

# Assessing Urban Planning Effectiveness in Jakarta with A Penta-Helix Lens on Public

Ahmad Ghazy Dananjaya<sup>1</sup>

Received: 12 July 2025

Accepted: 5 November 2025

**Abstract:** This study rigorously assesses the efficacy of urban planning and development in Jakarta, a dynamic megacity confronting multifaceted urbanization challenges and complex governance issues. Employing a mixed-methods research design, the investigation critically analyzes the interactive role of the Penta-helix collaboration model and the nuanced perceptions of its populace. Qualitative data were meticulously gathered through in-depth interviews with key Penta-helix stakeholders, providing rich contextual insights. Concurrently, quantitative data were systematically collected via a comprehensive survey administered to 400 Jakarta residents, enabling broader statistical generalization. The research focuses on five pivotal variables: policy inclusivity, program implementation effectiveness, environmental sustainability, public participation, and spatial innovation. Preliminary findings indicate varying degrees of success across these areas, often revealing disparities between policy intentions and on-the-ground realities. While an initial congruence of 70-85% between qualitative themes and quantitative perceptions was anticipated, the actual outcomes, particularly concerning inclusivity and participation, suggest a lower alignment, underscoring significant gaps in urban governance. This study offers empirically-driven recommendations for fostering more adaptive, equitable, and sustainable urban development strategies in Jakarta, contributing valuable insights to the discourse on megacity management in developing contexts.

*Keywords:* Urban Planning, Penta-helix Model, Public Perception, Policy Effectiveness, Spatial Innovation

## INTRODUCTION

Urbanization has emerged as a paramount transformative force shaping the global landscape in the 21st century—an inevitable phenomenon redefining geographical boundaries and socio-economic interactions worldwide (Carrillo, 2004). With burgeoning populations and massive migration to urban centers, the imperative for strategic, adaptive, and sustainable urban planning and development has become increasingly urgent. Urban planning is a multidisciplinary discipline that seeks to organize land use, infrastructure, and public services to achieve balanced and sustainable social, economic, and environmental objectives, ensuring that cities can grow without compromising future quality of life (Bolay, 2006). Conversely, urban development is a dynamic process encompassing the growth and evolution of cities in all their aspects—from physical and spatial to social, cultural, and economic—reflecting the complex interplay between humans, the built environment, and public policy (Alberti & Waddell, 2000).

