From Pollution to Transformation: Rethinking Environmental Governance through the PT RUM Conflict in Indonesia

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***Abstract*—This paper analyzes the conflict between Nguter residents and PT Rayon Utama Makmur (PT RUM) in Sukoharjo, Indonesia, as a case of failed environmental governance and a potential site for conflict transformation. Although Law No. 32/2009 ensures public participation through environmental impact assessment AMDAL, the process surrounding PT RUM was closed, technocratic, and symbolic—excluding affected communities while prioritizing growth-oriented interests. The resulting pollution and community protests led to criminalization, lawsuits, and a collapse of public trust. Using a qualitative, desk-based single-case study with secondary data from legal, academic, and media sources, the paper integrates Bennett's four environmental governance goals (effectiveness, equity, responsiveness, robustness) with Lederach's four dimensions of conflict transformation (personal, relational, structural, cultural). Findings show governance that was ineffective, inequitable, weakly responsive, and fragile. Official responses—temporary shutdowns, technical fixes, and coercion—treated conflict as disruption rather than a chance for reform. The paper concludes by proposing a transformative hybrid governance model that links state, market, and community actors to institutionalize participation, foster learning, and frame environmental conflict as an opportunity for socio-ecological repair and democratic renewal.**

***Keywords*—environmental governance, conflict transformation, environmental conflict, pollution, hybrid governance**

I. Introduction

Public policy is expected to provide solutions to societal problems, yet in practice many problems arise from public policies themselves and become sources of conflict involving communities, governments, and corporations. This suggests that public policy is not merely a technocratic tool, but also an instrument through which governments manage, contain, and sometimes reproduce social conflict [1]. Public policy is not a neutral, technical process but an arena of social and political struggle, saturated with values, interests, and power relations. Public policy is therefore a discursive practice that can either reproduce or contest existing social structures; to understand it is to ask who has the power to define problems, design solutions, and determine the direction of social change.

Within this perspective, conflict is not an anomaly but an integral part of public policy processes. Lederach [2] conceptualizes conflict as the motor of change and argues that it should not be treated as something to be resolved quickly and forgotten, but as a dynamic that must be engaged through processes touching personal, relational, structural, and cultural dimensions [2]. This resonates with Lele's [1] view that policy conflict should not simply be eliminated, but approached critically and agonistically as a potentially productive phenomenon [1]. In The Little Book of Conflict Transformation, Lederach shifts the focus from short-term resolution to building long-term platforms for just and sustainable social change.

Building on this framework, the paper examines the case of Sukoharjo Melawan Bau Busuk (Sukoharjo Against the Foul Odor) as an illustration of how policy conflict in environmental governance can and should be constructed as a productive force. The conflict between residents of Nguter Sub-district and PT Rayon Utama Makmur (PT RUM) emerged from failures in environmental governance that is fair, participatory, and sustainable. Yet environmental governance is a complex arena that encompasses the actions of the state as well as those of communities, businesses, and non-governmental organizations [3]. Tensions triggered by industrial waste impacts escalated into a protracted conflict marked by demonstrations, criminalization of activists, and litigation.

Based on this problem setting, the paper asks: How should a conflict transformation approach be applied to the environmental conflict between Nguter residents and PT RUM, which stems from poor environmental governance, and why have existing approaches failed to reflect the core principles of conflict transformation? The study critiques conventional responses—litigation, decision postponement, and temporary administrative measures—by highlighting the gap between legal guarantees of public participation in environmental impact assessment (AMDAL) and environmental permitting, and field practices that remain exclusive and formalistic. It also seeks to derive policy lessons for local and national governments on the importance of meaningful public engagement at every stage of environmental governance.

The next section develops the theoretical lens for this analysis by bringing together insights from environmental governance, specifically utilizing Bennett's framework of environmental governance goals [4] and conflict transformation. This integrated framework is then used to interpret the PT RUM case as an instance of environmental governance failure and to explore how the conflict might be transformed into a platform for ecological and social justice.

II. Literature Review

Transformation in Environmental Governance Conflicts:

Environmental governance conflicts should be understood not as aberrations to be suppressed but as normal dynamics within socio-ecological systems that can catalyze constructive change. Following Lemos and Agrawal [3], governance extends beyond government to include markets and communities, shaping incentives, institutions, decision processes, and behaviors across scales. Bennett reframes this broad arena into practical elements—institutions, structures, and processes—that determine who decides, how choices are made, and what actions follow. Lederach [2] complements these perspectives by treating conflict as a driver of social transformation, shifting the aim from short-term settlement to long-term, just, and relationally healthy change.

