

## Urban Environmental Governance and Conflict Resolution: A Case Study of Sustainable Development Challenges in Semarang, Indonesia



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### ABSTRACT

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Rapid urbanization in developing cities often brings environmental conflict into sharper focus, especially where governments, private investors, and local communities are pursuing different interests. Although Environmental Conflict Resolution (ECR) is often discussed in terms of participation, dialogue, and negotiated agreement, these indicators do not always explain how conflict resolution actually works in development-oriented urban settings. This study re-examines existing ECR perspectives through three environmental conflicts in Semarang, Indonesia: the Tapak River pollution case, the Golf Course land-swap controversy, and the Gumpilsari landslides. Using a qualitative multiple-case study approach, the analysis draws on document review, media reports, and institutional materials to reconstruct how each case unfolded and how responses were organized. The Semarang cases show that dispute resolution did involve several actors and, at least in some stages, a deliberative process. Even so, the outcomes were still mostly framed around compensation, relocation, and technical measures, while environmental recovery remained limited. In other words, ECR in this context appears to work more as a way of containing conflict than of changing the environmental conditions that triggered it. On that basis, this paper emphasizes the importance of governance orientation and power relations, and argues that dispute stabilization should be distinguished from ecological restoration when assessing conflict resolution outcomes.

## 1. INTRODUCTION

Rapid urban development has forced local governments to attract investors to invest in their areas. However, these activities not only provide economic benefits but also trigger environmental changes in the area. In some cases, local governments often choose pro-investment strategies to promote urban development, but these strategies are often implemented amidst weak environmental regulations and oversight [1, 2]. While urban development can boost the economy, it often leaves environmental problems such as environmental degradation and social displacement if environmental protection is not strictly enforced. Addressing the conflict between economic growth and environmental protection is currently a governance challenge. In the case of Semarang, Indonesia, industrialization and infrastructure projects have repeatedly triggered conflicts that resulted in pollution, land-use change, and geotechnical hazards [3, 4].

The conflicts mentioned in the literature above demonstrate larger trends in inequality regarding resource allocation, inequities related to power, and failures in policy formation [5, 6]. In addition to their ecological nature, these conflicts are deeply embedded within larger socio-political structures [7, 8]. Hence, an understanding of governance and the way government agencies deal with complexity, uncertainty and

conflicting interests in the face of asymmetric power is essential in understanding these disputes. Such insight provides the foundation for the development of Theory of Environmental Conflict Resolution (ECR) [9, 10].

There are two broad approaches to ECR that have emerged from the existing literature. The first is a process focused approach which emphasizes successful process-oriented outcomes of ECR including representation of stakeholders, development of trust, collaborative dialogue, and compliance with the law [2, 11]. The other is an outcome focused approach which emphasizes successful outcome oriented elements of ECR such as stability of agreements, de-escalation of conflicts and the feasibility of implementing agreements [2, 12]. Each of these approaches is based on the premise that multi-actor involvement and negotiated settlements will result in long-term, sustainable and legitimate solutions.

Most of the currently dominant literature pertaining to ECR is positioned within a governance context characterized by strong institutions, predictability of legal enforcement and formal, systematic mediation as would be found in North America and Australia [13, 14]. Collaborative governance is enhanced by accountability of institutions and clarity of regulation, as compared to rapidly developing cities in the process of urbanization and development, where collaborative governance has typically occurred through various means

including hybrid and informal governance structures, and with political mediation [15-17]. Recent international studies have highlighted several structural limitations of conventional hybrid governance models in developing countries. First, research from urban political economy has found that coalitions between governments and private investors often shape land-use decisions, biasing development toward capital-intensive projects. In these cases, environmental governance is subordinated to economic growth. Second, studies on environmental justice have shown that participatory mechanisms do not always address power imbalances, they can legitimize unequal outcomes if structural inequalities still in the participatory process. Third, research on adaptive and polycentric governance has found that, while multi-level and networked arrangements can enhance resilience, their effectiveness depends on the coherence and accountability of institutions. Taken together, these issues raise questions about the adequacy of the ECR model [18, 19].