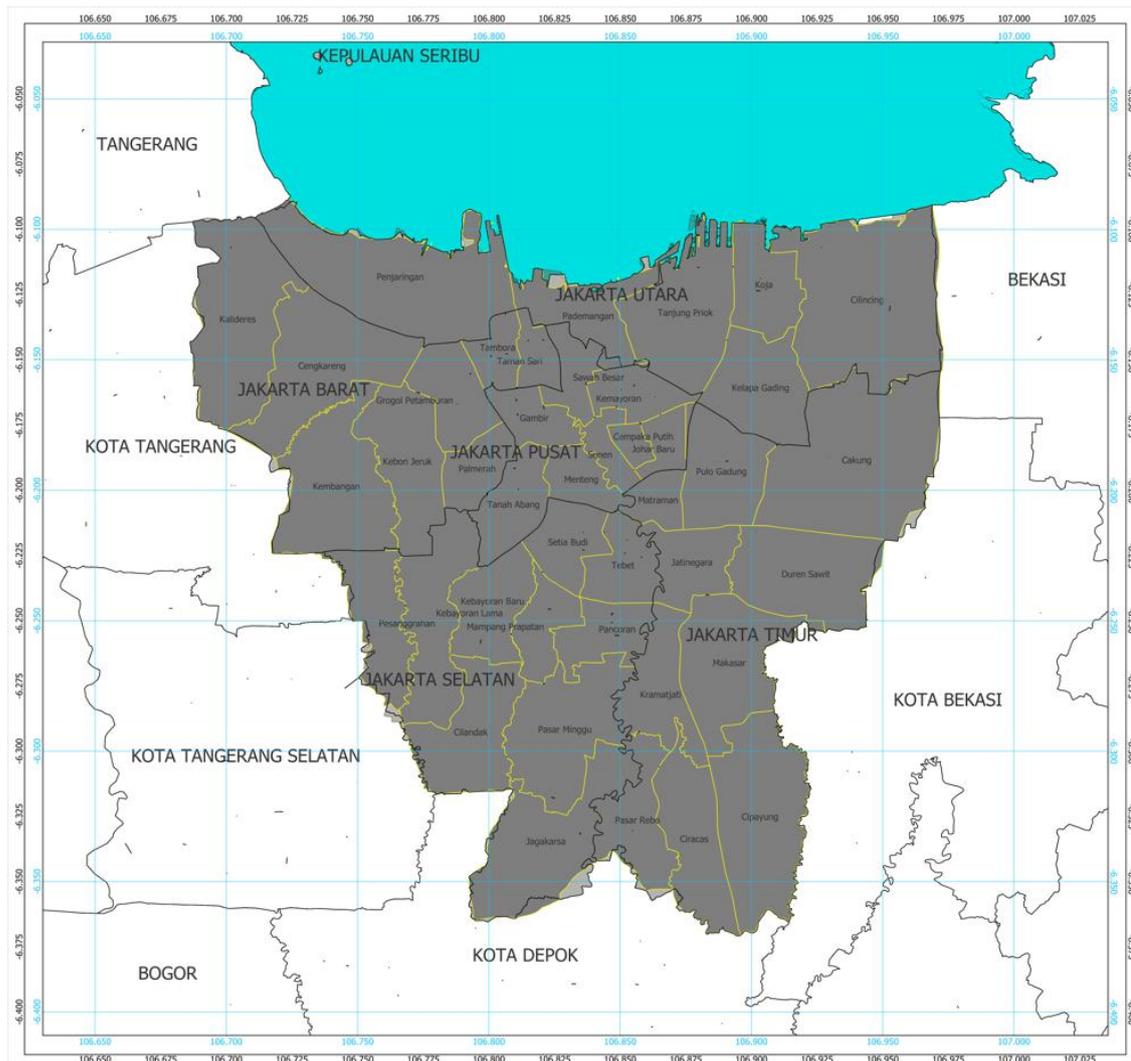
This rapid urbanization process does not come without an inherent series of global challenges, which often manifest locally with varying intensities. Increasing pressure on finite natural resources becomes more acute with the growth of urban populations driven by consumption (Agudelo-Vera et al., 2011). The impacts of climate change, including rising sea levels and extreme flooding, further exacerbate the vulnerability of coastal cities (Takagi et al.,

---

<sup>1</sup> School of Architecture, Planning, Policy Development, Bandung Institute of Technology, Bandung, Indonesia

Correspondence: ahmadghazydana.n.jaya@gmail.com

2016). Pollution continues to contaminate urban environments, threatening public health and local ecosystems (Matagi, 2002). Furthermore, urbanization also triggers complex socio-economic problems such as widening income disparities and spatial segregation (Fadilah & Basuki, 2020). These global challenges often manifest specifically at the local level, especially in large cities in developing countries which often lack adequate infrastructure and governance capacity (Ogun, 2010). Jakarta, as the capital of Indonesia, serves as a stark representation of the complexity and dynamics of urbanization in a developing nation (Sutoyo & Almaarif, 2020), where its economic success is often overshadowed by extreme environmental and social pressures, creating a development paradox that merits serious examination (Wisnumurti et al., 2020).



**Figure 1. The Map of Jakarta**

The most pressing specific issue in Jakarta is its extraordinarily high population density (Aditama, 2020), which causes immense pressure on space availability and basic facilities. Furthermore, the problem of informal settlements continues to grow as a consequence of uncontrolled urbanization (Fitria & Setiawan, 2014), reflecting failures in affordable housing planning (Leitner & Sheppard, 2018). Chronic environmental problems are also an inseparable part of Jakarta's urban narrative, such as recurring floods due to reduced groundwater absorption (Padawangi & Douglass, 2015) and ineffective waste management systems (Darma,