Conceptually, we distinguish governance from management: governance sets the rules, roles, and relationships, while management implements plans and allocates resources emerging from those rules [4]. Bennett and Satterfield [4] lens places analytical emphasis on capacities and performance across institutional mandates, organizational architectures, and procedural routines. Lemos and Agrawal add that effective governance is increasingly hybrid and multilevel, requiring coordination among state, market, and community mechanisms. This combination highlights that conflict often surfaces where these mechanisms misalign—revealing deficits in authority, accountability, or knowledge integration.

A conflict-transformative approach adopts Lederach's [2] multiple lenses. The situational lens addresses immediate issues—pollution episodes, permit disputes, or protest-police escalations—that typically dominate political attention. The relational-contextual lens examines histories, power asymmetries, participation patterns, and legitimacy claims that structure how conflicts recur. The conceptual lens synthesizes both views into coherent change strategies, ensuring that interventions are grounded in present realities while oriented toward equitable, durable futures.

Bennett & Satterfield [4] four environmental governance goals effective, equitable, responsive, and robust offer operational anchors for conflict transformation. Effectiveness demands clear direction, coordination, adequate capacity, informed decision-making, accountability, and efficiency, so that management actions translate into ecological gains. Equity requires recognition, inclusive participation, fair benefit-cost sharing, and access to justice—conditions that directly address the grievances that fuel conflict. Responsiveness institutionalizes learning, anticipation, adaptation, innovation, and flexibility, while robustness builds legitimacy, connectivity, subsidiarity (nestedness), and polycentricity so institutions can endure stress without reverting to coercion.

Lederach's [2] emphasis on transforming the personal, relational, structural, and cultural dimensions helps operationalize Bennett's goals in conflict settings. At the personal level, processes should reduce harm and enable constructive participation; relationally, they should repair communication, rebalance voice and power, and rebuild trust. Structurally, reforms should open meaningful access to information, participation, and remedy, aligning permits, enforcement, and monitoring with due process and community rights. Culturally, approaches should draw on local values and knowledge to co-produce solutions, ensuring that environmental stewardship resonates with lived identities and practices.

Because environmental problems are cross-scale and long-tailed, Lemos & Agrawal's [3] hybrid governance is essential to sustain transformation beyond one-off settlements. Co-management, public–private, and private-social partnerships can distribute authority and risk, leverage local knowledge, and internalize environmental values through standards, disclosure, and incentive instruments. Yet hybridity must be designed against equity deficits: participation without power, or efficiency without accountability, reproduces conflict. A polycentric, nested architecture—linked vertically and horizontally—helps align local problem-solving with regional and national oversight, preserving both adaptability and rights protection.

In practical terms, a transformation-oriented governance pathway sequences interventions from symptom management to system redesign. First, stabilize acute harms (situational lens) while creating forums for safe dialogue and transparent information exchange. Next, reconfigure procedures—impact assessment, permitting, monitoring, and grievance mechanisms—to institutionalize recognition, participation, and accountability (relational-contextual lens). Finally, embed learning, anticipatory planning, and polycentric coordination across state-market-community arenas so that environmental management becomes simultaneously effective, equitable, responsive, and robust (conceptual lens). This is how conflicts over environmental harms can become engines of socio-ecological justice rather than recurring flashpoints.

III. Materials and Methods

This study employs a qualitative, desk-based single-case study design to examine the environmental governance conflict between Nguter residents and PT Rayon Utama Makmur (PT RUM). Rather than conducting primary fieldwork, the study reconstructs the conflict trajectory and evaluates institutional responses using a multi-source secondary dataset and a theory-driven analytic framework. A desk-based approach is appropriate for this case because key conflict episodes, policy actions, and legal outcomes are documented in publicly accessible administrative decrees, court decisions, and verified media reporting, enabling systematic reconstruction and cross-source verification.