Understanding dispute resolution is crucial for how governments make decisions and address environmental issues, and whether dispute management processes still exhibit multi-centric, multi-network, and multi-actor characteristics. Therefore, understanding environmental dispute resolution mechanisms will aid in understanding ongoing environmental governance.

In many developing cities, dispute resolution mechanisms may appear with multi-actor and deliberative, but they serve as reactive instruments for social stabilization rather than as a means for substantive environmental restoration. Empirical evidence from Indonesia supports this concern. While the national laws that regulate environmental practices provide for mediation as an option to resolve disputes that involve environmental issues, enforcement is often weak, and most disputes remain unresolved or are only partially resolved. This fact creates the environment for reviewing several of the environmental conflicts in Semarang [19, 20].

This research will evaluate the theoretical underpinnings of ECR. By assessing certain environmental conflict situations in Semarang, the research will identify specific environmental conflict situations in Semarang and will then assess those environmental conflicts in relation to their context. In addition to being different situations, there is a common pattern of reactive mediation in relation to the several environmental conflict situations in Semarang that are reviewed.

The research finds that ECR as practiced in Semarang has created a gap between the procedural inclusiveness of governance as compared to substantive environmental protection. Although ECR processes appear to be deliberative and are conducted by multiple actors, outcomes of ECR generally emphasise social stability through monetary compensation and administrative adjustments as compared to ecological restoration. There is a need to extend existing ECR perspectives to include political-economic alignment; institutional fragmentation; and growth-oriented governance as additional analytical variables.

By situating the Semarang case within a broader context regarding governance theory and urban political economy research, this research paper will make three contributions to the sustainable development discourse.

- Contributes to the reconceptualization of ECR in the context of developing cities as a hybrid governance mechanism shaped by growth coalitions.
- Distinguishes between dispute stabilization and environmental restoration as distinct outcome

categories.

- Offers a context-sensitive analytical lens for assessing ECR in rapidly growing cities.

Through these refinements, this study expands theoretical understanding of environmental governance beyond procedural participation. It addresses the structural factors that hinder sustainable transformation. Despite the abundance of ECR studies, research on how political-economic alignment shapes mediation outcomes in rapidly urbanizing cities is currently very limited.

## 1.1 Conceptual framework

ECR has been viewed as a governance mechanism for addressing complex environmental disputes through inclusive participation, negotiation, and mediated agreements. The main model assumes that multi-actor engagement, transparency, and deliberative processes enhance legitimacy and produce sustainable outcomes. Success is measured by process-oriented indicators, such as stakeholder representation and trust-building, and by outcome-oriented indicators, such as agreement stability and dispute reduction.

However, this model rests on several implicit premises, namely the assumption that decision-making institutions are stable and have strong enforcement of laws for legal and environmental protection. The model assumes that stakeholder participation balances power between the parties. It also assumes that negotiated agreements prioritize ecological restoration, rather than simply social compromise.

These assumptions may not hold in rapidly urbanizing cities in developing countries. Governance is often fragmented, priorities are driven by growth, and negotiations are informal. Environmental justice findings suggest that participation does not equate to influence. When municipal and private interests are misaligned, participatory processes can legitimize outcomes. Thus, participatory processes can still lead to environmental damage, suggesting that participation alone is insufficient for successful ECR.

Frameworks that prioritize stability for and reduction of conflict through outcomes-oriented practices may hide significant differences between two very different outcomes, dispute stabilization and environmental restoration. Politically sensitive cases have highlighted how agreements can reduce social tensions through compensation, relocation and/or technical improvements, but do not necessarily result in achieving ecological restoration or reduction of long-term environmental risks. In situations where stabilization occurs without prior ecological restoration left in place, urban ecosystems are susceptible to environmental degradation over time.

Urban political economy literature has shown that cities typically use growth-oriented strategies and create partnerships, in order to create greater economic competitiveness. As a result, investment-related issues can influence environmental governance and limit the involvement of environmental institutions at the initial stages of development (e.g., during the local government decision making process). According to polycentric governance theory, there is a need to coordinate across several levels and integrate the respective networks of governance. However, without institutional coherence, multi-actor collaboration has resulted in increased fragmentation and lack of accountability.

