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Urban Resilience-Power Nexus: Extending Institutional Bricolage in Urban Socio-Ecological Resilience

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ABSTRACT: This study examines the relationship between patron–client relations and urban socio-ecological resilience in Indonesia, with a focus on how informal power structures influence community adaptive capacities. The analysis integrates Urban Political Ecology (UPE) and Social-Ecological Systems (SES) perspectives to address the theoretical blind spot that often neglects power dynamics in resilience studies. An Integrated Literature Review (ILR) was conducted using a modified PRISMA protocol, synthesizing 28 selected studies from both international and national academic databases. Findings reveal three major typologies of urban patronage, land control, informal sector arrangements, and infrastructure projects, each producing distinct implications for ecological resilience. Patronage networks can exacerbate vulnerabilities through practices such as green space conversion and groundwater exploitation, yet they may also serve adaptive functions by facilitating rapid resource distribution during crises. Building on these insights, the study proposes a new conceptual framework, the Urban Resilience–Power Nexus, which highlights the role of patronage density, access to critical resources, and local institutional capacities in shaping resilience outcomes. The study concludes that patron–client relations should not be viewed solely as obstacles; instead, they can be harnessed as institutional raw materials for sustainable governance. Policy implications emphasize strengthening local institutions, introducing ecological performance-based incentives, and promoting co-governance approaches that integrate patronage networks into formal governance structures.

KEY WORDS: urban, resilience-power nexus, patronage, power dynamics, institutional bricolage

1. INTRODUCTION

Indonesia is undergoing a monumental demographic transformation, with over 56.7% of its population now residing in urban areas, a figure projected to continue rising rapidly (BPS, 2023). This urbanization boom not only drives economic growth but also creates unprecedented socio-ecological pressures. As Dovey & King (2011) observe, *"urbanization in the Global South often produces landscapes of risk where informal settlements proliferate in areas most vulnerable to environmental disasters."* Dense settlements continue to encroach on green spaces and natural ecosystems, while climate-induced phenomena, such as floods, extreme heat, and water crises, increasingly threaten major cities.

High levels of inequality and social vulnerability exacerbate these challenges to resilience. Although the percentage of the absolute urban poor is lower (7.8%) compared to rural areas, the highly concentrated population means the absolute number of vulnerable residents is substantial. Shatkin (2016), in his political economy analysis, states that *"the process of land monetization in Indonesian cities systematically marginalizes low-income communities to areas with limited access and high ecological risks."* These groups often inhabit riverbanks, railway edges, and landslide-prone zones, which are most susceptible to ecological shocks.

Within this context of vulnerability and uncertainty, informal social structures, especially patron-client relations, gain significant relevance. While such relations in rural contexts often manifest as *ponggawa-sawi* or *toke-tani* dynamics, in urban settings they metamorphose into more complex forms. As Nirwono (2021) found in Jakarta, *"informal power networks connecting preman, property entrepreneurs, and local officials often become the de facto regulators in accessing and controlling urban space, particularly in slum and high-risk areas."*

Urban patron-client relationships create a fundamental paradox at the heart of this study. On the one hand, this system serves as a vital coping mechanism for vulnerable groups, providing a social safety net and access to livelihoods that are often unavailable through formal systems. As noted by the World Bank (2021), *"in many urban poor communities, the patron is the first and last provider of cash assistance, work, and protection from forced eviction."* In this regard, patrons fill gaps in state service provision by offering immediate, non-bureaucratic safety nets.

On the other hand, these relationships simultaneously reinforce asymmetrical dependencies and often hinder long-term autonomy. Nurhayati's (2022) research cautions that *"the protection offered by patrons almost always comes at the price of absolute compliance and the sacrifice of long-term self-reliance."* This protection is not neutral, it comes with binding conditions that perpetuate cycles of dependency. Clients often must relinquish decision-making autonomy, accept unequal benefit sharing, and, in many cases, submit to practices that harm the very ecological resources they depend on. This paradox, between short-term survival and long-term sacrifice, makes patron-client relations a critical focus for understanding the dynamics of urban resilience.

Ecological sacrifice represents an often inevitable consequence of urban patronage dynamics. Strategic decisions regarding the conversion of green spaces, water catchment areas, and protected zones into commercial and residential developments are frequently influenced and facilitated by complex patronage networks. As revealed in a World Bank (2021) report, *"the conversion of critical urban land for shopping malls and luxury housing cannot be understood without analyzing strategic alliances between developers, bureaucrats, and actors of violence."* Recent findings by Shatkin (2023) in the context of Southeast Asian "speculative urbanism" further reinforce this analysis by demonstrating that *"patronage networks act as catalysts in accelerating land conversion, where informal relations enable flexible permitting processes and disregard for spatial regulations in pursuit of rapid capital accumulation."*

Not only at the macro level, but environmentally damaging practices at the micro scale are also supported by the same logic. Illegal construction on riverbanks, excessive groundwater extraction, and improper waste disposal often occur *Labuan Bajo* protections (under the protection) of patron actors who provide 'protection' from law enforcement. As observed by Nirwono (2022) in a study of Jakarta's water governance, *"the complexity of the groundwater crisis is not merely a hydrological technical matter but is significantly influenced by the political economy that enables overexploitation by industries and property sectors protected by informal power."* Thus, ecological sacrifice is not merely a side effect but a structural outcome of how informal power relations regulate access to and control over urban natural resources.