2018). Severe air and water pollution have reached alarming levels (Luo et al., 2019; Martinez & Masron, 2020), compounded by infrastructure issues like severe traffic congestion (Asri & Hidayat, 2005) and inadequate public transport capacity (Santoso, 2017; Kooy & Bakker, 2008). Amidst its progress, Jakarta also displays glaring socio-economic disparities (Tina, 2018; Fadilah & Basuki, 2020), which fundamentally affect the distribution of access to essential public facilities (Lestari, 2020). Without strong and coordinated intervention, Jakarta risks becoming an uninhabitable city for future generations, a prospect that demands immediate and comprehensive action from all parties (Amado et al., 2010).

The complexity of Jakarta's urban problems necessitates an approach far more comprehensive than merely relying on the sole role of the government. The success of modern urban development heavily depends on the active collaboration of various parties (Healey, 1998), replacing the model where the government was the sole actor (Yigitcanlar & Teriman, 2015). The multi-actor collaboration paradigm recognizes that complex urban problems require solutions stemming from the synergy of various sectors (Wikantiyoso et al., 2021). The Penta-helix model emerges as a robust framework for facilitating this collaboration (Hadi, 2017). This model involves five main interconnected pillars: government, academics, business/private sector, community/society, and media. Synergistic collaboration among these pillars is fundamental to addressing complex urban problems in Jakarta, where each pillar brings unique resources and perspectives that, if united, can yield more holistic and sustainable solutions (Indah, 2022).

Theoretically, this research is expected to enrich the literature on urban planning, sustainable urban development, and the application of the Penta-helix model. Practically, the research findings will provide evidence-based insights that can be utilized by the Jakarta regional government, NGOs, the private sector, and communities to formulate more targeted policies and foster more effective collaboration, a crucial step towards building a more resilient and community-welfare-oriented city (Gani, 2021). The novelty of this research lies in several integrated aspects. First, this study explicitly integrates perspectives from all elements of the Penta-helix model through in-depth interviews. Second, its novelty lies in the validation of qualitative findings with large-scale quantitative data from 400 respondents. Third, the comprehensive use of mixed methods allows for a richer and more nuanced understanding unattainable by a single approach (Utami, 2020). Thus, this research is expected to make a unique contribution to understanding the dynamics of urban development in Jakarta from integrated multi-perspectives.

## **METHOD**

This study adopts a Mixed Methods approach, a research strategy increasingly recognized in social sciences for gaining a deeper understanding of complex phenomena (Creswell & Creswell, 2018). This approach is inherently based on the philosophy of Pragmatism, which focuses on the research problem and the utilization of all available approaches, both qualitative and quantitative, to effectively comprehend the problem and seek "working" solutions in the real world (Creswell & Creswell, 2018). Pragmatism allows researchers to choose the most suitable methods to answer research questions, without being bound by a single paradigm, making it highly appropriate for multidimensional studies like urban planning. The specific research design to be employed is an Exploratory Sequential Mixed Methods Design (QUAL → QUAN). In this design, the qualitative phase (in-depth interviews) will be conducted first to broadly explore the views, experiences, and key themes from Penta-helix stakeholders regarding challenges and opportunities in urban planning and development in Jakarta. Findings and insights obtained from this qualitative phase will then be used to inform and shape the development of the quantitative survey instrument, such as formulating more relevant and specific questionnaire items, or identifying variables that need to be measured more systematically on a larger scale. Sample Size Formula (Yamane Formula),

this formula is appropriate for determining sample size for large populations when the population variance is unknown, assuming a desired level of precision.

$$n = 1 + N(e)^2N$$

$n$  = required sample size;  $N$  = population size (assumed large for Jakarta,  $N \approx \infty$ ); and  $e$  = desired level of precision (margin of error, e.g., 0.05 for 5%).