From the explanation above, it can be concluded that environmental conflict is a conflict involving unequal resource

allocation, unequal decision-making processes, and power imbalances within society that impact social and environmental issues. To address this gap, this study conceptualizes ECR in the context of developing cities as a governance process influenced by procedural inclusiveness and structural factors related to governance orientation, power configuration, and institutional capacity. The conceptual diagram presented in Figure 1 synthesizes these analytical refinements. This diagram does not introduce new empirical claims but organizes empirical findings from the Semarang case into a structured framework to evaluate how dispute resolution processes relate to substantive environmental outcomes.



Figure 1. Analytical framework used in this study

In this study, dispute stabilization refers to outcomes that reduce social tension through compensation, relocation, or administrative settlement without substantially changing environmental conditions.

Ecological restoration, by contrast, refers to outcomes involving rehabilitation of environmental systems, preventive land-use reform, or long-term environmental risk reduction.

## 2. METHODOLOGY

### 2.1 Research design

This research uses a qualitative case study design to test the ECR theory in the context of urban governance. The case study approach was used for analytical refinement [14]. Rather than testing pre-defined hypotheses, this research seeks to contextualize existing ECR perspectives by examining its operation in the case of a rapidly urbanizing developing city.

The research design is interpretive and comparative. Each case is treated as an analytical unit to identify recurring governance patterns, structural variables, and the topology of outcomes.

### 2.2 Data and analytical approach

Three cases in Semarang, Indonesia, were selected for comparative analysis of environmental conflicts while maintaining contextual consistency within the same

metropolitan area. These cases were chosen because they resulted in significant environmental impacts, displayed a multi-actor conflict structure (including government agencies, private sector actors, and civil society), and attracted sustained public and media attention leading to a dispute resolution process. The selected cases represent a variety of conflict types: the Tapak River case reflects a conflict over industrial pollution, the Golf Course land swap controversy represents a conflict over land use and governance, and the Gumpilsari landslide illustrates a disaster conflict related to infrastructure development.

The study's data were compiled from multiple sources (e.g., governmental reports/documents; selected media reports; and institutions producing documents related to the sources of conflict). Additional sources of information came from records related to local governments functioning as consultants; environmental agencies assisting in the resolution of conflicts; and residents impacted by these conflicts; and non-governmental organizations (NGOs) involved in resolving the dispute. The first stage of analysis consisted of an examination of national environment-related legislation (including the environment management law and related regulations regarding mediation and conflict resolution, local city regulations, parliamentary reports (Dewan Perwakilan Rakyat Daerah (DPRD)), and various documents provided or published by environmental protection agencies), allowing researchers to gain an understanding of the formal, regulatory framework as well as institutional responses related to each case. The second stage of the analysis used a chronological approach by conducting a systematic review of media archives. Researchers utilized media coverage (e.g., from Kompas, Suara Merdeka, Radar Semarang, Wawasan, Meteor Daily) regarding cases studied in order to produce a chronological timeline of events that developed over time. Across the selected cases, media archives were used to reconstruct conflict chronology and governance responses. For the Golf Course case, 26 newspaper reports published between December 2002 and November 2003 were reviewed. For the Gumpilsari landslide case, 44 newspaper reports published between February 2004 and February 2006 were examined. These reports were drawn from national and local newspapers, including Kompas, Radar Semarang, Semarang Post, Seputar Semarang, Solo Pos, Suara Merdeka, and Wawasan. Government documents, DPRD records, municipal decrees, and environmental-agency materials were used to triangulate information obtained from media sources. The third stage of the analysis involved utilizing material provided by civil society organizations in order to capture community views and provide alternative explanations for events related to the cases as a supplement or complement to the official account.

The cross-case examination is guided by the context-sensitive analytical extension of ECR, which serves as the primary analytical lens. Each case is evaluated through three distinct structural dimensions:

- 1) Governance Orientation, the analysis focuses on the alignment between urban development growth and environmental preservation. The report specifically examines whether environmental institutions are integrated into the "upstream" planning phase or whether their involvement occurs only at later stages of the process.
- 2) Power Alignment, assessing the level of coordination between local governments and private investors,

along with the bargaining power of communities affected by development. A critical focus is placed on determining whether participatory inclusion results in real influence on final decisions or is merely symbolic.

