



Environmental communication as resistance: Environmental justice and livelihood transformation

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ABSTRACT

Background: This paper examines how environmental communication functions as a contested political and communicative space within the nickel extractive frontier of Central Halmahera, Indonesia. Focusing on Waleh in North Weda and Kulo Jaya in Central Weda, the study compares two distinct but interconnected pathways of environmental and livelihood transformation associated with nickel industrial expansion. **Methods:** Using a qualitative interpretive comparative case-study design, the research draws on in-depth interviews, field observation, documentary and secondary sources, and thematic analysis. **Findings:** The findings indicate that extractive expansion affects not only ecological conditions and access to land and water, but also agricultural livelihoods, participation, and local communicative relations. In Waleh, contested territorial relations and institutional and moral mediation shape community experiences, while in Kulo Jaya, agricultural disruption and changing livelihood strategies are particularly pronounced. **Conclusion:** Environmental communication operates in both directions: corporate and institutional narratives may contribute to social legitimacy for extractive development, while testimonies, religious discourse, informal forums, and advocacy enable communities to articulate environmental justice claims and counter-narratives. **Novelty/ Originality of this article:** The study argues that environmental injustice in extractive frontiers involves distributive, procedural, and recognition inequalities and is also a problem of communicative inequality. Strengthening two-way participation, transparent land governance, livelihood-sensitive environmental assessment, recognition of local knowledge, and credible grievance mechanisms is therefore essential to more inclusive environmental governance.

KEYWORDS: agricultural livelihoods; environmental communication; environmental justice; livelihood transformation; nickel mining.

1. Introduction

Indonesia's eastern islands have become the epicenter of a new global frontier: the extraction and industrialization of nickel for the electric vehicle supply chain. In the name of energy transition and green industrialization, vast areas of forest, farmland, and coastline are being transformed into industrial enclaves. The Indonesia Weda Bay Industrial Park (IWIP) in Central Halmahera—one of the largest nickel processing zones in Southeast Asia—exemplifies this paradox of “green extractivism”: a development model that promises decarbonization but reproduces colonial patterns of exploitation and environmental degradation. Based on data from the National Mining Advocacy Network/*Jaringan Advokasi Tambang* (JATAM), the IWIP industrial area currently used for PT IWIP's operations covers

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4,027.67 hectares. Recently, IWIP has planned to expand the industrial area by an additional 11,489.33 hectares, bringing the total target area to 15,517 hectares. To meet industrial operational needs, IWIP plans to expand the port area to increase loading and unloading capacity by 550,000 Deadweight Tonnage (DWT), from the existing 1,100,000 DWT to reach 1,650,000 DWT. In addition to the docks, IWIP is expanding the airport area by 2,500 meters, using slag and Fly Ash and Bottom Ash (FABA) as reclamation materials, for a total of 30 hectares.

The expansion of IWIP's operations is reported to require extracting 15,000 m³/day of raw water from the Sagea River, in addition to the ongoing extraction of 12,000 m³/day from the Kobe, Sake, and Wosia Rivers. Water abstraction for IWIP's operations would thus reach 27,000 m³ per day. By comparison, the estimated domestic water requirement for Central Halmahera's 2023 population of 96,977 people is 10,667.47 m³/day, using a consumption assumption of 110 L/person/day (JATAM, 2024). While the national narrative celebrates economic growth and job creation, the environmental and social costs borne by local communities remain systematically obscured. The government's discourse of progress frames mining as a patriotic duty, yet on the ground, villagers experience land dispossession, river contamination, and the fragmentation of their social fabric. For farmers in Kulo Jaya, once known as a productive transmigration settlement and rice granary of Central Halmahera, the arrival of IWIP marked the end of their agricultural livelihood. Floods, toxic runoff, and broken promises of compensation have left the community in despair.

"After the company came, our land was flooded, our eyes hurt from the dust, and our fields were gone. We used to harvest three times a year. Now, nothing grows." (Farmer, Kulo Jaya).

A similar pattern unfolds in Waleh, a village located near the IWIP industrial corridor. Residents describe contested land-acquisition processes involving local elites, village officials, and religious figures who mediate relationships between companies and communities. The lack of transparent consultation, combined with selective Environmental Impact Assessment/*analisis dampak lingkungan* (AMDAL) meetings, illustrates gaps between formal environmental governance mechanisms and their implementation, particularly where participation is perceived as selective or limited. This paper examines these interconnected processes through the lens of environmental communication as resistance. Ecological communication, as Cox & Pezzullo (2018) argue, is not merely the transmission of information about environmental issues but a cultural and political practice through which communities make sense of, negotiate, and contest ecological change. By documenting the testimonies of farmers and residents, this study explores how communication becomes both a tool of domination (through state-corporate narratives) and a medium of counter-discourse (through local expressions of justice, faith, and solidarity).

