystem of labor around it: informal traders, care providers, and service workers, including sex workers. When the mine closes, that ecosystem loses its economic anchor. But because dominant policy frameworks define 'affected workers' around formally contracted, predominantly male mine employees, most of this ecosystem receives no transition support at all (Lahiri-Dutt et al., 2022; Lahiri-Dutt, 2023; Wikan, 2024). Farming households, women farmers, and laborers work on lands degraded by corporate mining, while bearing the costs of elevated labor premiums, contamination uncertainty, hydrological instability, and tenure ambiguity. Severance pay becomes risk capital absorbed by degraded ecosystems. Meanwhile, women expand their working days since post-mining programs only reached a small fraction of local communities, or withdraw before they reach sufficient social and economic security.

This invisibilization of informal and reproductive labor, as Caretta and Vela-Almeida (2025) demonstrate across a systematic review of fifty-two studies, is constitutive of extractive and transitional economies. It is structural to how they function. The transition in this report's case study site reproduces this structure. Women's increased workload, encompassing productive, social-reproductive, and community-related responsibilities with shrinking returns (see Figure 15), register nowhere in post-mining monitoring or compensation schemes. What corporate and government communications present as successful rehabilitation, i.e. productivity figures, beneficiary counts and testimonials, abstracts away the labor intensification and risk that make those outcomes possible for the few who access them. A redistribution framework adequate to this context would have to begin by making this labor visible, counting it as a cost of transition, and designing support structures that reduce rather than intensify the multiple burden.

Figure 15. Women engaged in intertwined social reproductive and productive labor, from caregiving to farm work and everyday household tasks.

Source: Authors' Photographs (Fieldwork, August 2025)

4.2 Recognition: Beneficiaries or Claimants?

A consequential mechanism of misrecognition documented across the three findings is the systematic framing of corporate obligation as corporate generosity. Mining destroyed irrigation systems, enclosed agricultural land, depleted water sources, and eroded the agrarian commons over four decades; post-mining programs return fragments of that land under corporate management while narrating the return as stewardship and community benefit.

This inversion, from obligation to gift, from claimant to recipient, is necessary to the governance model, because it forecloses the framing that would make claims for accountability possible. Where people understand themselves as receiving a gift, dissatisfaction can only be expressed as complaint, a request for more, or better. It is rarely articulated as critique of the structure that determines how much they receive and on whose terms. Gratitude in Kerta Buana is strategically performed as much as genuinely felt, because the costs of non-performance, i.e. losing access to modest but vital supports, are real and well understood. What this produces, following Li (2019), is a politics of complaint rather than critique: people can express that programs fall short, that support ended too soon, that they need more. But the framing of corporate obligation as generosity actively prevents that dissatisfaction from hardening into a challenge to the structure that produced it.

Feminist political ecology and intersectionality together illuminate the gendered dimensions of this dynamic. Women are recognized within post-mining programs as productive subjects. They are trainees, beneficiaries, and micro-entrepreneurs, but not political actors with claims over the terms of transition. Their participation is channeled through PKK women's groups that function as program delivery conduits rather than accountability forums, a pattern that grants visibility in programmatic roles while denying standing in agenda-setting spaces (Collins, 2000; Nightingale, 2011). Caretta and Vela-Almeida (2025) document this dynamic: CSR strategies consistently mask dispossession behind the language of empowerment, and program inclusion does not equate to justice when those programs reproduce the same systems of precarious and conditional access that characterized the extraction period itself. Youth face a structurally analogous position. As Li (2019) argues, critical awareness of injustice is widespread, but rarely becomes the basis for collective action. Not because people do not see what is wrong, but because the conditions that would allow critique to be shared, organized, and directed at specific targets are absent. The 'toothless tiger' that emerged from youth focus group discussions names precisely this: not a lack of insight but a lack of the organizational infrastructure and safe spaces through which that insight could become a collective demand.

4.3 Representation: Whose Knowledge Shapes the Transition?

Representation, understood as substantive authority over decisions that shape people's lives and not as token inclusion, is a dimension of justice systematically absent from post-mining governance in Kerta Buana. Reclaimed land allocation sometimes operates through acknowledged informal insertions and insiders without transparency. Village structures act as information gatekeepers. Women's engagement is routed mostly only through PKK. Youth are approached to fill training quotas rather than to shape program design. Many landless residents, migrant workers, and informal workers are not recognized as stakeholders at all. The result is that programs reflect the priorities and assumptions of few who design them, most visibly in the gap between Company A's vision of export-oriented smart farming and the tenure insecurity, water access problems, and accumulated risk aversion that define the lived circumstances of those the programs are meant to serve.