A. Data Sources and Corpus Construction

Data were drawn from four source types: (1) legal-policy documents, including Regent Decrees and relevant national legislation; (2) judicial materials, including publicly available court decisions and related case documentation; (3) media and investigative reporting, including verified national and regional Indonesian outlets (e.g., Kompas, Republika, Tirto, Detik, Solopos) as well as investigative and advocacy materials where publicly accessible; and (4) scholarly literature, used primarily to ground the analytic framework rather than to constitute the empirical record. NGO statements and advocacy reports were included when they provided dated chronologies, direct actor claims, or documentation of institutional actions.

To ensure transparency and auditability, empirical episodes were compiled into a coding spreadsheet that

records each item's title, date, narrative summary, link/source, and analytic codes. The current coding log contains 72 items (2017–2025), of which 52 items explicitly reference PT RUM/Nguter/Sukoharjo and form the core empirical corpus for analysis. Where relevant, additional legal or media documents were used to clarify or verify specific episodes.

B. Inclusion Criteria and Screening

Data selection followed three criteria: (1) Relevance: the document explicitly discussed PT RUM and/or the Nguter conflict, including environmental impacts, contestation, or governmental/legal responses; (2) Credibility: sources were limited to official legal repositories and verified media outlets; advocacy materials were included only when they contained verifiable chronologies, identifiable actor statements, or references to formal institutional actions; (3) Temporal coverage: documents were selected to cover the conflict's emergence (2017) through the most recent period included in the corpus (currently through 2024; extended to 2025 where additional items are available and screened using the same protocol). Duplicate items, purely opinion-based texts without factual claims, and reports lacking clear dates or traceable sources were excluded.

C. Unit of Analysis and Analytic Strategy

The unit of analysis is a conflict episode, defined as a discrete event or institutional response that materially shaped conflict dynamics (e.g., reported pollution/odor incidents, protests and escalation, mediation forums, administrative sanctions or suspensions, permitting developments, arrests/criminalization, litigation milestones, and court rulings). The analysis combines process tracing to reconstruct the sequence of episodes and identify turning points in the conflict trajectory; and deductive thematic analysis to interpret episodes through two complementary theoretical lenses: Bennett's governance goals (effectiveness, equity, responsiveness, robustness) and Lederach's [2] conflict transformation dimensions (personal, relational, structural, cultural).

Documents were read closely and coded deductively using a structured codebook derived from the two frameworks. Governance codes captured how institutions performed across effectiveness (e.g., prevention/mitigation capacity and enforcement), equity (e.g., inclusiveness and recognition in participation), responsiveness (e.g., timeliness and adaptiveness of institutional action), and robustness (e.g., legitimacy and capacity to absorb conflict without coercive fallback). Conflict transformation codes captured how episodes affected personal harm (health/livelihood impacts), relational dynamics (trust, communication, legitimacy), structural conditions (rules, authority, permitting/AMDAL arrangements), and cultural dimensions (values, identity, and competing development narratives).

Coding was conducted in two passes: (1) episode-level classification (what happened; which governance goal (s) were implicated), followed by (2) conflict-dimension mapping (how the episode shaped personal/relational/structural/cultural dynamics). Ambiguous cases were re-checked against original sources and recoded where needed to maintain consistency.

To strengthen validity, the study applied source triangulation by cross-checking media-reported episodes against legal-policy documents and judicial materials where available. Temporal triangulation was used to compare patterns across phases of the conflict (e.g., escalation, administrative intervention, renewed contention, litigation outcomes). The analysis also adopted cautious inferential language for claims that are difficult to independently verify using secondary data alone (e.g., health impacts), treating them as reported unless supported by multiple independent sources or formal documentation.

This study is limited by reliance on publicly accessible secondary data, including potential media framing bias, uneven availability of AMDAL-related technical documentation, and constrained access to primary testimony. These constraints are mitigated through explicit inclusion criteria, cross-source triangulation, and an auditable coding log; nevertheless, future research using interviews and direct environmental measurements would strengthen causal attribution and deepen insight into lived experience.

IV. Result and Discussion

A. The Problem of Environmental Governance

The conflict between Nguter residents and PT RUM was triggered by waste from the company's production activities, which caused a persistent foul odor and river pollution, leading to widespread health problems and mass protests [5, 6]. Tensions escalated in early 2018, culminating in the burning and vandalism of PT RUM facilities, after which the Regent of Sukoharjo temporarily suspended the company's operations through Regent Decree No. 600.1/207/2018—an interim measure that failed to address the structural causes of the conflict [7, 8]. When the suspension was revoked in 2019 and operations resumed, the odor and pollution persisted, protests reignited, and the arrest of seven environmental activists further deepened mistrust and fueled public demands for the permanent closure of the factory [9, 10].