- 3) Outcome Typology, differentiated into problem resolution based on compensation, regulatory adjustment, or transformative environmental governance. This classification allows for a more nuanced distinction between mere dispute stabilization, such as conflict de-escalation, and substantive environmental restoration, which is used as a more stringent indicator of success than simply agreement stability.

To enhance analytical credibility, triangulation was conducted by cross-checking media reports with official

government documents. A tracing process was used to reconstruct the sequence of conflict escalation, institutional responses, and resolution mechanisms in each case, while comparative pattern matching supported the identification of recurring governance characteristics across cases. The goal was not simply statistical generalization but analytical refinement that might be transferable to the ECR context of governance in rapidly developing cities.

To make the empirical basis of the study clearer, Table 1 summarizes the main evidence for each case.

The media review covered reports published across the relevant conflict periods for each case, including the Tapak River pollution, Golf Course land-swap, and Gumpilsari landslide cases. The reviewed materials included local and national media reports, municipal documents, DPRD-related records, and environmental agency materials.

**Table 1.** Summary of environmental conflict cases in Semarang

Case	Tapak River	Golf Course Land Swap	Gumpilsari Landslide
Trigger	industrial pollution	land-use conversion	infrastructure-induced hazard
Main Actors	residents, industries, municipal government, NGOs	local government, investors, parliament, residents	affected residents, local government, developers
Resolution Process	protests, media pressure, informal mediation	public opposition, parliamentary debate	relocation negotiation
Resolution Instrument	compensation, wastewater treatment	administrative approval	compensation, relocation
Environmental Outcome	partial mitigation, limited ecological recovery	no ecological restoration	no structural land reform
Evidence Source	media reports, environmental agency documents	26 media reports (Dec 2002–Nov 2003), DPRD investigation, Mayor Decree No. 590.05/347, media archives	44 media reports (Feb 2004–Feb 2006), relocation negotiation records, municipal documents, media archives

### 3. RESULTS

This section applies the analytical framework developed in this study to the three selected cases in Semarang, Indonesia. Rather than describing each case sequentially, the analysis is organized around the structural dimensions developed in Section 1.

#### 3.1 Empirical flow of Environmental Conflict Resolution in Semarang

Environmental dispute resolution in Indonesia formally operates under Law No. 32/2009 on Environmental Protection and Management, which allows mediation and alternative dispute resolution mechanisms outside litigation. At the municipal level, environmental governance in Semarang involved multiple institutions, including local environmental agencies, municipal authorities, parliament (DPRD), and ad hoc mediation teams formed during disputes.

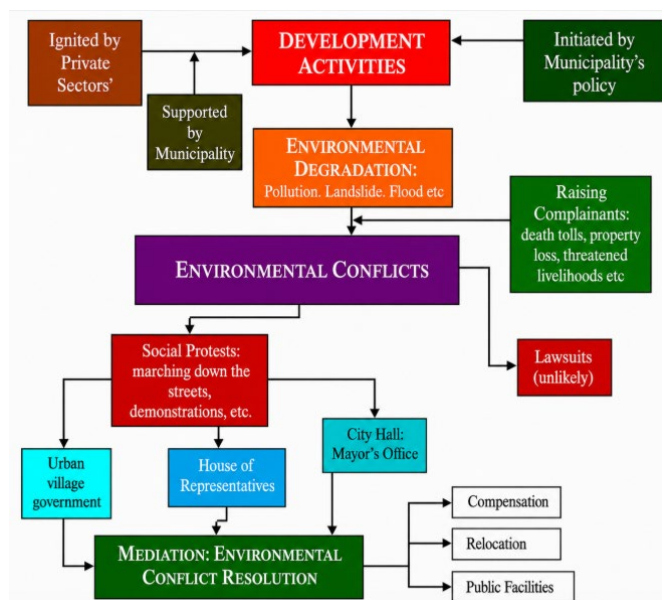
However, the cases examined in this study indicate that mediation was often conducted through informal negotiation and politically facilitated arrangements rather than through independent certified mediators. Environmental agencies also tended to become involved after conflicts escalated rather than during upstream planning stages.

Two cases involved actual changes in environmental quality, while one case concerned a potential change in environmental quality that had not yet fully materialized. Nevertheless, a common pattern of ECR can be identified across the three cases.