This representational failure is not only procedural, but also substantive and self-reinforcing. Walk (2024) argues that gender justice in transition agendas tends to be operationalized as parity in formal structures without challenging the deeper power relations that determine whose knowledge counts and whose needs are legible to planners. Sovacool et al. (2023) demonstrate that pluralizing energy justice should not mean adding marginalized groups to existing frameworks, but allowing their standpoints to reshape what transition planning asks and answers. One informant [A08]'s account makes the stakes of this concrete: without commodity-level regulation, protection from middleman capture, and organized production communities, post-mining agricultural programs cannot substitute for the systemic infrastructure that would make farming a viable intergenerational project. His enterprise's pragmatic labor arrangements; migrant workers on fixed contracts, local women on piece-rate terms absorbed around domestic responsibilities, nevertheless reproduce the inequalities of the broader post-mining economy, partially because the structural conditions for genuinely equitable alternatives have not been built. Representation, in this sense, is not only about who sits at the table. It is also about whether the table has authority over anything that matters.

4.4 Reparation: What Is Owed

Decolonial and postcolonial scholarship insists that justice cannot be pursued without confronting the historical accumulation of dispossession from which present inequalities derive (Whyte, 2020; Sovacool et al., 2023). Reparation as a dimension of justice is therefore not only forward-looking. It demands a backward orientation, asking what was lost, by whom, through which specific decisions, and what restoration of the conditions for collective self-determination would require.

In Kerta Buana, the scope of historical loss is substantial and traceable. Between 70% and 80% of former agricultural land passed into corporate property through decades of enclosure. As many villagers we encountered (especially from the older generation) shared, and as documented by local researchers who participated in this study's own scoping process (Murlianti et al., 2022), the destruction of Mount Malang, a socio-ecologically vital hilly area, eliminated the primary irrigation and clean water sources sustaining the agricultural system. Figure 16 provides an illustration for this phenomenon. The Prajapati Temple collapsed from mining vibrations in 2019. An agrarian identity and intergenerational livelihood structure, the 'Bali Village of East Kalimantan', was dismantled not only by market forces in the abstract but by the specific decisions of specific companies operating under specific permits issued by specific government bodies. Meanwhile, the consequences documented in the findings are still being paid, in labor and in cash. Degraded soil (compacted, drained of capillary function, and scattered with coal stones that injure planting workers' feet), elevated cultivation costs, and contaminated water sources are the material inheritance of extraction. As recounted by women farmers and local activists we spoke to, even if remediation partially addressed the surface, it did not seem to address what lies beneath.

These losses cannot be addressed by reclamation programs alone. They require formal acknowledgement of harm and accountability for the specific decisions that produced it. This study does not dispute the legal status of land transactions that occurred during the mining period. What it insists on is: the ecological and social conditions that extraction destroyed constitute a reparative debt. Functioning water systems, viable agricultural infrastructure, the groundwater and irrigation commons were the material foundations of collective life, and no productivity certificate or temporary program access can discharge what their destruction cost.

Reparation must also account for the unacknowledged reproductive and care labor that subsidized the mining economy across its operational life and continues to subsidize the transition. As Caretta and Vela-Almeida (2025) argue compellingly, the energy transition is not possible without the reproductive labor that sustains workers' lives; labor predominantly performed by women and feminized bodies, entirely absent from formal compensation frameworks, and treated in mainstream transition planning as though it were not labor at all. In Kerta Buana, this labor has taken the form of women managing households under dust pollution and water insecurity for four decades; absorbing the emotional and logistical costs of male labor mobility; providing informal care for injured workers outside any occupational health framework; and now expanding their working days to cover the economic contraction that mine closure created. None of it has been measured, compensated, or recognized as a legitimate basis for reparative claims. A just post-mining transition would confront this invisible subsidy directly; not as a programmatic add-on but as a foundational reckoning with what extraction actually cost and who paid for it.

As we acknowledged in the analytical framework, this study engages with decolonial and postcolonial scholarship while remaining aware of what it cannot fully address. Transmigrant settlement in East Kalimantan occurred on indigenous peoples' lands. Transmigrants themselves were mobilized through colonial and post-colonial state policies that promised land and livelihood while obscuring what those promises displaced. A complete reparative analysis would need to reckon with that layered history. The questions that remain open, i.e. who was here before, and what would justice look like if those questions were centered rather than deferred, are unfinished threads we offer to future research. The reparative debt documented here, substantial as it is, may itself be only one layer of a longer accounting.

Figure 16. River water showing visible pollution from coal mining residues, indicating deteriorating conditions of local water resources.

Source: Authors' Photographs (Fieldwork, August 2025)

4.5 Answering the Research Questions

Taken together, these four dimensions allow this study to answer its guiding research questions. Post-mining land and resource access in Kerta Buana is uneven, conditional, and risk-laden: structured by informal gatekeeping, opaque allocation, and tenure arrangements that keep communities in a condition of dependent access rather than secure entitlement. Post-mining livelihoods reproduce intersectional vulnerabilities rather than resolving them: the compounded disadvantages of landlessness, migration status, age, and gender determine not only who accesses programs but who bears the costs when programs fall short. And the politics of meaning-making, i.e. gratitude as governance, obligation reframed as generosity, constrained futures normalized as individual adaptation, systematically foreclose collective claims and action for accountability that just transition requires.