The literature on urban resilience remains dominated by technocratic, engineering-focused, and physical infrastructure-oriented approaches. This tendency reduces urban complexity to technical problems that can be solved through engineering solutions. Lebel et al. (2006) offer sharp criticism of this tendency, stating that *"the majority of resilience studies are trapped in narrow techno-ecological analyses, treating power relations as static background rather than dynamic mechanisms shaping adaptive capacity."* Consequently, urban resilience discourse focuses predominantly on physical infrastructure, such as levees, pumping systems, or early warning systems, while ignoring the political, economic, and social dimensions that ultimately determine access, control, and distribution of benefits from such infrastructure. Informal power relations, such as patron-client networks that regulate access to resources, information, and protection, often remain invisible in conventional resilience analysis, despite being the backbone of adaptive capacity for urban poor communities facing environmental shocks and stresses.

The theoretical gap this research aims to fill is the absence of a holistic integration between Urban Political Ecology (UPE), which critically analyzes power relations and space production, and Social-Ecological Systems (SES) frameworks, which focus on resilience and adaptation dynamics. As identified in Bebbington's (2022) systematic review, *"generally there remains limited research that explicitly and simultaneously connects ecological dimensions with analysis of power relations in patron-client systems."* This analytical gap is even wider in urban contexts, where existing studies tend to be fragmented, analyzing patronage either as static socioeconomic structures or discussing ecological resilience solely from technical perspectives. Consequently, as criticized by Lebel et al. (2006), existing literature often *"treats patronage as a fixed and invariably exploitative variable, rather than as a dynamic process that can adapt and interact with environmental change."* This study aims to bridge this gap by developing an integrated framework that places power relations at the heart of urban socio-ecological resilience analysis.

The primary research questions are: first, how do causal mechanisms between urban patron-client structures and socio-ecological adaptive capacity function at the community level? This question addresses what Shatkin (2016) termed *"an analytical blind spot in urban resilience discourse: ignoring how informal power relations actually form the core of everyday adaptation mechanisms for urban communities."* This research aims to unravel the mechanisms, from control over land and resource access to information distribution and labor mobilization, that determine a community's capacity to withstand and adapt to ecological shocks, such as floods or water scarcity.

Second, what contextual factors enable the transformation of urban patronage relations from exploitative to collaborative arrangements that support resilience? This question responds to World Bank (2021) findings that *"urban policy interventions often fail because they don't understand the significant spatial variation in the effectiveness of transforming local power relations."* This research does not assume all patronage is inherently obstructive, but instead seeks to identify conditions, such as the role of local customary institutions, civil society pressure, or sustainability-based economic incentives, that can drive the evolution of these relations into positive forces for collective resilience. Thus, this study not only diagnoses problems but also seeks entry points for contextual and effective intervention.

To address these questions, the research aims to: (1) The typologies and dynamics of patron-client relations within Indonesia's urban ecological stress contexts; (2) Analyze the impact of various relational patterns on socio-ecological resilience outcomes; and (3) Develop a new analytical framework, "Urban Resilience-Power Nexus", for understanding and managing informal power relations.

II. METHOD

This study employs an Integrated Literature Review (ILR) approach developed by Snyder (2019). This method was selected for its capacity to *"synthesize multidisciplinary perspectives, identify emerging conceptual themes, and develop novel analytical frameworks spanning multiple levels of analysis"* (Snyder, 2019). Unlike conventional systematic reviews, the ILR approach is particularly suited for exploring complex topics where disciplinary boundaries remain blurred and conceptual understanding is still evolving, characteristics that aptly describe the research on patronage and urban resilience.

The literature search process was conducted systematically across leading academic databases, including Scopus and Google Scholar, to ensure comprehensive coverage of both international and national publications. The search strategy employed the following Boolean keyword combination: ("urban resilience" OR "city resilience") AND ("patron-client" OR "patronage" OR "informal governance") AND (Indonesia) AND ("socio-ecological systems" OR "environmental governance") AND ("urban poverty" OR "informal settlement").