Between 2020 and 2022, open confrontation subsided, but the underlying grievances remained unresolved, as residents continued to live with pollution amid local government inaction justified by the recentralization of environmental permitting under the Job Creation Law [11, 12]. In 2023, residents filed a civil class action, and although lower courts rejected their claims, the Supreme Court eventually ordered PT RUM to pay material damages and to restore the environment, partially recognizing community losses and corporate responsibility [13]. This trajectory underscores that the conflict's deeper roots lie in flawed environmental governance—particularly the non-participatory implementation of Law No. 32/2009 on Environmental Protection and Management and the marginalization of affected communities in AMDAL and permitting processes—where short-term industrial interests were prioritized over long-term ecological sustainability and community well-being [10].

B. Reflection: The Transformation of Environment Conflict

The conflict between Nguter residents and PT RUM reveals policy failure along three main dimensions: procedures, discourse, and power relations. The AMDAL

process was conducted behind closed doors, community participation was largely symbolic, and the dominant narrative was framed around economic growth and investment climate stability. Local government actors functioned more as protectors of corporate interests than as facilitators of dialogue between residents and the company. The measures adopted by the Sukoharjo Regency Government to manage the conflict were predominantly reactive, formalistic, and minimally participatory—hallmarks of a conventional, top-down approach.

Conflict management relied on technocratic procedures and the deployment of law enforcement to suppress citizen protests through repressive measures. Such an approach is often assumed to be capable of automatically restoring order, yet in practice it tends to prolong tensions and deepen mistrust [1]. Beyond the risks of escalation and deteriorating relationships among the parties, this model is also costly and time-consuming, without any guarantee of a substantive resolution. Moreover, the institutional avoidance displayed by the Sukoharjo Regency Government in the aftermath of the Job Creation Law reflects its failure to assume the role of conflict facilitator, effectively leaving residents to bear the impacts of pollution without concrete remedies. This approach neglects the relational and emotional dimensions of conflict [2] and proves inadequate in highly charged social contexts.

According to Lele [1], situations of this kind call for an alternative approach that is more deliberative and rooted in the principles of conflict transformation. Such an approach emphasizes communicative, flexible, and egalitarian processes that actively involve all stakeholders in co-designing solutions. Core principles include mutual recognition of perspectives, the creation of safe spaces for dialogue, and joint efforts toward building workable consensus [14]. Rather than merely addressing surface-level problems, this approach seeks to rebuild trust, repair social relationships, and restructure policy frameworks to become more just and inclusive. In environmental policy conflicts such as that in Nguter, a conflict-transformation perspective opens up possibilities to turn conflict into a platform for social learning and sustained institutional change (Lederach [2]).

Attempts to create dialogic and deliberative spaces did occur, including meetings among conflicting parties in the Sukoharjo Regional Leadership Communication Forum (Forkopimda) on 9 January 2018, as well as mediation facilitated by the Sukoharjo Regional House of Representatives (DPRD) on 19 January 2018 [15]. These mediation efforts produced an agreement that PT RUM would install a Wet Scrubber odor-control system, set up computer-based monitoring equipment to track gas emissions from its chimney, and seek a review of its business permit.

However, despite the formal opening of dialogue and the production of technical agreements, the Sukoharjo Regency Government did not fully inhabit the role of a neutral and inclusive facilitator. Power asymmetries remained palpable, with residents constrained in expressing their views and aspirations on an equal footing. Moreover, these forums failed to bridge the fundamental differences in perception between the community and the company, particularly regarding the lived experience of foul odors and water pollution. The dialogue that unfolded tended to prioritize PT RUM's technical clarifications—that its waste met regulatory standards and was allegedly harmless—over residents' experiential knowledge. This reinforced the impression that the meetings were largely a matter of procedural compliance, aimed at demonstrating that the government had "listened" to complaints without genuinely including affected communities in decision-making toward consensus. As local authorities did not clearly side with community interests, public trust eroded, and residents ultimately turned to legal action as a pathway to seek justice for the environmental damage they had suffered.