These dynamics are not unique to Kerta Buana. They illustrate conditions likely to characterize post-mining transitions across Indonesia's coal regions wherever extraction has restructured land, labor, and social relations over decades without corresponding accountability. As the architecture of regional economic diversification continues to be built in East Kalimantan, the evidence from Kerta Buana makes clear what is at stake if the structural dimensions of gender, land, labor, and historical accountability are not embedded from the outset: transition programs will substitute one form of conditional access and invisible burden for another, reorganizing inequality rather than redressing it. The recommendations that follow are grounded in this recognition.

5. Recommendations

The preceding analysis describes a post-mining governance arrangement that is not simply inadequate, but self-stabilising. A reasonable question follows: if intersecting inequalities and its conditions are structurally reproduced and serve those with power and authority over programs, why would any actor change?

The answer might lie not in expecting voluntary reform from those who benefit from the current arrangement, but partially in the levers that operate around corporate discretion, i.e. regulatory enforcement of permitting obligations, public disclosure of tenure terms, and participatory structures with binding decision-making authority. Where communities can see their entitlements clearly, compare them to what they receive, and speak through channels that carry consequence, the conditions for accountability shift. The recommendations below (summarized in Table 2) identify where those levers are. Each is grounded in specific conditions documented in this study. They do not constitute a comprehensive framework for just transition (that would exceed what a single case study can support) but they are not general principles either. They are demands that follow from what communities in Kerta Buana and its surrounding are experiencing. The recommendations are addressed to regional and national governments, mining companies with ongoing post-mining obligations, and development partners supporting post-mining and economic diversification planning in East Kalimantan.

Table 2. Recommendations Overview: Evidence Base and Connections to Findings

#	Recommendation	Key Findings that Ground It	Evidence Base*
R1	**Reframe post-mining obligations as regulatory duties, not corporate generosity**	All 3 findings; Box 2 on erosion of entitlement knowledge; Section 4.2 on gift framing systematically forecloses accountability.	Directly supported
R2	**Expand the definition of affected persons beyond formal mine workers**	Finding 2. Informal small-scale traders, sex workers, aquaculture farmers, catering and laundry workers; documented dependency, zero transition support.	Directly supported
R3	**Clarify and secure the terms of post-mining land access**	Finding 1. Beneficiaries could not name tenure duration, renewal terms, or reversion process. Uncertainty shapes every investment decision.	Directly supported

#	Recommendation	Key Findings that Ground It	Evidence Base*
R4	**Invest in social and care infrastructure as a condition for women's meaningful participation**	Finding 2 (mushroom group, time-burden intensification, risky survival and livelihoods); Finding 1 (water insecurity adds daily care costs). Design details need wider evidence.	Broader evidence needed for design
R5	**Build participation structures that shift power, not fill quotas**	Finding 3. PKK-only channels, informal gatekeeping by village officials. Lack of safe space to channel critique. Symbolic inclusion without meaningful decision-making authority.	Broader evidence needed for design
R6	**Acknowledge and begin to address historical loss**	All 3 findings; Historical contexts; 4.4 Reparation. Specific traceable harms: Irrigation destroyed, 70–80% land enclosed, temple collapsed, 40 years reproductive labour not fairly compensated.	Some directly supported; Broader evidence needed

*) Directly supported = The case provides clear grounds for the demand. Broader evidence needed = Where design details (mechanisms, costs) go beyond one case, broader comparative evidence is flagged.

1. Reframe post-mining obligations as regulatory duties, not corporate generosity.

Evidence base: All 3 findings and Box 2 documents the erosion of entitlement knowledge; Section 4.2 shows how gift framing systematically forecloses accountability.

The framing of reclamation, livelihood support, and environmental rehabilitation as voluntary corporate contributions is among the most consequential obstacles to justice documented in this study. It repositions affected communities from rights-bearing claimants to grateful recipients, and narrows the political space for critique and accountability. Government oversight bodies should require that post-mining programs are communicated accurately, as obligations embedded in permitting frameworks, and should establish clear standards for how companies report on and publicly represent their post-mining activities. This reframing is a precondition for any of the other recommendations to be pursued effectively. Alongside regulatory enforcement, government bodies should invest in accessible public communication that explains companies' post-mining obligations clearly to affected communities, so that entitlements are understood as such and can be acted on.

2. Expand the definition of affected persons beyond formal mine workers

Evidence base: Finding 2. Informal small-scale traders, sex workers, aquaculture fish farmers, women in catering and laundry supply chains; all documented with economic dependency on the mine, yet received no zero transition support.