The study's core argument is that the crisis of environmental governance in Halmahera is fundamentally a crisis of communication—one that silences affected voices while amplifying the rhetoric of sustainability and investment. In response, communities like Waleh and Kulo Jaya engage in acts of communicative resistance: voicing grievances, invoking moral authority, and reframing ecological loss as a matter of justice rather than mere developmental side-effects. Accordingly, this paper asks: how do communities in Waleh and Kulo Jaya experience and communicate the socio-ecological impacts of nickel mining? In what ways do local actors, including farmers, migrants, and religious leaders, negotiate power and articulate environmental justice claims amid governance failures? and how can environmental communication serve as a framework for understanding resistance and resilience in extractive frontiers? By integrating insights from political ecology, environmental justice, and communication studies, this article situates the Halmahera case within global debates on extractivism and environmental governance. The analysis demonstrates that communication is not a peripheral dimension of ecological conflict but

its very terrain, where meanings of progress, justice, and belonging are contested and reimaged.

1.1 Environmental communication as a field of power and resistance

Environmental communication is both a scholarly field and a site of struggle over meaning. As Cox & Pezzullo (2018) argue, environmental communication encompasses the symbolic and material practices through which humans construct, contest, and negotiate their relationships with nature. It includes not only formal campaigns and media coverage but also grassroots discourses, local testimonies, and embodied expressions of environmental suffering. In extractive contexts such as Halmahera, communication becomes an arena of asymmetry, where corporate narratives of sustainability and progress clash with community narratives of dispossession and ecological loss. The communicative imbalance between state–corporate actors and local communities reflects more profound epistemic injustices (Fricker, 2007). Corporate actors employ highly technical language AMDAL compliance, Corporate Social Responsibility (CSR) realization, green industrial park, to frame mining as scientifically rational and morally legitimate. Meanwhile, villagers' testimonies, often narrated in vernacular, emotional, or spiritual idioms are dismissed as irrational or uninformed. This hierarchy of credibility reproduces what Spivak (1988) famously termed the silencing of the subaltern: the inability of marginalized subjects to be heard within dominant discourses.

Environmental communication scholarship has increasingly recognized that communication is not neutral but performative, it makes worlds (Cox & Pezzullo, 2018). In Halmahera, government press releases, religious blessings of mining inaugurations, and local resistance speeches each construct competing ontologies of what the environment is and ought to be. The challenge lies in recognizing that environmental degradation is also communicative degradation: the erosion of the ability of communities to define and voice their ecological reality. Within this perspective, this study conceptualizes environmental communication as resistance. Resistance here is not limited to organized protest but includes subtle communicative acts, lamentation, testimony, storytelling, and spiritual framing, that challenge extractive hegemony.

"This company kills us, because we can no longer plant," (Farmer, Kulo Jaya).

he performs a counter-discourse that reframes economic modernization as moral violence. Such utterances are communicative acts of justice, transforming suffering into claims for recognition and accountability.

1.2 Political ecology: Power, territory, and resource control

Political ecology provides the analytical backbone for understanding the socio-political dimensions of environmental conflict. Emerging from the works of Blaikie and Brookfield (1987), Bryant (1998), and Robbins (2012), political ecology critiques apolitical environmentalism by emphasizing how ecological outcomes are shaped by power relations, historical trajectories, and capitalist expansion. It reveals that environmental degradation is rarely accidental, it is structured through economic and political systems that privilege certain actors over others. In the context of nickel mining in Halmahera, political ecology exposes how state and corporate power converge to transform rural landscapes into industrial territories. The granting of large-scale concessions to IWIP and its subcontractors illustrates what Harvey (2003) calls accumulation by dispossession, a process through which communal lands, forests, and water bodies are converted into capital assets. Local governance institutions, rather than mediating between citizens and corporations, often act as brokers or gatekeepers of extraction, facilitating rather than regulating environmental change. This dynamic aligns with Bebbington et al. (2018)'s concept of resource governance assemblages, where state officials, investors, and local elites form flexible coalitions to

sustain extractive operations. In such assemblages, formal legality (e.g., environmental permits, AMDAL) masks informal practices of coercion and corruption. The testimonies from Waleh residents, describing forged participation lists in AMDAL hearings or selective invitations to consultation meetings, exemplify what Li (2014) identifies as the art of government through dispossession: the bureaucratic neutralization of dissent.

Political ecology also helps situate these local experiences within global structures. The nickel extracted from Halmahera feeds into supply chains for electric vehicles in China, the United States, and Europe. Thus, the environmental costs borne by Indonesian villagers are externalized to sustain a global green economy. This reflects what Martínez-Alier (2002) terms the ecological distribution conflict, in which the burdens of environmental degradation are unevenly distributed across classes, regions, and nations. In this light, the suffering of Kulo Jaya's farmers is not an isolated tragedy but part of a planetary geography of inequality embedded in green capitalism.