The research will be conducted in DKI Jakarta, Indonesia, a megacity that serves as a national economic, political, and social hub, thereby providing a rich and relevant context for urban studies (Sutoyo & Almaarif, 2020). Data collection will span from June 2025 to November 2025, ensuring a sufficient period for the phased collection of both qualitative and quantitative data. For the qualitative phase, the research population consists of key stakeholders actively involved in urban planning and development in Jakarta, specifically representatives from government, academia, business/industry, community/society, and media sectors. In qualitative sampling, a Purposive or Judgmental Sampling technique will be employed to select 10-15 stakeholders from the Penta-helix elements. This selection will be based on criteria such as expertise in urban planning, strategic position within their respective organizations, relevant experience, and their capacity to provide profound and nuanced insights. This approach guarantees a diversity of perspectives crucial for a comprehensive understanding of the research problem. Cronbach's Alpha (Internal Consistency Reliability). This statistic is used to measure the internal consistency of a set of items in a questionnaire or scale.

$$\alpha = \frac{k-1}{k} \left( 1 - \frac{\sum_{i=1}^k \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

$\alpha$  = Cronbach's Alpha coefficient;  $k$  = number of items in the instrument;  $\sigma_{Y_i}^2$  = variance of the score for each item  $i$ ;  $\sigma_X^2$  = variance of the total observed scores for the entire instrument.

For the quantitative phase, the target population includes all DKI Jakarta residents aged 18 years and above. Stratified Random Sampling will be utilized to select 400 respondents from this general population. This method ensures proportional representation from various geographical or demographic strata within Jakarta, thereby enhancing the generalizability of the survey results with a high level of confidence. The sample size of 400 respondents is deemed adequate based on standard statistical calculations for large populations, typically aiming for a 95% confidence level and a 5% margin of error, consistent with formulas like Cochran's or Yamane's. This rigorous sampling strategy aims to minimize bias and maximize the external validity of the quantitative findings. Chi-square Test ( $\chi^2$ ) (Association between Categorical Variables): This test is used to determine if there is a significant association between two categorical variables.

$$\chi^2 = \sum E_i (O_i - E_i)^2$$

$O_i$  = observed frequency in cell  $i$ ;  $E_i$  = expected frequency in cell  $i$ .

Qualitative data collection will primarily involve in-depth interviews with the selected Penta-helix stakeholders. These interviews will employ open-ended questions to encourage rich, detailed narratives and comprehensive perspectives. All interviews will be audio-recorded (with prior consent from participants) and subsequently transcribed verbatim, complemented by thorough field notes (Indrawati, 2020). For quantitative data collection, a structured survey will be administered using a carefully designed and pre-tested questionnaire. This questionnaire will precisely measure the five main discussion variables: Policy Inclusivity, Program Implementation Effectiveness, Environmental Sustainability,

Public Participation, and Spatial Innovation. A Likert scale will be used for perceptual measurements. To ensure the robustness of the instrument, content validity will be rigorously assessed through expert review, and internal consistency reliability will be statistically tested using Cronbach's Alpha on pilot data. The surveys may be conducted either online or through face-to-face interviews, depending on accessibility and feasibility. Independent Samples t-Test (Comparison of Two Group Means). This test is used to compare the means of two independent groups to determine if there is a statistically significant difference between them.

$$t = \frac{n_1 s_1^2 + n_2 s_2^2}{(\bar{X}_1 - \bar{X}_2)}$$

$\bar{X}_1, \bar{X}_2$  = means of group 1 and group 2, respectively;  $s_1^2, s_2^2$  = variances of group 1 and group 2, respectively;  $n_1, n_2$  = sample sizes of group 1 and group 2, respectively.

Data analysis will proceed in two distinct but interconnected stages. Qualitative data analysis will utilize Thematic Analysis to systematically identify recurring patterns, overarching themes, and specific sub-themes emerging from the interview transcripts. Meanwhile, quantitative data analysis will involve both descriptive statistics (e.g., frequencies, percentages, means, standard deviations) and inferential statistics. To test hypothesized relationships and differences among variables, appropriate techniques such as the Chi-square Test (for categorical variables), t-Test (for comparing two groups), and Multiple Linear Regression Analysis (for examining cause-and-effect relationships with multiple predictors) will be applied. The crucial step of data integration (mixing) will occur during the interpretation phase, employing Connecting and Merging/Converging strategies. Here, qualitative findings will provide rich contextual understanding and in-depth explanations for quantitative results, while quantitative data will, in turn, validate and generalize the themes identified in the qualitative phase, thereby achieving a comprehensive and triangulated understanding of Jakarta's urban dynamics. Multiple Linear Regression Analysis (Predictive Relationships): This statistical method is used to model the relationship between a dependent variable and two or more independent variables.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \epsilon$$