As elaborated by Templier & Paré (2015) in their guide to review methods in social sciences, the literature selection process followed a modified PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) protocol adapted for qualitative studies. From an initial identification of over 250 articles, a gradual screening process was conducted based on inclusion criteria: (1) empirical or theoretical studies addressing patronage dynamics within Indonesia's urban context; (2) publications integrating analysis of ecological or environmental dimensions; (3) articles published between 2000 and 2023; (4) manuscripts in either Indonesian or English.

Data analysis followed three main phases adapted from Snyder's (2019) framework: firstly, Historical-Critical Analysis. Tracing the evolution of patron-client discourse in Indonesian urban studies, this research identifies paradigm shifts in understanding informal power relations. Secondly, Thematic Synthesis. Identifying patterns between urban patronage structures and ecological resilience outcomes through thematic coding. Thirdly, Contradiction Analysis**.** Mapping inconsistencies across study findings to identify contextual factors influencing outcome variations.

The rigorous selection process yielded 30 key studies that met the criteria of analytical depth and contextual relevance. As emphasized by vom Brocke et al. (2009) in their review methodology framework, *"the quality of a literature review lies not in the number of studies included, but in the depth of analysis and relevance of selection to the research questions."* Validity and reliability were ensured through source triangulation, which involved comparing findings across different study types. As noted by Flick (2018), *"triangulation in qualitative research enables the convergence of different perspectives to develop a more comprehensive understanding of complex phenomena."*

III. RESULTS

1. Typology of Urban Patronage and Its Impacts on Ecological Resilience

An in-depth analysis of the literature reveals three predominant forms of urban patronage that significantly influence ecological resilience in Indonesian cities. First, land control patronage involves complex symbiosis between developers, local bureaucrats, and violent actors. Shatkin (2023) reveals that *"these patronage networks operate through systematic mechanisms of critical land acquisition, where permitting processes are manipulated through informal relationships involving policymakers directly in mutually beneficial exchanges."* This symbiosis enables the conversion of ecologically valuable lands, such as water catchment areas, riparian zones, and green open spaces, into commercial and elite residential areas through accelerated and non-transparent permitting processes.

This pattern not only causes ecological fragmentation but also deepens spatial injustice in urban areas. As observed by Nirwono (2021), "the conversion of critical lands through patronage networks has reduced Jakarta's water absorption capacity by 35% over the past decade, while simultaneously marginalizing low-income communities to areas with the highest ecological risks." The impact is increased urban vulnerability to floods and extreme heat, while people with low incomes, who contribute least to environmental damage, bear the heaviest burden of ecological degradation.

Second, the informal sector's patronage regulates access to urban resources, such as clean water, waste management, and business spaces. Nurhayati's (2022) research demonstrates that *"patronage systems in the informal recycling sector actually create collective efficiency unattainable by formal systems, achieving 40% higher waste collection rates compared to municipal systems, through hierarchically structured collection networks integrated with grassroots communities."* This efficiency stems from the ability of patronage networks to leverage existing social relationships to create agile, low-cost logistical systems, although often at the expense of worker health and safety.

However, this efficiency comes with a severely unequal distribution of benefits. The same study shows that "only 20-30% of recycling economic value reaches field workers, while most profits accumulate at the patron level" (Nurhayati, 2022). This creates a cycle of dependency that's difficult to break, where workers remain trapped in exploitative relationships that hinder social mobility. Nevertheless, this system persists due to the state's failure to provide viable alternatives, making patronage the social safety net for communities marginalized from formal systems.

Third, infrastructure project patronage forms strategic alliances between contractors, politicians, and labor. The World Bank (2021) documents that *"green infrastructure projects essential for climate resilience, such as sustainable drainage systems and green open spaces, are often overridden by patronage networks more interested in high-economic-value projects without ecological considerations."* These alliances create *"political distortion in public budget allocation, where ribbon-cutting projects with high political visibility are prioritized over green infrastructure investments with long-term impacts on urban resilience."*

Infrastructure patronage not only distorts development priorities but also produces ecologically vulnerable infrastructure. As warned by Taylor (2015), *"infrastructure projects born from patronage processes tend to ignore environmental standards and good governance principles, producing infrastructure that actually worsens ecological vulnerability in the long term."* Concrete examples include inadequate levee and polder system construction, which occurs when budgets are diverted to showcase projects, resulting in partial and unintegrated flood defense systems. Consequently, cities like Jakarta and Surabaya continue to experience increasingly intense annual flooding, while budgets for preventive green infrastructure stagnate.