1.3 Environmental justice and the politics of recognition

While political ecology explains how power structures produce inequality, environmental justice (EJ) foregrounds the ethical and moral dimensions of such inequality. Originating from grassroots movements in the United States during the 1980s (Bullard, 1990), EJ has evolved into a global framework encompassing distributive, procedural, and recognition dimensions (Schlosberg, 2007). In Halmahera, the distributive injustice is manifest in the unequal distribution of risks and benefits: corporations and urban investors reap profits, while rural communities bear the pollution, displacement, and loss of livelihoods. Procedural injustice emerges through the exclusion of villagers from decision-making processes. As Waleh residents described, environmental impact assessments (AMDAL) were conducted with only a few people in the room, excluding most affected citizens. Recognition injustice appears when local ways of knowing, such as indigenous cosmologies or moral appeals by religious leaders are ignored or co-opted for corporate legitimacy.

Environmental justice thus provides a framework for interpreting villagers' communicative acts as claims to justice. When a Waleh resident condemns tokenistic donations "A sack of rice cannot replace our land" (Resident, Waleh), he articulates a moral critique that challenges the commodification of justice itself. Similarly, when religious figures in Saolat frame environmental destruction as a sin against creation, they reintroduce ethical reasoning into technocratic governance. Such expressions represent what Temper & Del Bene (2016) describe as environmentalism of the poor a moral and political mobilization by marginalized groups whose struggle for survival becomes a struggle for justice.

1.4 Governance failure and the crisis of participation

The Indonesian legal framework mandates public participation and environmental transparency through Law No. 32/2009 on Environmental Protection and Management. However, as numerous studies have shown, these principles are still implemented superficially. In practice, governance failure manifests through overlapping authorities, weak enforcement, and the capture of regulatory institutions by corporate interests. In Halmahera, local governance failure operates at multiple levels. Regulatory capture occurs when local officials benefit from concession fees and corporate CSR funds, leading them to prioritize investment over environmental protection. Administrative opacity is reflected in environmental assessments and land compensation processes that are conducted without transparent documentation. Meanwhile, moral co-optation occurs when religious and community leaders are involved in ceremonial events, such as prayer blessings and socialization meetings, that symbolically legitimize extractive activities.

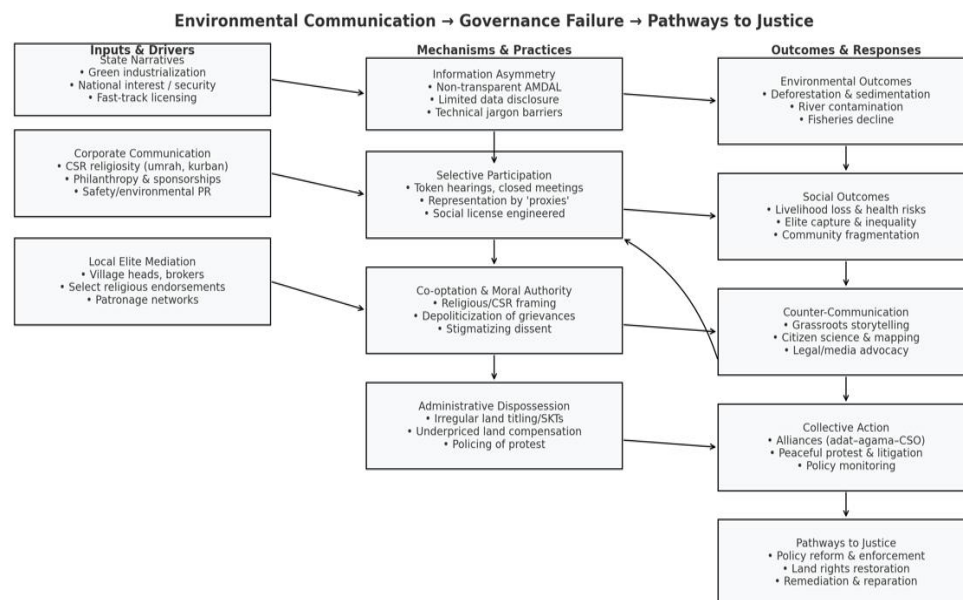
Such failures undermine both procedural justice and public trust. Governance becomes performative, mimicking participation without redistributing power. In communication

terms, this represents a collapse of dialogic governance (Dryzek, 2013): the state no longer listens but speaks through corporate press releases and religious endorsements. The public sphere is privatized, leaving citizens to articulate their grievances through informal channels, such as petitions, community testimonies, or environmental rituals. Governance failure also erodes resilience. In both Waleh and Kulo Jaya, the absence of institutional support forces communities to rely on self-organization and moral solidarity. Farmers' testimonies, religious sermons, and informal networks of mutual aid emerge as communicative infrastructures of survival. These practices embody what Walker et al. (2020) call vernacular resilience, adaptive capacities rooted in local moral economies rather than formal institutions.