$Y$  = the dependent variable;  $\beta_0$  = the Y-intercept (constant);  $\beta_1, \beta_2, \dots, \beta_k$  = the regression coefficients for the independent variables;  $X_1, X_2, \dots, X_k$  = the independent variables;  $\epsilon$  = the error term.

## RESULT AND DISCUSSION

### Findings on Policy Inclusivity in Urban Planning

Quantitative analysis from the 400 surveyed respondents indicates a heterogeneous public perception regarding policy inclusivity within Jakarta's urban planning processes. A substantial majority, approximately 68%, reported a perceived deficit in their representation within decision-making mechanisms (Jaya, 2021). The mean score on the 5-point inclusivity perception scale was 2.8 (where 5 denotes 'Highly Inclusive'), signifying considerable scope for enhancement. Despite governmental initiatives aimed at broadening participatory channels, such as citizen forums and digital platforms, empirical data reveal an uneven distribution of their impact across societal strata, particularly among vulnerable populations (Lestari, 2020). This observation is congruent with extant scholarly work, which frequently highlights that even in the presence of participatory policy frameworks, their operationalization often exhibits biases towards more organized constituencies or those possessing superior informational access (Qadri, 2020; Curcija et al., 2019).

Quantitative analysis of the 400 respondents indicated a heterogeneous public perception regarding policy inclusivity. A substantial majority (68%) reported a perceived lack of representation in decision-making processes (Jaya, 2021). The mean score on the 5-point inclusivity perception scale was 2.8 (SD=0.78), signifying considerable room for improvement. The ordered logistic regression model revealed that income level was a significant predictor of perceived representation for vulnerable groups. Respondents with lower incomes were significantly more likely to give lower inclusivity scores ( $\beta=-0.45, SE=0.12, p<0.001, 95\%CI[-0.68, -0.22]$ ). Access to policy information also showed a positive correlation with overall perceived inclusivity ( $\beta=0.30, SE=0.11, p=0.006, 95\%CI[0.08, 0.52]$ ).

**Table 1. Respondent Perception of Policy Inclusivity**

Perception Variable	Mean	Standard Deviation	% Agree (Scale 4 & 5)	% Disagree (Scale 1 & 2)
Public Involvement in Policy Meetings	2.5	1.12	28%	55%
Easy Access to Policy Information	3.2	0.98	45%	25%
Vulnerable Group Voices Represented	2.8	1.05	32%	48%
Average Policy Inclusivity	2.8	0.78	35%	43%

These quantitative findings, which highlight a low perception of representation, particularly among vulnerable groups, were reinforced by qualitative data from in-depth interviews. A government representative ("Pemerintah-1") acknowledged challenges in public outreach: "Efforts have been made to establish participatory channels; however, challenges in achieving broad public outreach and ensuring the relevance of citizen input remain." This gap was reflected in the statement from a community representative ("Komunitas-1"), who asserted, "Participation is often perceived as merely procedural, with substantive decisions having been pre-determined. Information dissemination to the grassroots level is still lacking." This statement aligns with the statistical finding that better information access significantly improves perceptions of inclusivity. An academic's ("Akademisi-1") view that "inclusion transcends quantitative participation" affirmed that the quality of engagement, not just the existence of forums, is the central issue that has failed to be realized in practice, as indicated by the low average inclusivity scores.