C. Integrating Conflict Transformation and Environmental Governance Goals in the PT RUM Case

At the personal level, the PT RUM conflict is not only about pollution indicators, but about the everyday suffering of Nguter residents who live with foul odors, contaminated water, and chronic anxiety about their health and livelihoods. Medical reports document headaches, respiratory problems, and skin diseases, while testimonies highlight feelings of fear, fatigue, and helplessness in the face of an unresponsive state. This persistent physical suffering indicates a critical failure in governance effectiveness (to mitigate pollution) and equity (as risks are disproportionately borne by residents). A conflict-transformation approach would therefore go beyond legal remedies to address these personal harms through meaningful listening processes and psychosocial support, restoring dignity and agency to rebuild residents' confidence in public institutions.

On the relational dimension, the conflict has severely damaged trust and communication. Communities report being excluded from AMDAL and licensing processes, experiencing dialogue forums as one-sided, and witnessing the criminalization of activists—developments that signal a profound lack of responsiveness. Institutions failed to adapt to community inputs, treating residents as objects rather than subjects of policy. A relationally transformative approach would focus on rebuilding trust through sustained, genuinely inclusive dialogue where residents' experiences are taken seriously. This implies shifting from top-down, technocratic meetings toward horizontal, co-designed forums to reconstruct more equal and interdependent relationships.

The structural dimension is evident in the non-participatory implementation of Law No. 32/2009 and the domination of technocratic expertise in licensing decisions. These arrangements produce a pattern where industrial interests are prioritized over ecological sustainability, thereby undermining governance robustness. As local institutions become fragile and reliant on coercion rather than legitimacy, they fail to provide equitable access to justice. From a conflict-transformation standpoint, structural change would involve institutionalizing participatory AMDAL procedures and creating accessible grievance mechanisms with real remedial power, reorienting policy from control toward empowerment and substantive justice.

Finally, at the cultural level, the conflict reflects a clash between Nguter residents' agrarian identity and an industrial model that treats the environment as expendable. Residents' values have not been respected in policy processes; instead,

the dominant narrative has centered on investment and modernization. By marginalizing local wisdom, the governance system fails to achieve cultural equity, creating a disconnect that fuels resistance. A culturally transformative approach would create spaces where local cosmologies are integrated into governance decisions—for example, through community-led forums. Recognizing these identities is crucial for imagining a shared, sustainable future where development paths are co-defined rather than imposed.

Synthesizing these dimensions through Bennett's environmental governance framework (as summarized in Table 1) reveals that the conflict is a systemic institutional failure. The neglect of the personal dimension signifies a failure in Effectiveness, while the breakdown in relational trust stems from a lack of Responsiveness. Furthermore, the structural exclusion undermines Robustness, and the cultural disconnect erodes Equity. This analysis confirms that without addressing these four governance deficits, any attempt at conflict transformation will remain superficial.

Table 1. Matrix of key findings: Integrating Bennett's governance goals and Lederach's conflict transformation dimensions