1.5 Integrative framework for the study

This study integrates the analytical perspectives above into a single conceptual model (Figure 1), encompassing environmental communication, political ecology, environmental justice, and governance analysis. Environmental communication highlights the discursive contestation between corporate–state narratives and community counter-narratives. Political ecology situates these discourses within structural relations of power, resource control, and capitalist expansion. Environmental justice interprets local testimonies as moral claims to recognition, participation, and redistribution. Finally, governance failure explains why institutional mechanisms fail to mediate these conflicts, creating a vacuum that is filled by informal moral authority.

Together, these perspectives enable a multi-scalar analysis of how extractive industries reshape not only the physical environment but also the communicative and moral ecologies of rural life. The case of Halmahera demonstrates that environmental degradation is inseparable from communicative degradation, when voices of the marginalized are silenced, ecosystems perish alongside them.



Legend:
Inputs (left) feed governance mechanisms (center), producing environmental & social outcomes (right).
Counter-communication and collective action create feedback to disrupt information asymmetry and dispossession,
opening pathways to justice (policy reform, restoration, remediation).

Fig. 1. Conceptual framework integrating environmental communication, political ecology, environmental justice, and governance analysis

2. Methods

2.1 Research design and epistemological orientation

This study employs a qualitative interpretive design grounded in critical environmental communication and political ecology. The purpose is to understand how communities in nickel mining zones of Halmahera, particularly in Desa Waleh and Desa Kulo Jaya communicate, interpret, and resist ecological degradation. Rather than testing a hypothesis, this research seeks to interpret meanings, power relations, and communicative practices embedded within local testimonies and socio-political contexts. The epistemological stance follows constructivist inquiry (Lincoln & Guba, 1985), assuming that knowledge about environmental issues is socially constructed through discourse, cultural narratives, and institutional interactions. It also incorporates critical realist sensitivity, acknowledging that material ecological harm (e.g., pollution, land loss) is empirically verifiable even as its meaning is socially mediated. Thus, this study bridges interpretive and critical paradigms, recognizing both lived experiences and structural asymmetries shaping environmental communication in extractive frontiers.

2.2 Case selection: Waleh and Kulo Jaya

The research focuses on two key villages in Central Weda District, Central Halmahera, North Maluku Province, Waleh and Kulo Jaya, representing distinct yet interconnected socio-ecological contexts within the industrial corridor of the Indonesia Weda Bay Industrial Park (IWIP). Desa Waleh is characterized by ancestral land ownership and strong *adat* (customary) institutions, where conflicts over mining concessions often intersect with moral and religious authority. Residents have reported co-optation of religious leaders, selective socialization of Environmental Impact Assessments (AMDAL), and contested compensation schemes involving local brokers and subcontractor companies (e.g., PT Bakti Pertiwi Nusantara, Dharma Rosadi, MAI). Meanwhile, Desa Kulo Jaya, established as a transmigration settlement/*Satuan Pemukiman Tiga* (SP3) in the early 2000s, hosts migrants primarily from Java (e.g., Jember, Situbondo). The community once thrived on rice cultivation and vegetable farming but has suffered severe livelihood disruption since the entry of mining operations in 2010–2015. Water contamination, crop failure, and unfulfilled land certification (so-called lahan 2) have become key grievances. These two sites embody complementary aspects of the extractive frontier: Waleh reveals dynamics of territorial contestation, local mediation, and moral governance, while Kulo Jaya demonstrates agrarian disruption and livelihood transformation. Together, they provide a comparative lens for exploring environmental justice, communication asymmetry, and governance.

2.3 Data sources and collection procedures

Data collection integrated multiple qualitative sources to ensure triangulation and validity (Creswell & Poth, 2018). First, in-depth interviews were conducted with 23 participants between July and October 2025, including residents, farmers, religious leaders, women's groups, and local government officers. Interviews lasted between 45 minutes and two hours. Key informants included a farmer from SP3 Kulo Jaya (Participant 1), a transmigrant farmer originally from Jember (Participant 2), a senior farmer from Kulo Jaya (Participant 3), a male community negotiator from Waleh in his 50s (Participant 4), and religious leaders and community elders from the Saolat and Waleh areas. Pseudonyms or participant codes were used to protect informants' identities where necessary. Second, field observations were conducted through participation in village meetings, riverside inspection walks, and informal discussions in markets and places of worship. These observations focused on how villagers articulated environmental grievances, negotiated with local elites, and reframed mining in moral or spiritual terms. Third, documentary and secondary data were collected through a review of local regulations, AMDAL documents,

company Corporate Social Responsibility (CSR) reports, and environmental monitoring data from the Environmental Agency of North Maluku Province and JATAM. Additional literature from national newspapers and Non-Governmental Organization (NGO) publications published between 2020 and 2025 was reviewed to contextualize the findings within broader debates on industrial policy and governance.

2.4 Data analysis: Thematic coding and interpretive procedure

The data were analyzed using thematic content analysis (Braun & Clarke, 2019), integrated with a political ecology interpretive framework. The process began with transcription and familiarization, in which all interviews were transcribed verbatim in Bahasa Indonesia and translated into English, while field notes were digitized and cross-checked against audio recordings for accuracy. Initial coding was then conducted by assigning open codes to data segments reflecting key phenomena, including land loss, river contamination, religious legitimization, exclusion from AMDAL processes, CSR tokenism, health impacts, elite brokers, and resistance rhetoric.