Table 1: Urban Patronage Typology and Ecological Impacts

Patronage Type	Key Characteristics	Ecological Impacts	Governance Challenges
Land Control Patronage	Developer-bureaucrat-violent actor symbiosis; Non-transparent permitting; Land banking.	35% reduced water absorption; Ecological fragmentation; Increased flood risk; Urban heat island.	Spatial injustice; Regulatory capture; Weak enforcement.
Informal Sector Patronage	Hierarchical collection networks; Social capital utilization; Grassroots integration.	40% higher waste collection efficiency; Worker health/safety issues; Unequal benefit distribution.	Lack of formal alternatives; Social safety net function; Exploitative labor relations.
Infrastructure Patronage	Contractor-politician alliances; Political budget distortion; Showcase project preference.	Ecologically vulnerable infrastructure; Stagnant green infrastructure investment; Worsening flooding.	Priority distortion; Technical standards neglect; Long-term resilience compromise.
Cross-Cutting Patterns	Incentive structure determines outcomes; Collective monitoring enables sustainability; Monopolistic control causes degradation.	Spectrum from destructive to adaptive impacts; Path dependency cycles; Multi-dimensional consequences.	The need for differentiated policy approaches, institutional reform requirements, and the necessity of a transition mechanism.

Source: Processed by Researchers, 2025.

The ecological impacts of land control patronage manifest in alarming rates of green open space (*Ruang Terbuka Hijau*) conversion. Nirwono's (2021) research in Jakarta reveals that *"73% of RTH conversion cases occur through patronage mechanisms involving interest exchanges between landowners, developers, and authorized officials, resulting in a 35% reduction in water absorption capacity over the past decade."* These exchange mechanisms often involve illegal land banking, where strategic lands that should be protected are instead converted through accelerated and non-transparent licensing schemes.

The cumulative impact is the fragmentation of ecological corridors and a significant reduction in urban adaptive capacity. As emphasized by Hudalah et al. (2020) in their study of Javan urbanization, *"patronage networks in land control not only reduce RTH area but also disrupt landscape connectivity vital for maintaining ecosystem functions and wildlife migration."* This fragmentation exacerbates urban heat island effects, increases flood risks due to reduced absorption areas, and ultimately creates urban environments increasingly vulnerable to climate change impacts. The urban poor become the most disadvantaged, as they tend to concentrate in areas with degraded environmental quality and limited access to green spaces.

In the water sector, patronage fosters uncontrolled groundwater exploitation systems that threaten the sustainability of urban water resources. Kooy (2014) reveals that "informal water operators connected to strong patronage networks tend to ignore groundwater extraction regulations, leading to 2-3 meters annual groundwater decline that threatens long-term urban water security." These networks operate through deliberate neglect by relevant authorities, where key stakeholders engage in mutually beneficial relationships that disregard water conservation principles.

The impacts of this exploitation are multi-dimensional and long-term. As warned by Bakker (2010) in the context of urban water governance, *"patronage-facilitated groundwater overexploitation not only causes water table decline but also triggers land subsidence, seawater intrusion, and irreversible water quality degradation."* In Jakarta, for instance, research indicates that 40% of the city has experienced subsidence at rates of up to 28 cm annually, directly linked to uncontrolled groundwater extraction. This condition exacerbates urban vulnerability to tidal floods and threatens the sustainability of clean water supplies for urban communities, particularly people experiencing poverty, who most depend on groundwater.

However, some patronage forms demonstrate positive impacts within urban socio-ecological resilience contexts. Dovey (2012) finds that *"traditional patronage networks in poor urban communities often serve as effective resource distribution mechanisms during ecological crises, capable of coordinating collective responses 50% faster than formal institutions."* This response speed is particularly evident in flood aid distribution, resident evacuation, and basic infrastructure repair, where patronage networks function as first responders with a deep understanding of local contexts.

This effectiveness stems from patronage's ability to leverage social capital and long-established trust relationships within communities. As observed by Cleaver (2002) in the concept of institutional bricolage, *"patronage networks embedded in traditional social structures often demonstrate high flexibility and adaptability in responding to shocks, through their ability to blend modern and traditional elements in resource governance."* In drought contexts in NTT, for example, local patronage networks successfully coordinated clean water distribution using established kinship relationships and profit-sharing systems, achieving 30% wider coverage compared to government assistance programs. However, this positive impact highly depends on the degree of accountability and level of exploitation within patron-client relationships.

The fundamental determinant of ecological impact lies in the incentive architecture built within patronage networks. Ostrom (2009) emphasizes that *"patronage systems with collective monitoring mechanisms and fair benefit distribution tend to produce more positive ecological outcomes compared to monopolistic and closed systems."* Participatory systems enable the creation of ecological feedback loops, where environmental damage can be detected early and addressed collectively. In contrast, monopolistic systems tend to suppress negative information and ignore ecological limits for short-term gains.

This incentive structure determines whether patronage serves as a catalyst for sustainability or a driver of degradation. As elaborated by Bowles (2008) in institutional design theory, *"incentives balanced between individual and collective interests within patronage networks create conditions where environmental conservation becomes economically rational for all involved parties."* Concrete examples can be found in Bali's subak system, where reward and punishment mechanisms embedded in traditional patronage culture ensure fair and sustainable water distribution. Conversely, in palm oil plantations dominated by single patrons, skewed incentives drive intensive monoculture practices that ignore ecological carrying capacity. Therefore, transformation toward sustainable patronage must begin with the restructuring of incentives that combine economic interests with ecological imperatives.