First, the conflict usually started with complaints from surrounding inhabitants where projects or planned activities

were conducted by private sectors, often explicitly or implicitly supported by the municipality.

Second, because there was no fixed and accessible mechanism for filing complaints other than a costly legal suit, the common method used by the community was to march on the street, organize demonstrations to the city hall or the House of Representatives, and attract wider public attention through media coverage.



**Figure 2.** Empirical flow of Environmental Conflict Resolution (ECR) in Semarang

Third, responses to these protests varied, but in general the greater the media coverage, the higher the level of government involvement in the settlement process. In several cases, local government created ad hoc teams or relied on informal mediation facilitated by local officials.

Finally, the common result of environmental conflicts was focused more on the provision of compensation for the casualties of environmental degradation, often accompanied by the provision of wells, houses, or other facilities. These measures did not really address environmental rehabilitation. As long as the complainants no longer expressed their complaints, the conflict was generally considered solved.

The overall sequence of the ECR process in Semarang is summarized in Figure 2, which illustrates the predominantly reactive, downstream pattern observed across the cases.

### 3.2 Structural dimensions of Environmental Conflict Resolution

#### 3.2.1 Governance orientation

In all three cases, urban governance reflects a development-oriented trajectory, albeit with varying manifestations.

In the Tapak River case, industrial activities were permitted near rural settlements without effective environmental oversight from the outset. Public pollution reports did not trigger immediate law enforcement action. City government intervention only occurred after sustained public protests and viral media coverage. Environmental protection measures, including the installation of a wastewater treatment plant, were introduced as corrective rather than preventive safeguards.

Regarding the case study of the Golf Course project, the exchange of green open space with development through investment showed the orientation of governance being economically-oriented. The municipality agreed to give its approval for the construction of a new golf course proposed by PT Putra Wahid Sejahtera in exchange for rights to develop SGC. The residents, NGOs, academics, and environmental activists objected to the plan due to the fact that the area acted as a significant green open space and water catchment area. Despite the protests of the community and the investigation conducted by the DPRD into environmental impact assessments and land valuation, the land swap eventually took place. The environmental agencies were only active when confronted with community resistance.

As for the case of Gumpilsari landslide, the approval of new golf course development came before the evaluation of potential slope stabilization efforts. With the repeated occurrence of landslides in the Old Gombel region, it was the residents who considered them as development-related issues, whereas the developer and the authorities regarded them as purely natural events. The government's response concentrated on the matters of relocation and compensation; the other problems were left out.

In many cases, environmental protection mechanisms do exist, but they are largely reactive. Governance orientation appears to influence how and when ECR processes are activated.

#### 3.2.2 Power alignment

The power structure of participating entities represents the second structural component of community stakeholder participation. All three projects indicated that both development permits and major planning decisions were made prior to the comprehensive involvement of the community.

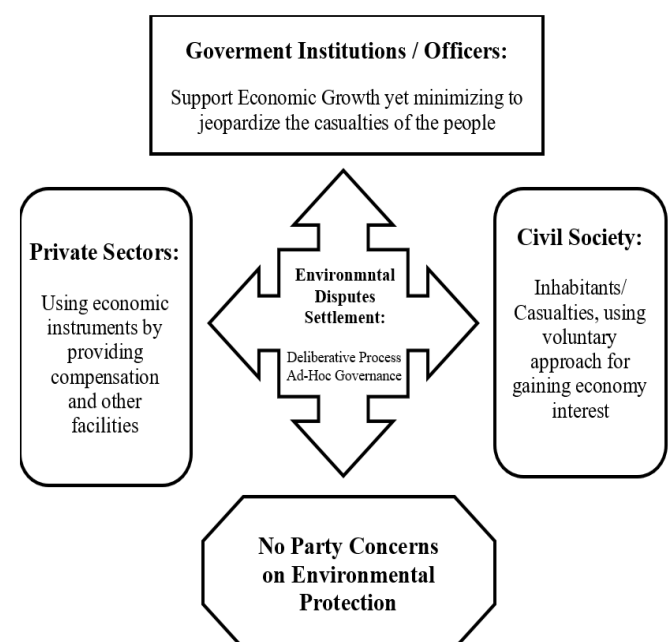
The development decisions that occurred during the few development planning phases only included the coordination of the City with private investors, while the Environmental agencies were involved in an insignificant upstream capacity. The mediation process was executed mostly by government officials of the communities being affected, as opposed to being conducted by independent mediators.