Table 1. Actor roles, communicative strategies, interests, and potential impacts across the extractive governance landscape

Stakeholder Category	Role	Communicative Strategy	Primary Interests	Potential Impacts/Issues
Corporate/ Legal Affairs	Land acquisition, project implementation, community liaison	Formal consultation, CSR, technical/legal communication	Project continuity, access to land/resources, social legitimacy	Environmental and livelihood impacts; unequal information access
Village government /village leadership	Local administration, mediation, documentation and land-related processes	Meetings, mediation, administrative documents	Local authority, development interests, mediation role	Influence over participation, land processes, and community access
Residents/ local farmers	Land use, agriculture, household livelihoods, community advocacy	Testimony, informal forums, local media, religious/comm unity networks	Land security, livelihood continuity, environmental quality	Exposure to environmental burdens and livelihood transformation
Regency government /ESDM and related institutions	Regulation, environmental oversight, licensing and implementation	Formal consultation, regulatory communication, monitoring	Investment, regulatory compliance, public administration	Effectiveness of participation, transparency, and accountability

The themes were interpreted using the integrated analytical framework developed earlier. Environmental communication was used to analyze framing and asymmetries in voice, while political ecology linked micro-level testimonies to the broader structures of resource extraction. Environmental justice was applied to assess distributive, procedural, and recognitional inequities. Finally, governance analysis examined institutional asymmetries and the gaps between formal procedures and their implementation. Selected participants were engaged directly more than once for clarification and comparison of accounts. Findings were triangulated by comparing testimony across informants, available documents, direct field observations, and relevant public or secondary sources. Researcher reflexivity was maintained through field memos documenting positionality, interpretive decisions, and ethical considerations. Finally, the codes were grouped into higher-order themes (Table 1) to identify patterned meanings across the research sites.

Table 2. Thematic coding framework

Theme	Subtheme	Empirical (Quotes)	Evidence	Theoretical Link
Environmental and Agrarian Transformation	Water contamination; loss of arable land	"Since 2010, we can't plant anymore... the waste water flows into our rice fields" (Farmer, Kulo Jaya)		Ecological distribution conflict (Martínez-Alier, 2002)
Livelihood Transformation	Shift from farming to informal labor	"Now my wife sells snacks on the street because our fields are gone" (Transmigrant originally from Jember)		Livelihood transformation and political ecology (Scoones, 2020; Bebbington et al., 2018)
Governance and Environmental Justice	Non-transparent AMDAL; selective participation	"Only a few people were invited, others couldn't even read or write" (Resident, Waleh)		Procedural and recognitional justice (Schlosberg, 2013)
Environmental Communication and Resistance	Local narrative; moral discourse; counter-narratives	"They call us outsiders, but we fight for our children's future" (Resident, Waleh)		Environmental communication as contested space (Cox & Pezzullo, 2018)

2.5 Ethical considerations

Given the sensitivity of extractive conflicts in Halmahera, ethical safeguards were prioritized throughout the study. Participants were informed about the purpose of the research and the intended use of their accounts, and consent was obtained before interviews. Participants could request anonymity, and identifying information was removed where necessary to protect source safety. The study did not receive formal institutional ethical approval. Ethical safeguards were applied through informed consent, voluntary participation, confidentiality, anonymization where requested, and careful protection of sensitive sources. Special care was taken when quoting indigenous or religious expressions to preserve cultural integrity and avoid exoticization. The narrative presentation in the results section prioritizes voice equity, ensuring that local speech is represented authentically without editorial distortion.

2.6 Analytical Strategy and Limitations

The analytical approach is interpretive rather than representative. While the number of participants is limited, the goal is depth over breadth, capturing the complexity of meaning-making processes within situated contexts. The research does not claim statistical generalization but aims for analytical generalization (Yin, 2018): generating theoretical insights transferable to other extractive frontiers in Indonesia and beyond. Another limitation concerns the researcher's positionality as an environmental journalist and independent researcher with an academic background in communication science. This position facilitated contextual access to communities and environmental issues but also required reflexive attention to possible interpretive bias. The study addressed this through field memos, repeated engagement with selected participants, triangulation, and a clear distinction between participant testimony and analytical interpretation.

2.7 Summary

The methodological framework combines qualitative interpretive inquiry with comparative case-study analysis. Through multi-site fieldwork, the study reconstructs the communicative, ecological, agricultural, and livelihood dimensions of mining-induced

transformation in Halmahera. The analysis that follows explores how environmental communication operates both in the production of legitimacy and as a medium of resistance.