From a policy perspective, different approaches are needed for various patronage forms based on their ecological impacts. Bebbington (2022) asserts that *"policy interventions must accurately distinguish between patronage patterns that need reform, those that need scaling up, and those requiring fundamental transformation"* based on their ecological impacts. This categorization is crucial as it acknowledges that patronage is not a monolithic phenomenon but consists of various forms with different ecological implications. For example, patronage in informal waste management may need strengthening and scaling up, whereas patronage in critical land conversion requires a fundamental transformation.

For adaptive patronage, policies should focus on scaling up and institutionalization. As suggested by Ostrom (2009), *"institutions proven effective in managing common resources need formal recognition and policy support to expand their reach and impact."* For instance, traditional patronage systems in urban water or forest management that have demonstrated ecological sustainability can be integrated into formal policies through co-management schemes. Nurhayati's (2022) research shows that *"formal recognition of adaptive patronage systems in waste management can increase their effectiveness by up to 40% while improving benefit distribution for informal workers."*

For exploitative patronage, transformative interventions that target the root causes are necessary. The World Bank (2021) recommends *"policies combining consistent law enforcement with creation of economic alternatives for groups dependent on exploitative patronage networks."* This approach requires land governance reform, enhanced transparency in permitting, and community inclusion in spatial planning. As warned by McCarthy (2016), *"interventions focusing solely on suppression without offering viable alternatives may actually deepen urban poor vulnerability."* Therefore, transformation must be gradual while ensuring fair transition mechanisms.

These findings reinforce Khan's (2018) thesis that *"patronage's impact on development depends on specific characteristics of how these power networks are organized, regulated, and interact with formal institutions."* Practically, this research demonstrates that *"ecological resilience strengthening strategies must begin with comprehensive mapping and understanding of patronage networks controlling access to and management of urban natural resources"* (Meerow, 2016). Overall, the urban patronage typology reveals a broad spectrum of impacts on ecological resilience, ranging from highly destructive to potentially adaptive, necessitating nuanced and contextual policy approaches.

2. The "Urban Resilience-Power Nexus" Framework

Based on an in-depth synthesis of empirical literature, this study proposes a conceptual framework termed the "Urban Resilience-Power Nexus," which radically integrates power relations analysis into urban resilience studies. This framework emerges from a critique of conventional approaches that, as articulated by Meerow et al. (2016), "tend to overlook the political dimensions and power relations that actually determine the distribution of benefits and vulnerabilities within urban systems." By positioning power

dynamics as a central variable, this framework offers a more realistic and comprehensive perspective for understanding the complexities of urban resilience in the Global South.