Transition assistance, including livelihood support, access to retraining, and eligibility for post-mining programs, is currently structured around formally contracted mine workers, who are predominantly male. This study documents that the broader ecosystem of economic dependency sustaining mining operations, i.e. informal small-scale traders, informal service workers, women in catering and laundry chains, sex workers, and aquaculture fish farmers, is excluded from any transition support despite being directly affected by mine closure. Eligibility for post-mining programs should be extended on the basis of documented economic dependency, not formal employment status. This would require participatory livelihood mapping that centers those most affected, including women, youth, landless workers, and migrant communities.

3. Clarify and secure the terms of post-mining land access

Evidence base: Finding 1. Beneficiaries could not name the duration of their access, conditions for renewal, or what happens when the concession reverts to the state. Several had invested in soil improvement without any information about tenure security.

The legal status of land transactions that occurred during the mining period is not disputed here. Companies acquired land through processes that were, at least formally, compensated. What this study documents is a different and unresolved problem: communities that now farm post-mining land do not know how long their access will last, under what conditions it may be revoked, or what happens to that land when the post-mining phase formally ends and the concession is returned to the state. This uncertainty is not a minor administrative gap. It shapes all investment decision farming households make and keeps them in a condition of dependent access rather than stable livelihood.

Post-mining programs should therefore establish and publicly disclose the specific terms of community land access: duration, conditions for renewal, grounds for revocation, and what pathway (if any) exists toward longer-term use rights under possible agrarian legal and policy frameworks. Where post-mining land is eventually returned to state control as concession obligations conclude, regional governments should proactively plan for its reallocation to affected communities through transparent, participatory processes rather than allowing it to be reassigned through administrative default. This is not a claim to reverse prior transactions but a demand that the terms of current and future access be governed by clarity and accountability rather than corporate discretion.

4. Invest in social and care infrastructure as a condition for women's meaningful participation

Evidence base: Finding 2 (mushroom group, time-burden intensification, risky survival and livelihoods); Finding 1 (water insecurity adds daily care costs). The multiple-burden pattern is clearly documented; detailed design mechanisms require broader comparative evidence.

Economic diversification programs that add productive roles for women without reducing their social reproductive and care burdens will intensify, not resolve, the multiple burdens documented across all three findings. Investment in social and care infrastructure, i.e. reliable clean water, childcare, and local health services, should not be treated as a complementary add-on to livelihood programs but a structural prerequisite for women's genuine participation in post-mining economic life. Post-mining Monitoring and Evaluation frameworks should incorporate indicators on women's time poverty and care burdens alongside productivity and income measures, and community development programs should be evaluated against whether they reduce or intensify the multiple burden before being celebrated as successes.

5. Build participation structures that shift power, not fill quotas

Evidence base: Finding 3. PKK-only channels, informal gatekeeping by village officials; critical awareness with no institutional channel to act on it. Youth filled training quotas; no group held decision-making authority. The problem of symbolic inclusion is clearly evidenced; what binding mechanisms look like in other contexts requires comparative evidence.

Women, youth, landless residents, and informal workers are currently excluded from the decision-making processes that shape post-mining programs, or included symbolically through PKK channels and training quota-filling that carry no decision-making authority. Meaningful participation requires forums with binding authority over program design and resource allocation; safe, independently monitored grievance mechanisms that function outside village authority structures and company management; information disseminated through accessible channels before meetings rather than after decisions are made; and scheduling that respects care responsibilities. Women must be supported as political actors with substantive roles in reclamation planning and transition oversight, not only as beneficiaries of programs designed without their input.

6. Acknowledge and begin to address historical loss

Evidence base: All 3 findings; Historical contexts; 4.4 Reparation. Specific traceable harm: destruction of the irrigation system, permanent alteration of groundwater, enclosure of 70–80% of agricultural land, collapse of the Prajapati Temple from mining vibrations, and four decades of uncompensated reproductive and care labor; all attributable to specific company decisions under specific permits. What reparative mechanisms could look like requires comparative evidence.

The losses sustained by Kerta Buana's communities, i.e. the destruction of the agricultural irrigation system, the permanent alteration of groundwater, the enclosure of 70–80% of agricultural land, the collapse of the Prajapati Temple, and the erosion of an agrarian identity, cannot be addressed by forward-looking programs alone. Formal acknowledgement by Company A and relevant government bodies of these specific, traceable harms is a minimum requirement for shifting the terms of post-mining governance from discretion to accountability. Water system remediation, including restoring access to reliable, safe, community-controlled water supply, should be treated as a reparative obligation rather than a development benefit. And the decades of unacknowledged reproductive and care labor that made extraction possible should be recognized as a basis for reparative claims, not erased from transition planning as though it were not labor at all.

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