Map of Indonesia. Red box around Halmahera.
Fig. 2. Map of Halmahera Island, North Maluku

3. Results and Discussion

3.1 Environmental and agrarian transformation

Both villages, Waleh and Kulo Jaya, exhibit patterns of ecological disruption that mirror the classic trajectory of extractive frontiers: deforestation, sedimentation, water contamination, and agricultural decline. In Kulo Jaya, once known for its fertile paddy fields and vegetable gardens, the arrival of mining companies under the Indonesia Weda Bay Industrial Park (IWIP) consortium marked the beginning of profound environmental loss.

"Since 2010, the water from the mining site has entered our land. We cannot plant anymore. The river we used to drink from now makes our skin itch." (Farmer, Kulo Jaya).

Farmers report that the entry of nickel extraction altered the local hydrology—streams turned red, soil fertility plummeted, and mining sediments blocked irrigation canals. Livelihoods that once relied on subsistence farming shifted toward precarious informal work or petty trade.

"I used to harvest 1.8 tons of rice per hectare. Now, nothing grows. My wife sells snacks around the village to survive" (Transmigrant originally from Jember).

These testimonies illustrate the material violence of extraction—the slow degradation that erodes livelihood capacity over time (Nixon, 2011). From a political ecology perspective, this is not merely environmental damage, but an outcome of power asymmetry in which corporate and state actors externalize ecological costs onto peripheral populations.

In Waleh, the degradation takes another form: the fragmentation of sacred landscapes and customary territories. Residents describe their forests as disappearing under subcontractors like PT Bakti Pertiwi Nusantara and PT Dharma Rosadi. Beyond physical loss, this entails cultural erosion, sites once used for ancestral rituals are now fenced off as industrial property. Ecological degradation here thus translates into ontological violence, undermining the spiritual grammar through which communities understand their relationship with the land.

3.2 Governance, power relations, and environmental justice

A central finding concerns gaps between formal environmental governance procedures and their implementation. Both villages reported that the AMDAL process was either opaque or selectively implemented. Consultations were limited to hand-picked local elites, while the broader community, especially women, farmers, and fisherfolk, were excluded.

“They said there was an AMDAL consultation, but only a few were invited, some could not even read or write. They just needed names for the attendance list.” (Resident, Waleh).

This exclusionary practice reveals a procedural injustice (Schlosberg, 2007), where formal participation mechanisms exist only symbolically. The institutional design of AMDAL, intended to ensure inclusivity becomes an instrument of legitimation, granting mining operations a veneer of legality while silencing dissenting voices.



Fig. 3. Satellite imagery from 2016 and 2022 illustrating land-cover and industrial expansion around the Weda Bay Industrial Park (IWIP)
(Planet Labs Inc./Earthrise, reproduced from Survival, 2025)

At the same time, local governance is entangled in unequal mediation. Village heads and local bureaucrats are described by residents as intermediaries between companies and communities in compensation and land-related processes. In Waleh, villagers identified religious and *adat* figures co-opted to bless company projects under the guise of ritual permission.

“They call it a tahlilan before mining begins, just to say the land is now ‘safe.’ However, that ritual becomes a kind of spiritual license for destruction.” (Resident, Waleh).

Such practices embody a subtle form of communicative capture, where moral authority is repurposed to neutralize protest. The governance failure here is not mere absence of rules but their instrumentalization—regulatory frameworks serving private accumulation rather than public accountability.

3.3 Livelihood transformation and rural food provision

The principle of environmental justice demands equity in three dimensions: distribution, procedure, and recognition. Field data show that the communities of Waleh and Kulo Jaya are marginalized across all three. Distributive injustice is evident in how ecological costs, polluted rivers, failed harvests, and declining health, are concentrated among people experiencing poverty, while economic benefits accrue to corporate and political elites. The compensation for lost land often undervalues local tenure, averaging

only IDR 20,000 per square meter, well below market prices. Procedural injustice occurs when participatory decision-making is lacking, particularly for women and migrants. Public hearings, when conducted, serve as formalities. Recognition injustice arises from how the state and corporations devalue local knowledge systems, labeling farmers as uninformed or irrationally emotional when they oppose industrial projects.

"We are treated like we do not understand anything. However, who knows the land better than us who live here?" (Participant 2, farmer).

These dimensions converge into what Schlosberg (2013) terms racialized or spatialized inequality, where rural peripheries become sacrifice zones for national development. In Halmahera, these zones are justified under the rhetoric of green industrialization, nickel for electric vehicle batteries, masking local ecological injustices behind global environmental goals.

3.4 Religious and moral mediation in extractive governance

One of the most revealing findings is the strategic use of religion and moral discourse by corporations to obtain social legitimacy. In both Waleh and the neighboring areas of Central Halmahera, companies conduct CSR activities such as Safari Ramadan, kurban donations, or funding church renovations. These programs cultivate a benevolent image while silencing moral critique.

"They gave aid to the mosque and said: do not protest, it is God's will to develop." (Resident, Waleh).