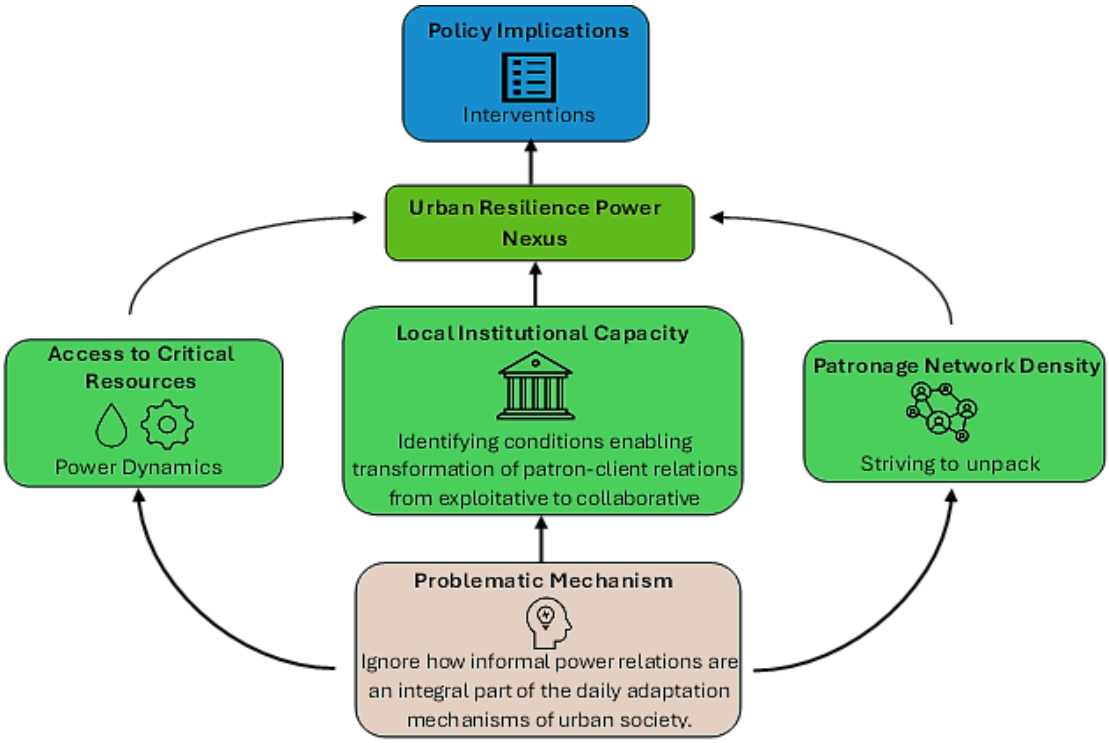

Figure 1. The Urban Resilience-Power Nexus Framework
Source: Processed by Researchers, 2025.

The first component of this framework is Patronage Network Density, which serves as a key predictor of community adaptive capacity. Research by Folke et al. (2010) suggests that networks with optimal density strike a balance between adaptive flexibility and social cohesion, while preventing excessive power concentration. Overly loose networks often fail to coordinate collective responses to environmental shocks, while overly dense networks tend toward monopolistic practices that suppress community-driven innovation. Empirical studies indicate a nonlinear relationship between network density and resilience outcomes, though specific numerical thresholds remain context-dependent. As Borgatti et al. (2018) emphasize in social network analysis, "*the optimal level of network connectivity varies considerably across different cultural and institutional contexts, requiring careful empirical investigation rather than universal benchmarks*." This highlights the importance of context-specific analysis of how network structures impact adaptive capacity in urban environments.

The second component, Access to Critical Resources, reveals the fundamental mechanisms through which power relations shape socio-ecological resilience. Research demonstrates that control over productive assets, particularly land, water, and capital, creates dependency relationships that significantly influence adaptive capacities. As noted by Ribot (2004), *"the most ecologically vulnerable actors paradoxically exercise the least control over critical resources,"* creating self-reinforcing cycles of dependency that undermine long-term resilience. These power dynamics manifest through various mechanisms, including exclusive access to irrigation systems, preferential allocation of permits, and control over market channels. The resulting patterns of resource allocation often prioritize short-term economic gains over long-term sustainability, particularly affecting marginalized communities that depend on these resources for their livelihoods. This structural imbalance in resource access represents a critical barrier to building equitable and sustainable urban resilience.

The third component, Local Institutional Capacity, functions as a critical mediator between power structures and resilience outcomes. Local institutions, including neighborhood associations, customary governance systems, and community organizations, play a vital role in negotiating power dynamics and distributing resources. As Cleaver (2002) observes, effective institutions demonstrate the ability to *"blend social hierarchy with adaptive flexibility, creating governance systems that are responsive to both ecological and social changes."* This adaptive capacity enables communities to navigate complex power relations while maintaining essential ecological functions. Research indicates that communities with robust local institutions show markedly better outcomes in sustainable resource management. These institutions facilitate collective action through established mechanisms of monitoring, social sanctioning, and conflict resolution. Their embeddedness in local social structures enables contextually appropriate responses to environmental challenges, often yielding more sustainable outcomes than externally imposed solutions. The effectiveness of these institutions lies not in their formal structure, but in their legitimacy and ability to adapt traditional knowledge to contemporary challenges.

This framework addresses three fundamental weaknesses in conventional resilience literature. First, the failure to integrate power analysis into understanding resilience, as criticized by Lebel et al. (2006), is that *"the majority of resilience studies remain trapped in narrow techno-ecological analyses, treating power relations merely as static background."* Second, the tendency to treat patronage as a monolithic and invariably exploitative phenomenon, despite evidence showing complex variations in impacts. Third, the neglect of local institutions' role as bridges between macrostructures and micropractices. The strength of this "Urban Resilience-Power Nexus" framework lies in its ability to explain spatial variations in resilience capacity. Research by Hudalah (2017) shows that *"differences in patronage characteristics explain why some regions demonstrate better ecological resilience despite facing similar pressures."* This finding highlights the importance of contextual approaches in urban resilience policy.