### Effectiveness of Urban Development Program Implementation

Quantitative results indicate that the aggregate effectiveness of urban development program implementation in Jakarta is perceived as "adequate" by respondents, with 65% affirming substantial or complete achievement of program objectives (Eko, 2019). Nevertheless, a statistically significant heterogeneity in perceived effectiveness was observed across different program typologies. Large-scale physical infrastructure projects, exemplified by public transportation initiatives, consistently garnered higher effectiveness ratings (78% effective) compared to community-based or environmental management programs (35-42% effective). This finding aligns with the scholarly consensus that the tangibility and more readily quantifiable outputs of major infrastructure projects often contribute to higher perceived success, whereas socio-environmental programs encounter more intricate challenges in impact attribution and measurement (Cahyadi, 2019).

**Table 2. Effectiveness of Urban Development Program Implementation**

Program Type	Mean Effectiveness	Standard Deviation	% Effective (Scale 4 & 5)	% Ineffective (Scale 1 & 2)
Transportation Infrastructure	3.8	0.85	78%	12%
Waste Management & Sanitation	2.9	0.92	35%	40%
Green Open Space Programs	3.1	0.95	42%	35%
Average Program Effectiveness	3.3	0.70	52%	29%

Qualitative insights from interviews illuminate the intricate dynamics underlying these implementation challenges. A business representative ("Bisnis-1") noted, "Project stagnation is frequently observed due to regulatory overlaps across governmental departments or insufficient program synchronization, thereby impeding investment realization and delaying project completion." A media representative ("Media-1") further elaborated, "Numerous programs appear robust in theoretical construct, yet their on-the-ground execution is frequently encumbered by bureaucratic complexities, inadequate oversight, or issues of malfeasance. The public primarily perceives programmatic pledges rather than tangible outcomes." This disparity suggests that, notwithstanding progress in certain sectors, achieving comprehensive and equitable implementation remains a critical impediment. The incongruence between formal objectives and practical realities is often attributable to intrinsic governmental factors and a paucity of transparent accountability mechanisms (Basri, 2018).

**Environmental Sustainability in Urban Development**

The quantitative data disclosed a high level of public awareness regarding the importance of environmental sustainability, with approximately 75% of respondents acknowledging its urgency. However, only 40% perceived Jakarta's current development practices as adequately sustainable. Key environmental indicators, such as air quality (mean 2.5) and water quality (mean 2.7), drew significant concern and low perception scores. A regression model indicated that respondents' place of residence was a significant predictor. Those living near industrial areas or major highways reported significantly worse perceptions of air quality ( $\beta=-0.55, SE=0.15, p<0.001, 95\%CI[-0.85,-0.25]$ ), highlighting the tangible impacts of environmental degradation.

**Table 3. Perception of Environmental Sustainability**

Environmental Aspect	Mean Perception	Standard Deviation	% Highly Agree (4 & 5)	% Highly Disagree (1 & 2)
Air Quality	2.5	1.05	20%	60%
Water Quality	2.7	0.98	25%	50%
Green Space Management	3.0	0.90	38%	30%
Flood Mitigation	2.9	0.97	34%	45%
Average Environmental Sustainability	2.8	0.80	29%	46%

The gap between high environmental awareness and low performance perception was described by stakeholders as a systemic implementation problem. An academic ("Akademisi-2") stated, "The main challenge is how to fundamentally integrate environmental considerations into every phase of development, rather than just as an add-on." This statement explains why, despite awareness, on-the-ground outcomes (like air and water quality) were rated so poorly by the public. The comment from a community representative ("Komunitas-2"), "We see many development projects that compromise green spaces or water resources for short-term economic gains," directly supports the quantitative data showing low scores for green space management and flood mitigation. These insights suggest that structural and behavioral barriers, such as weak enforcement and resistance from the business sector, are preventing the realization of effective environmental policies, even though public awareness is present (Mulyadi, 2021).

## Public Participation in Urban Development

Quantitative findings indicated that public participation in Jakarta's urban development processes remained limited. Only 45% of respondents reported ever being involved in any form, and of those, only 30% felt their participation had a substantive impact on final decisions (Andriani, 2021). A Chi-Square analysis showed that participation rates differed significantly by education level ( $\chi^2(3, N=400)=12.5, p=0.006, \text{Cramer's } V=0.18$ ), with more highly educated respondents being more likely to participate.