Religious actors can become intermediaries in these processes, although the field evidence also shows religious actors using faith-based language to challenge environmental harm. From the perspective of environmental communication, this reveals the discursive colonization of faith: communication once rooted in ethical stewardship (*khalifah fil-ardh*, or guardianship of Earth) is reframed as obedience to authority and as divine sanction for industrialization. This rhetorical shift undermines the potential of religion as a vehicle for environmental justice. However, the field data also highlight counter-discourses: specific religious figures, like Pendeta Agustinus Goloa in Saolat and Ustadz Hadun Amir in North Weda, use faith to mobilize resistance, reframing environmental care as a sacred duty. Thus, religion remains a contested communicative arena: both co-opted and insurgent.

3.5 Social fragmentation and unequal communicative access

Mining-induced change not only transforms ecology but fractures the social fabric. In Kulo Jaya, farmers describe how the once-cooperative spirit of transmigrant life eroded as compensation and job opportunities were distributed unequally.

"Before the mine, we helped each other in the fields. Now, some get money from the company, others get nothing. We no longer sit together." (Farmer, Kulo Jaya).

This fragmentation exemplifies what Tsing (2005) calls the politics of place: when community solidarity, rooted in shared ecological practice is replaced by individualized survival strategies. From a communication lens, this marks a collapse of dialogical space: interactions once oriented toward collective decision-making are replaced by transactional negotiation with corporate intermediaries. Furthermore, women's voices remain largely invisible in public discourse. Although they bear the brunt of health and economic consequences, few are invited to official forums. The communicative exclusion of women reinforces patriarchal governance, perpetuating epistemic injustice.

3.6 Environmental communication and communicative resistance

Despite structural constraints, communities engage in creative forms of adaptation and resistance. In Kulo Jaya, villagers mobilize through everyday speech acts, testimonies, lamentations, and public storytelling, transforming personal suffering into collective awareness. In Waleh, resistance takes more organized forms: refusing to sign land-sale documents, confronting village elites, and participating in regional advocacy networks such as JATAM North Maluku.

“Even if I stand alone, I will keep fighting. When the land is gone, where will our children live?” (Resident, Waleh).

These expressions embody communicative resilience, the capacity to sustain moral agency amid environmental degradation (Walker & Salt, 2012). While the villagers lack institutional power, their words function as counter-narratives that challenge dominant frames of development and progress. This resistance is not necessarily confrontational; it often emerges through silence, withdrawal, or the refusal to participate in state rituals. Such quiet resistance (Scott, 1990) reveals a nuanced form of environmental communication rooted in dignity rather than confrontation.

3.7 Comparative theoretical synthesis

The comparative findings indicate that environmental and livelihood transformation in Central Halmahera cannot be explained by ecological change alone. Political ecology helps explain how extractive expansion reorganizes land, labor, water, and access to resources through unequal relations of power. The environmental and agrarian transformation observed in the two sites then becomes a basis for livelihood transformation, particularly where agricultural productivity, land access, and household livelihood strategies are disrupted. Environmental justice provides a framework for interpreting these transformations through distributive, procedural, and recognitional dimensions. The cases show unequal exposure to environmental burdens, uneven participation in decision-making, and limited recognition of local ecological and agricultural knowledge. Governance analysis further identifies gaps between formal procedures and their implementation, particularly where consultation, land processes, and institutional mediation are perceived as selective or insufficiently transparent.

Environmental communication connects these dimensions by showing how legitimacy and resistance are constructed through competing narratives and communicative practices. Corporate and institutional narratives can frame extraction as development, investment, or transition, while community testimonies, religious discourse, informal forums, and advocacy can articulate alternative accounts of environmental harm, livelihood loss, and justice. Religious authority therefore emerges as a contested communicative resource rather than a uniformly co-opted institution. Taken together, the study proposes an analytical relationship between political ecology, environmental and agrarian transformation, livelihood transformation, environmental justice, governance, and environmental communication. This relationship explains how material environmental change and communicative inequality can reinforce one another, while also showing how communication can become a resource for community agency and resistance.

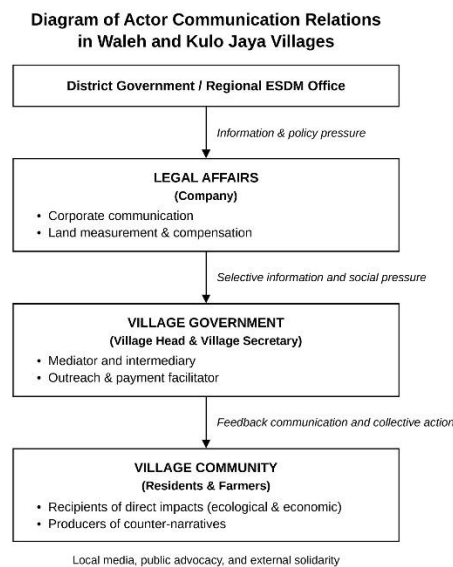


Fig. 4. Conceptual model of state–corporate–local actor relations, environmental and livelihood impacts, legitimacy flows, and communicative resistance in the nickel extractive frontier