In the case of the Tapak River, the affected community members relied on NGOs and continued protests as a means to obtain improvements. However, due to their economic vulnerability and fragmented representation, the affected community members were unable to exert bargaining power, and many chose to sell their land to the developer and relocate. In the case of the Golf Course, the affected community members demonstrated public resistance and initiated parliamentary debate; however, the final decision to approve the land swap was still executed. In Gumpilsari, the affected residents accepted relocation under a lack of substantive discussion and without alternatives. All three affected communities had limited avenues by which to influence the broader land use policy.

The aforementioned trends suggest that community participation does not always equate to an equal amount of bargaining power. The gaps in community participation with existing structures create unequal outcomes for the affected communities.

#### 3.2.3 Institutional capacity

Institutional fragmentation plays a significant role in shaping the dynamics that underlie conflict resolution. While there is a formal mediation mechanism provided for in the national law, there were no independent certified mediators who were available to the study. Due to there being a limited level of inter-departmental coordination, the majority of the instances of mediation between parties were conducted informally, and ad hoc working groups would be formed to deal with individual disputes only as they arose.



**Figure 3.** The unfinished mechanism of Semarang environmental governance

In terms of the Tapak case, enforcement of environmental

laws by relevant governmental authorities did not occur until there were a number of community protests from those affected due to the escalating form of dispute. In the Golf Course case, environmental authorities did not play a significant role in the initial decision-making process involving the swap of land between two parties. In the Gumpilsari case, government agencies did not respond to the dispute between the two parties until after a disaster had occurred.

The Environmental Impact Management Agency (Badan Pengelolaan Dampak Lingkungan) was typically unavailable during the upstream planning phase and would be involved only after public protests began or a disaster occurred. As a result of this reactive approach to environmental management, there exists a disparity between the intention of regulatory structures and the implementation of those structures in practice. This also illustrates the "unfinished mechanism" of environmental governance present in Semarang, or the existence of regulatory structures that have not been fully implemented in practice (see Figure 3).

### 3.2.4 Outcome typology

Applying the analytical framework reveals similar trends across the cases analysed.

For example, the Tapak River case involved some regulatory reform with the installation of a wastewater treatment plant along with some assistance from the government with an ecological restoration of the river; however, this did not occur. In the Golf Course case, political stabilisation is achieved through the administrative approval of a land swap despite the environmental opposition, without the ecological rehabilitation being completed. In the case of Gumpilsari, urgent housing requirements were satisfied through the relocation and rental assistance but did not contain any ecological rehabilitation nor changes to the policies of stabilising slopes.

The overall outcome of all three cases was centred on compensation to the affected community; generally accompanied by the provision of wells, housing or other facilities to assist the community. In many cases, the response addressed very little in relation to the root cause of the environmental problem nor to the ecological rehabilitation required. A dominant pattern is to stabilise the compensatory and regulatory elements rather than create ecological reform through structural methods.

### 3.3 Cross-case synthesis

In most instances, a structural disconnect has arisen between procedural inclusion and substantive environmental protections. While community protests (or NGO participation), technical assistance and parliamentary oversight were part of many dispute resolution processes, the results of these processes were primarily compensatory or regulatory rather than transformational in nature.

Although the environmental degradation of natural resources has been partially addressed through regulatory mechanisms, this degradation could not be fully reversed. In addition, there were limited opportunities for institutional reform within the framework of these processes. Thus, the role of ECR within the City of Semarang was primarily one of stabilizing disputes rather than enabling sustainability transformation.

## 4. DISCUSSION

### 4.1 Theoretical implications

The Semarang case studies reveal a gap between substantive environmental protection and procedural inclusiveness in dispute resolution processes. The ECR literature has historically emphasized multi-actor participation, transparency, and negotiated solutions to successfully resolve environmental disputes. Nevertheless, empirical evidence from the case studies demonstrates that procedural inclusiveness, while important in providing legitimacy to those involved in dispute resolution, has not consistently produced transformative outcomes for the environment, particularly in rapidly urbanising and development-oriented governance contexts.