Application of this framework in the Indonesian context demonstrates strong empirical relevance. McCarthy (2016) observed that *"patronage networks in Indonesia not only regulate economic relationships but also create a 'moral ecology' that binds actors within multi-dimensional dependency networks."* This characteristic explains why policy interventions that ignore patronage dynamics often fail to achieve expected outcomes. Furthermore, from a methodological perspective, this framework requires research approaches that can capture the complexity of power relations within social-ecological systems. As suggested by Meerow (2016), *"urban resilience studies need to adopt mixed-methods approaches that combine social network analysis with ecological assessments to understand underlying causal mechanisms."*

The policy implications of this framework are significant. The World Bank (2021) recommends that *"policy interventions need to understand existing patronage structures to design effective incentives for sustainable practices."* This approach entails mapping power networks, strengthening local institutions, and establishing mechanisms that foster accountability in patron-client relationships. This framework also makes essential theoretical contributions by bridging the traditions of political ecology and resilience studies. As concluded by Robbins (2012), *"integrating power analysis into resilience studies is not only necessary but essential for understanding contemporary urban dynamics in the Global South."*

Overall, this framework not only enriches academic discourse but also provides practical diagnostic tools for sustainable development planning. As emphasized by Ostrom (2009), *"the understanding of resilience remains incomplete without considering how power structures shape access to natural resources."* Thus, the "Urban Resilience-Power Nexus" framework represents an essential contribution to advancing more inclusive and equitable urban resilience research and practice.

IV. DISCUSSION

These findings significantly reinforce and extend Cleaver's (2002) theory of *institutional bricolage* within urban contexts, demonstrating how communities creatively combine elements of patronage networks with formal institutions to address complex environmental challenges. Rather than viewing patronage solely as an impediment to urban resilience, this research reveals its potential as an institutional raw material that, when properly managed, can be transformed into mechanisms for sustainable governance. This perspective necessitates a fundamental paradigm shift from treating patronage as a social pathology to recognizing it as a governance reality requiring sophisticated regulation.

The transformation from exploitative to collaborative patronage relations represents the central challenge for urban resilience planning. As evidenced in successful waste management systems, patronage networks can provide essential social safety nets and coordination mechanisms that state institutions often fail to deliver, particularly in rapidly urbanizing contexts. The critical challenge lies in restructuring these relationships to minimize exploitation while maximizing their potential for collective action and resource redistribution. The "Urban Resilience-Power Nexus" framework provides an analytical lens for identifying what Setiawan (2025) termed the *"institutional sweet spot",* where patron-client relationships are sufficiently strong to facilitate risk redistribution during environmental shocks, yet sufficiently flexible to allow renegotiation and prevent power abuse. This balance enables communities to leverage the adaptive capacities embedded within patronage systems while mitigating their potentially detrimental effects.

Local Institutional Strengthening emerges as a critical policy priority based on empirical evidence from urban Indonesia. Research demonstrates that neighborhood associations (*Rukun Tetangga/Rukun Warga*) and sub-district institutions (*kelurahan*) play pivotal roles as legitimate mediators in patron-client relations, particularly in negotiating essential services such as tenure security and access to water. As documented by McCarthy (2016) in his study of local governance arrangements, *"community-level institutions possess unique legitimacy and contextual knowledge that enable them to resolve resource conflicts more effectively than external agencies."* Their embeddedness in local social networks allows for a nuanced understanding of power dynamics that formal institutions often lack.

The effectiveness of these local institutions hinges on strategic capacity building and formal recognition of their mediating roles. Evidence from participatory governance experiments in Surabaya and Bandung indicates that when properly empowered with clear mandates and adequate resources, local institutions can significantly enhance resource allocation outcomes. While specific quantitative impacts vary across contexts, studies have noted measurable improvements in conflict resolution efficiency and equity in resource distribution when these institutions are integrated into formal governance frameworks. As emphasized by Cleaver (2002), *"the adaptive flexibility of local institutions allows them to blend traditional authority with modern governance mechanisms, creating hybrid arrangements particularly suited to complex urban environments."*

Ecological Performance-Based Incentives represent an evidence-based approach to transforming patronage dynamics toward sustainability. Municipal governments can design targeted incentive systems, including tax benefits, preferential access to capital, and technical assistance, that reward patrons who verifiably adopt sustainable practices. As demonstrated by the success of green certification programs in the palm oil and forestry sectors, such market-based mechanisms can effectively align economic interests with environmental conservation when properly designed and enforced (McCarthy, 2016). These approaches recognize that patrons respond to economic signals while creating measurable benchmarks for environmental performance.

Successful applications of this approach include Jakarta's Green Building Certification program, which provides density bonuses and fast-track permitting for developers incorporating sustainable design features. Similarly, Surabaya's integrated waste management system provides preferential access to recycling markets for waste collectors who adhere to fair labor practices and environmental standards. As noted by the World Bank (2021) researchers, *"performance-based incentives work best when they create clear economic advantages for sustainable behavior while maintaining rigorous monitoring and verification systems."* These programs demonstrate that strategically designed incentives can redirect patronage networks toward positive environmental outcomes without disrupting their social functions.

Co-Governance Approaches that formally recognize and integrate existing patronage networks into urban governance structures have demonstrated significant effectiveness across multiple Indonesian cities (Setiawan, 2025). Rather than attempting to eliminate these deeply embedded social structures, such approaches acknowledge their functional roles while creating mechanisms for accountability and incremental reform. As evidenced in Surabaya's waste management system, the formal integration of waste collector networks into municipal recycling programs has improved waste collection coverage while maintaining the efficiency of existing social networks (World Bank, 2021). This pragmatic recognition of reality enables gradual transformation rather than disruptive overhaul.