3.8 Implications for sustainable agriculture, livelihoods, and environmental governance

The Halmahera experience calls for a reframing of environmental communication beyond awareness campaigns toward a justice-oriented praxis. This requires three key directions. First, environmental governance should institutionalize meaningful two-way communication mechanisms that recognize indigenous, customary, migrant, and agricultural knowledge, while enabling affected communities to influence decision-making rather than merely receive information. Second, religious institutions engaging with extractive companies should strengthen transparency regarding corporate donations, facilities, and other forms of institutional support, while preserving space for independent ethical and environmental critique. Third, land acquisition and environmental assessment processes should provide transparent documentation of land status, valuation methods, measurement procedures, compensation arrangements, and responses to community concerns. These processes should also be supported by grievance mechanisms that are sufficiently independent of the actors directly involved in project implementation.

The experiences of Waleh and Kulo Jaya therefore suggest that compensation alone cannot substitute for the ecological and productive functions of land. Where industrial expansion affects agricultural land or water systems, governance should assess long-term livelihood and food-production consequences and recognize local ecological knowledge as relevant evidence in environmental decision-making. “We do not need charity. We want to live again in our land.” This sentence captures the essence of environmental justice, the right to continue life with dignity in one’s ecological home.

3.9 Policy implications

Theoretically, the study contributes by integrating environmental communication, political ecology, environmental justice, and governance analysis. Political ecology explains how extractive expansion reorganizes land, labor, and ecological relations; environmental justice identifies inequalities in distribution, participation, and recognition; governance analysis reveals institutional gaps through which these inequalities can be reproduced; and environmental communication explains how competing narratives of development, legitimacy, harm, and resistance are constructed. The study therefore suggests that environmental injustice in extractive frontiers should be understood not only as a problem of resource distribution or regulatory enforcement, but also as a problem of communicative inequality.

The findings have several implications for environmental and agricultural governance. Environmental assessment and consultation processes should provide meaningful and independently verifiable opportunities for affected communities to participate in decision-making, including transparent documentation of concerns raised and institutional responses to them. Land acquisition processes should disclose land status, valuation methods, measurement procedures, and payment arrangements, while providing grievance mechanisms sufficiently independent from actors directly involved in land acquisition. Where industrial expansion affects agricultural land or water systems, assessment should consider long-term livelihood and food-production consequences rather than treating financial compensation as an adequate substitute for productive ecological space. Religious institutions engaging with extractive companies should strengthen transparency concerning corporate donations and forms of institutional support.

Finally, environmental communication should be institutionalized as a two-way process rather than treated solely as information dissemination. Such mechanisms should recognize local ecological and agricultural knowledge, ensure the participation of women and other marginalized groups, provide accessible environmental information, and create credible channels through which community concerns can influence decisions. In this sense, the experiences of Waleh and Kulo Jaya demonstrate that environmental communication is not simply an accompanying dimension of extractive governance. It is one of the spaces in which environmental justice is either constrained or made possible. Future research should compare these dynamics across Indonesia's other nickel-producing regions and examine how tenure, migration, gender, and religious affiliation shape access to environmental decision-making and livelihood resilience.

4. Conclusions

This study demonstrates that environmental communication in the nickel frontier of Central Halmahera is not merely a mechanism for transmitting information about environmental change. It is a contested political and communicative arena in which corporations, state institutions, local actors, religious authorities, and affected communities negotiate the meanings of development, environmental harm, and justice. The findings show that communication can simultaneously contribute to the social legitimacy of extractive expansion and provide communities with means to articulate grievances, defend livelihoods, and construct counter-narratives. The comparison between Waleh and Kulo Jaya demonstrates that extractive transformation does not follow a single local pathway. In Waleh, socio-ecological transformation is closely connected to contested territorial relations, environmental change, and the mediation of land and development through institutional and moral actors. In Kulo Jaya, the consequences are particularly visible in agricultural disruption, changing household livelihood strategies, and the fragmentation of social relations. Despite these differences, both cases reveal unequal access to land, environmental resources, information, and meaningful participation in decision-making.

These findings demonstrate that environmental injustice operates across distributive, procedural, and recognitional dimensions. The loss or degradation of agricultural and ecological resources affects not only material livelihoods but also the capacity of households to sustain locally based production and food provision. Participants' accounts indicate that declining agricultural productivity can increase dependence on non-farm income and purchased food, while unequal access to decision-making limits communities' ability to influence processes through which environmental risks and land-use changes are determined. Religious authority emerged as a contested communicative resource rather than a uniformly co-opted institution. In some contexts, relationships between companies and religious institutions contributed to perceptions of corporate benevolence and social legitimacy. In other contexts, religious actors mobilized moral and spiritual language to challenge environmental harm and defend community interests. Religious communication can therefore operate in both directions: as a mechanism through which extractive activities acquire local legitimacy and as a resource for environmental resistance.

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