The review reveals that the networked, multi-centric nature of governance processes includes municipal governance, private investment, civil society organisations, environmental agencies, and media actors. However, despite the multiplicity of participants, the interactions between all participants were embedded in a governance framework that clearly favoured economic development and continuing investment. This finding corresponds with the urban political economy literature that demonstrates the extent to which municipal development objectives fit within the agenda of investors and, as a result, influence the setting of regulatory priorities toward economic and competitive growth, rather than toward environmental protection. As a result, the mechanisms by which participants sought to engage within a participatory framework were subject to structural constraints that limited the extent to which environmental transformations could occur.

Consequently, one theoretical implication from our analysis is that while multi-actor participation is a necessary condition for transformative environmental governance in development-oriented urban governance, it is insufficient for achieving transformative environmental governance; participation mechanisms may develop negotiated or stable outcomes and procedural legitimacy associated with multi-actor participation. However, participation does not adequately address the underlying environmental risks embodied by the environmental conflict.

There are two clear illustrations demonstrating that mediation does not take place under neutral institutional conditions. The conceptual frameworks applied to mediation mechanisms suggest that mediation is a balanced process with legal consistency, appropriate stakeholder representation, and procedural fairness [9, 14]. In contrast to conceptual frameworks, the empirical evidence reveals that the outcomes of mediation are also likely to be affected by established power relationships and fragmented institutions. Conversely, mediation mechanisms may simply act as dispute management tools, and do not impact pathways for environmental governance if there is an existing relationship between private investors and local governmental authorities. As such, mediation does not directly address the broader ecological vulnerabilities, while mechanisms such as relocation, compensation, and technical mitigation are likely to reduce social unrest associated with the dispute but do not address the broader ecological vulnerabilities associated with the related governmental institutions.

This finding has been echoed in environmental justice scholarship, which has established that, in the case of the

formalised participation processes, legitimacy can often be created through the process of inequality, with the expectation that existing structural power relationships between the various stakeholders will not be changed through the processes. Therefore, the analytical extension proposed in this study outlined in this study will incorporate the governance orientation of the institutional context, and the alignment of power relationships, as structural variables affecting mediation processes. By including these variables as part of the criteria for evaluating mediation mechanisms, the analytical framework for ECR will be expanded beyond that of procedural design, to include the structural political-economic conditions under which dispute resolution occurs.

As a second theoretical implication, the difference between the stabilization of disputes and the restoration of the environment can be analytically distinguished. Frameworks for dispute resolution often define the "success" of a dispute based on three indicators: the stability of the negotiated agreement, the reduction in the level of hostility between the disputing parties, and the feasibility of implementing the negotiated agreement [3, 17]. For the three Semarang case studies reviewed in this research, the negotiated agreement may remain stable after there has been a resulting ecological degradation. In the case studies, while compensation payments and assistance for relocation have reduced some immediate and social tensions between the disputing parties, and while the technical mitigation measures have reduced some visible environmental impacts, the structural reform of land use and comprehensive ecological rehabilitation were missing in all three Semarang case study areas.

In rapidly urbanizing municipalities, the resolution process described above may primarily function as a mechanism to stabilize disputes, and not as a means of transforming the environment. To evaluate the effectiveness of resolving disputes through ECR, it is important to differentiate between the closure of disputes at a compensatory level and the application of a transformative ecological governance in order to prevent resolution processes from being evaluated successively based on only the completion of the formal process rather than the extent of the achievements made towards long-lasting environmental resilience.

The findings from the Semarang case study suggest that there is limited applicability of traditional assumptions surrounding polycentric governance. Specifically, polycentric governance theory considers that the benefit of the combination of multi-level institutional arrangements and networked arrangements will greatly enhance the system's ability to adapt and recover. However, the absence of coordination among a group of participants does not automatically provide adequate coordination for satisfactory outcomes, according to the Semarang case studies. Environmental agencies were often excluded from early planning stages and became involved only after conflicts escalated. Ad hoc task forces replaced institutionalized coordination mechanisms, reinforcing reactive crisis management rather than preventive environmental governance.