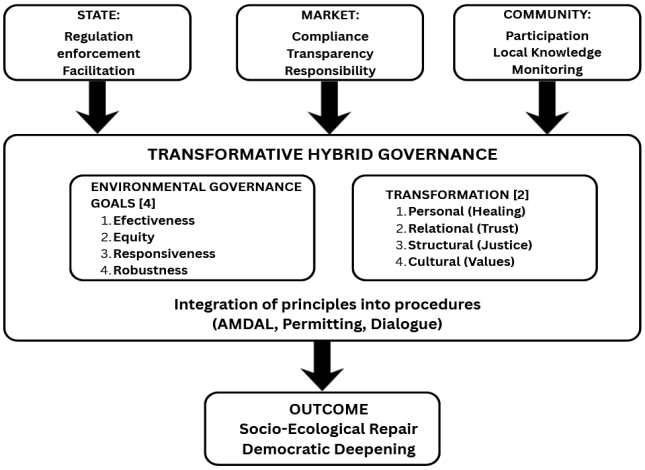
Key Findings (Episodes)	ENVIRONMENTAL GOVERNANCE Goals (Bennett)	Transformation Dimensions (Lederach)	Key Episodes (Sources)	Evidence and Interpretation
F1. Recurrent Pollution as Weak Initial Response: Health impacts mobilized residents; issues shifted from technical complaints to moral claims of justice.	Effectiveness → Equity (Failure to prevent harm leads to inequity)	Personal → Cultural/Relational (Physical harm affects trust)	26/10/2017 (Mass Protest); 23/2/2022 (Broken pipe & odor complaints-Detik)	The episodes reveal persistent physical harm: dizziness, respiratory issues, farming health as "sacrifice" for investment. This indicates a failure in Effectiveness and a perception of uneven risk distribution (Equity).
F2. Participation Deficit: The AMDAL and permit process was closed and technocratic, delegitimizing structural institutions.	Equity → Robustness (Exclusion makes institutions fragile)	Structural → Relational (Bad procedures destroy relationships)	09/01/2018 (Mediation); 2021 (Land demo difficult; post-Job Creation Law-media)	Confirms the gap between legal guarantees (AMDAL) and formalistic practice. Technocratic authority overpowered lived experience, creating an "accountability gap" and
F3. Stigma Governance: Conflict management dominated by temporary administrative sanctions and police control, not systemic fix.	Responsiveness → Effectiveness (Reactive, not proactive)	Structural → Personal (Temporary fixes don't heal trauma)	23/02/2018 (Regent Decree No. 60.1.1/25/2019); Residents siege at Regent's house-Kompas	Administrative actions were temporary "shutdowns" and failed to institutionalize procedural remedies monitoring, complaint handling, causing the conflict to recur (Lack of Responsiveness).
F4. Escalation to Litigation: Failure of administrative channels led to criminalization of activists (Class Action).	Robustness → Equity (Institutions failed, courts stepped in)	Relational → Structural (Coercion forces structural legal battle)	14/03/2018 (Activist arrests); 25/09 (P); 31/10/2025 Supreme Court Ruling-Solopos	Coercive containment worsened relationships. The shift to the Supreme Court represents institutional correction, not conflict transformation and recovery, forcing structural change via external pressure.

Source: Author's Elaboration

V. Conclusion

The conflict between Nguter residents and PT RUM shows how environmental governance can fail when public policy is implemented in a closed, technocratic, and exclusionary manner. Law No. 32/2009, which formally guarantees public participation, was reduced in practice to a symbolic AMDAL process dominated by growth-oriented and investment-stability discourses. Through Lemos and Agrawal's [3] lens, this case illustrates the limits of state-centered, formal legality in a governance arena that is inherently multi-actor and multilevel, where interactions between state, market, and community actors can either mitigate or intensify conflict.

Measured against Bennett's [4] four environmental governance goals—effectiveness, equity, responsiveness, and robustness—the PT RUM case reveals serious shortcomings: environmental harms persisted, affected residents were marginalized, learning and adaptation were weak, and institutional legitimacy eroded. Conventional responses—temporary suspension, technocratic fixes, litigation, and the use of coercive law enforcement—treated conflict as a disturbance to be contained rather than as a signal of deeper structural and relational problems. Lederach's conflict transformation framework helps to re-read the case by showing how these responses aggravated personal suffering, damaged relationships, entrenched unjust structures, and ignored the cultural identities and ecological lifeworlds of an agrarian community. Consequently, continuing with business-as-usual approaches will only perpetuate this cycle of grievance. To break this pattern, a conceptual realignment is required—one that integrates structural governance targets with the restorative dimensions of conflict transformation to move from mere pollution control toward genuine social repair.



Source: Author's Elaboration

Fig. 1. Conceptual Framework of Transformative Hybrid Governance: Integrating Bennett's Environmental Governance Goals and Lederach's Conflict Transformation Dimensions.

Taken together, the insights of Lemos and Agrawal, Bennett, Lele, and Lederach point to the need for an environmental governance model in Indonesia that is both hybrid and transformative (as illustrated in Fig. 1). Hybrid, in the sense of integrating state, market, and community through co-management and cross-sector collaboration; transformative, in the sense of aligning governance architectures with Bennett's four goals while embedding conflict transformation principles into everyday procedures and forums. The PT RUM case thus offers a broader policy lesson: when environmental governance is designed as a participatory, learning-oriented, and justice-centered system, conflicts over pollution can become platforms for socio-ecological repair and democratic deepening rather than recurring crises.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

ICW developed research ideas and concept, and wrote a preliminary script; FKM developed methodology and provided research documentation; FK managed and organized data; and MJ contributed to data interpretation and manuscript review. All authors discussed research results and findings, and had approved the final version.

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