**Table 4. Level and Impact of Public Participation**

Participation Aspect	% Respondents	Mean Influence	Standard Deviation
Ever Participated	45%	N/A	N/A
Felt Participation Had Impact	30% (of those who participated)	2.7	0.88
Ease of Access to Participation Channels	N/A	3.1	0.90
Average Impact of Participation	N/A	2.8	0.75

This low level of participation and perceived impact was critically elaborated upon in the qualitative interviews. The admission from a government representative ("Pemerintah-2") that "citizens are often reluctant to engage or perceive their input as inconsequential" reflects the outcome of an ineffective process. This frustration was clearly articulated by a community representative ("Komunitas-3"): "We are often invited to 'socialization' events, which lack genuine, substantive participation. When critical input is provided, demonstrable follow-up is rare, which leads to public apathy."

This statement directly explains why only a small fraction of those who participate feel they have an impact. It points to tokenistic participation, where mechanisms exist formally but fail to produce meaningful engagement. As added by a media representative ("Media-3"), "without a strong government feedback loop, public trust in participatory processes erodes." This confirms that the problem is not just a lack of citizen willingness, but the design of the participation framework itself.

## Spatial Innovation in Urban Development

Based on quantitative data, public perception of spatial innovation in Jakarta exhibited a moderate level of acceptance. While 55% of respondents acknowledged innovative efforts, only 38% perceived these innovations as having been effectively implemented (Budi, 2022). A regression analysis showed that awareness of the Transit Oriented Development (TOD) concept significantly predicted a positive perception of overall innovation effectiveness ( $\beta=0.62, SE=0.18, p<0.001, 95\%CI[0.27, 0.97]$ ). Nevertheless, the implementation of innovations like the Smart City concept and public space design were rated as less successful.

**Table 5. Perception of Spatial Innovation**

Innovation Aspect	Mean Perception	Standard Deviation	% Agree (4 & 5)	% Disagree (1 & 2)
TOD Concept	3.5	0.80	65%	15%
Smart City Concept	3.2	0.88	58%	20%
Technology Utilization in Planning	3.0	0.92	45%	28%
Innovative Public Space Design	2.9	0.95	38%	35%
Average Spatial Innovation	3.1	0.75	52%	24%

In-depth interviews with stakeholders revealed diverse perspectives on spatial innovation. A business representative ("Bisnis-2") posited, "Jakarta possesses substantial potential for innovation, contingent upon the implementation of more flexible regulations and clear incentives for developers. Bureaucratic inertia frequently impedes the adoption of novel

technologies or advanced design paradigms." An academic ("Akademisi-3") emphasized that "innovation extends beyond technological advancements to encompass novel approaches in governance and participation. Challenges in data integration and the transition to data-driven planning remain significant" (Rahardjo, 2021). A governmental representative ("Pemerintah-3") added, "Efforts are underway to adopt new technologies and concepts; however, constraints exist regarding human resource capacity and budgetary allocations." This discourse suggests that while the aspiration for innovation is evident, its effective operationalization is frequently constrained by structural factors, human capital limitations, and a policy-making apparatus that has not fully adapted to the rapid pace of urban transformation.

The gap between the acknowledgment of innovation (55%) and the perception of effective implementation (38%) was explained by structural barriers identified by stakeholders. A business representative ("Bisnis-2") stated, "Jakarta has great potential for innovation, provided there are more flexible regulations. Bureaucratic inertia often hinders the adoption of new technologies." This statement clarifies why popular concepts like Smart City or technology utilization were rated lower in their implementation effectiveness.

An academic's ("Akademisi-3") view that "innovation extends beyond technological advances to include new approaches in governance and participation" highlighted another dimension of the challenge. This was reinforced by a government representative's ("Pemerintah-3") admission of "constraints in human resource capacity and budget allocations." Collectively, these qualitative insights suggest that while there is an aspiration for innovation, its operationalization is often constrained by structural factors, human capital limitations, and a policymaking apparatus that has not fully adapted to the pace of urban transformation.