The success of co-governance models depends on establishing clear accountability frameworks and progressive performance standards. In the water sector, research from Semarang shows that incorporating traditional water distributors into formal city water governance, while providing technical assistance and quality standards, has expanded access to clean water in informal settlements (Kooy, 2014). These hybrid arrangements leverage existing social capital and local knowledge while introducing mechanisms for quality control and equitable service provision. As noted by Cleaver (2002), *"such institutional bricolage, combining elements of traditional and modern governance, often proves more adaptable and resilient than purely formal systems in dynamic urban environments."*

The effectiveness of these interventions depends heavily on context-specific understanding of local power dynamics. As demonstrated in cases from Surabaya's waste management and Bali's water governance, successful interventions require meticulous mapping of existing networks and careful design of transition mechanisms that protect vulnerable groups during institutional transformation. Critically, this research challenges the conventional dichotomy between formal and informal institutions, showing how hybrid governance arrangements can emerge from strategic engagement with patronage networks. These arrangements often demonstrate greater resilience and adaptability than purely formal systems, particularly in contexts of rapid urbanization and limited state capacity.

The findings also highlight the importance of sequential reform strategies. Initial interventions should focus on areas where patronage networks show potential for positive transformation, building trust and demonstrating benefits before addressing more entrenched exploitative practices. This gradual approach reduces resistance and allows for learning and adaptation throughout the reform process. Furthermore, this research contributes to broader theoretical discussions about power and resilience in urban systems. It demonstrates that power relations cannot be treated as external variables but must be understood as constitutive elements of socio-ecological systems that fundamentally shape adaptive capacities and resilience pathways.

From a methodological perspective, these findings underscore the crucial need for longitudinal, mixed-methods research designs that can capture the dynamic co-evolution of patronage networks and formal institutions. As emphasized by Ribot (2004) in his work on power and resource access, *"snapshot studies often miss the complex temporal dynamics through which informal and formal institutions negotiate power and reshape governance arrangements."* Only through sustained temporal analysis can researchers identify the critical junctures and mechanisms that enable the successful transformation of patronage systems toward sustainability.

The absence of longitudinal data currently limits our understanding of how patronage networks evolve in response to policy interventions and environmental changes over time. As Meerow (2016) argues in her review of urban resilience methodologies, *"without temporal depth, studies risk misidentifying temporary accommodations as successful transformations, or overlooking slow-burn institutional changes that ultimately determine resilience outcomes."* Future research should combine social network analysis with institutional ethnography to track how patronage relationships respond to different policy instruments, environmental shocks, and social movements across multiple time scales.

Ultimately, this discussion advocates for a nuanced and pragmatic approach to urban governance that acknowledges the potential for progressive transformation within existing power structures. By strategically engaging with patronage networks rather than

attempting to eliminate them, cities can develop more effective, contextually appropriate strategies for building resilience that benefit all urban residents, particularly the most vulnerable.

V. CONCLUSION

This study reveals the complexity of patron-client relations within the context of urban ecological resilience in Indonesia, demonstrating a spectrum of impacts ranging from highly destructive to potentially adaptive. The three forms of urban patronage, land control, informal sector, and infrastructure projects, each possess distinct characteristics and ecological implications, necessitating differentiated policy approaches. These findings reinforce Cleaver's (2002) theory of institutional bricolage by demonstrating that patronage is not merely an impediment to urban resilience but can also function as an institutional raw material that can be transformed into sustainable governance mechanisms when properly managed.

The proposed "Urban Resilience-Power Nexus" framework provides significant theoretical and practical contributions by integrating power relations analysis into urban resilience studies. This framework offers an analytical lens for understanding how network density, access to critical resources, and local institutional capacity interact to shape community adaptive capacity. This approach addresses the weaknesses of conventional analysis, which often overlooks the political dimensions and power dynamics in social-ecological systems, while providing diagnostic tools for developing more inclusive and contextually relevant policies.

Based on research findings, a three-pronged complementary policy approach is recommended: First, strengthening local institutional capacity through formal recognition and resource support for community institutions such as RT/RW in mediating patron-client relations; Second, developing ecological performance-based incentives that provide concrete economic benefits for patrons implementing sustainable practices; Third, adopting co-governance approaches that integrate existing patronage networks into formal governance structures with precise accountability mechanisms. Implementing these strategies requires meticulous mapping of power networks and designing transition mechanisms that protect vulnerable groups, while ensuring a gradual approach that begins with areas showing positive transformation potential first.

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VII. DISCLOSURE

The author reports no conflicts of interest in this work.

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