The paper concludes that the environmental governance emerging from the settlement of environmental disputes in Semarang had missed the achievement of protecting the environment, although it was relatively successful in settling social and economic disputes. In this sense, Semarang environmental dispute settlement can be seen as an unfinished mechanism, since it is not even aimed at protecting the

environment, although it started from the awareness that environmental values needed to be protected.

Taken together, these findings support a context-sensitive refinement of ECR theory. The analytical extension proposed in this study emphasizes three analytical shifts: from procedural inclusiveness to structural power analysis, from agreement stability to ecological outcome depth, and from reactive mediation to upstream preventive governance integration. These shifts recognize that these processes are shaped by broader political and economic conditions that influence how urban development takes place.

## 4.2 Policy implications

Although the primary contribution of this study lies in theoretical refinement, the findings also generate several policy implications for sustainable urban governance.

In the first instance, Environmental authorities should be engaged at the forefront of all development-related planning processes; rather than being brought in afterwards when conflicts arise. The cases from Semarang, Indonesia show that environmental authorities were usually brought in only after the public protested because pollution or land use disputes or disasters occurred. Strengthening the process of conducting an early environmental assessment prior to development will allow for an increase in institutional coordination between governing bodies at the planning level and permitting levels. This could contribute to preventing environmental risks from turning into public disputes.

Another trend that has emerged is that mediation processes in Indonesia require stronger institutional safeguards. In most existing dispute resolution systems, a majority of resolution was done through informal negotiation by local officials and ad hoc technical teams. Creating and enforcing independent mediation capacities, supported by trained, certified, and autonomous mediators, would facilitate the objective and fair administration of mediation as it relates to ecological restoration commitments being included in settlements.

There is a clear distinction to be made between compensation for social needs and the restoration of the environment. Compensation for social needs and plans for relocating people are short-term solutions to the social issues resulting from conflict. However, they cannot substitute for restoring the environment or mitigating structural risks. By creating a clearly defined and measurable environmental restoration target and incorporating it into a dispute resolution agreement, there will be clear delineation between social stabilisation and environmental sustainability.

The need for strengthening institutional integration between departments is critical. Environmental protection agencies, spatial planning agencies, and development authorities need to work together to coordinate their governance systems so that all environmental issues are considered in urban development decisions. ECR could become primarily an administrative tool for managing social dissent rather than promoting sustainable urban development without these structural changes.

## 5. CONCLUSION

This research study looks into the theory on ECR as a governing model used in rapidly expanding cities like Semarang. Findings from this research study have shown that while the YG appears to be multi-stakeholder and deliberative

in nature, its resulting outcome is primarily based on governance systems that promote long-term development and collaborative engagement between the city and the private sector. As a result, the primary ECR resolution method utilised is to use compensation and technical corrections to stabilise the community rather than to restore the environment holistically.

This paper extends ECR theory in three ways. It adds to existing ECR theories by introducing two new structural variables (governance orientation and power congruence) that shape ECR mediation outcomes. It also distinguishes between social and ecological restoration by explaining that the stability of an agreement should not be confused with the sustainability of a community's environmental problem resolution. Lastly, it demonstrates the inadequacy of polycentric governance structures where fragmented institutions control upstream intervention strategies. In other words, the process of settling environmental conflicts in Semarang will lead only to settling the dispute between many parties to the conflict without repairing the damage to the environment. For sustainable urban development, conflict resolution mechanisms must move beyond reactive mediation toward integrated, preventive, and ecologically accountable with governance structures. The analysis is limited to three cases in Semarang within a single metropolitan context, and its findings should be interpreted as analytical generalizations rather than statistical representations.

Future research should examine this analytical extension in comparative urban contexts to assess its broader applicability across rapidly developing cities. These findings highlight the importance of integrating environmental governance capacity into urban development planning so that conflict resolution contributes not only to social stabilization but also to long-term ecological sustainability. Therefore, the need to have a specific body, whether from the government or civil society, that is also concerned with the quality of the environment would help complete the process as part of environmental governance.

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#### NOMENCLATURE

- ECR Environmental Conflict Resolution  
 DPRD Regional House of Representatives (Dewan Perwakilan Rakyat Daerah)  
 NGO Non-Governmental Organization