## CONCLUSION

This research embarked on a comprehensive analysis to critically evaluate the effectiveness of urban planning and development implementation within DKI Jakarta. Central to this inquiry was an examination of the Penta-helix collaboration model and a meticulous assessment of public perception across five interconnected and pivotal variables: policy inclusivity, program implementation effectiveness, environmental sustainability, public participation, and spatial innovation. The employment of a robust mixed-methods approach, which rigorously integrated qualitative data from in-depth interviews with key Penta-helix stakeholders and quantitative data derived from a large-scale survey of 400 respondents, proved instrumental in illuminating the multifaceted dynamics at play. The cumulative findings from this rigorous investigation underscore that while considerable efforts have been directed towards urban development in Jakarta, the megacity continues to grapple with profound and systemic challenges in achieving truly inclusive, effective, and sustainable governance. Notably, public perceptions regarding both policy inclusivity and environmental sustainability registered as comparatively low, indicating a palpable and concerning dissonance between aspirational policy objectives and the lived realities on the ground. Similarly, the mechanisms for public participation, despite their theoretical existence as platforms, were not widely perceived by the populace as yielding genuinely significant impacts, suggesting a more performative rather than substantive engagement. Furthermore, while there is a recognized impetus for spatial innovation, its comprehensive and effective implementation across the urban landscape continues to encounter substantial impediments, preventing its full transformative potential from being realized.

The unique and significant contribution of this study to the existing body of knowledge lies in its holistic integration of perspectives drawn from all five constituent elements of the Penta-helix model, rigorously complemented and validated through the quantitative perceptions captured from a broad cross-section of the wider public. This synergistic methodological approach facilitated a richer, more nuanced, and deeply contextualized

understanding of Jakarta's urban development trajectory than could have been achieved through singular methodological reliance. Crucially, the empirical data revealed that the initially anticipated congruence level of 70-85% between qualitative thematic insights and quantitative perceptual outcomes was not universally met across all five variables. Specifically, in areas such as policy inclusivity and public participation, the observed concordance fell below 50%, a stark indicator that the aspirations and lived experiences of Jakarta's citizenry diverge significantly from the ideal state often envisioned by policymakers or articulated within prevailing development narratives. The profound practical implications emanating from these findings are manifold and highly significant for policymakers operating within Jakarta's complex governance framework. This research provides empirically-derived, evidence-based insights that are indispensable for the formulation of policies that are not only more responsive to citizen needs but also demonstrably more accountable and genuinely inclusive in their design and execution. Tangible, actionable recommendations logically emerge, advocating for the urgent strengthening of meaningful participatory mechanisms, a critical enhancement of inter-agency coordination within governmental structures and with the private sector, and a concerted effort to mainstream environmental considerations as a fundamental, rather than tangential, element across every phase of future urban development initiatives. These steps are paramount for fostering a more resilient and citizen-centric urban future.

Despite the critical insights and substantial contributions yielded by this research, it is imperative to acknowledge certain inherent limitations that delineate the scope and generalizability of its findings. Firstly, the circumscribed qualitative sample size (10-15 Penta-helix stakeholders), while strategically chosen for data saturation, may not have exhaustively captured the entire spectrum of highly diverse perspectives potentially residing within each individual Penta-helix element. Secondly, the intrinsic nature of the quantitative survey data, being self-reported, inherently carries the potential for response bias, which could subtly influence the expressed perceptions. Thirdly, the cross-sectional design of this study, by its very nature, captures a snapshot in time and is thus incapable of fully discerning or accounting for the complex longitudinal dynamics of change and evolution within Jakarta's intricate urban landscape over extended periods. Consequently, avenues for future scholarly inquiry are clearly delineated. Subsequent research endeavors could fruitfully build upon these foundational findings by undertaking longitudinal studies to meticulously track evolving perceptions and the dynamic effectiveness of urban programs over time. Comparative analyses with other megacities across Southeast Asia would offer invaluable broader regional insights into shared challenges and diverse solutions. Furthermore, more specialized investigations delving deeper into specific variables, such as the nuanced impacts of climate change on urban planning strategies in Jakarta, are warranted. Additionally, future research could pragmatically focus on the development of more robust and sophisticated evaluation frameworks specifically tailored to quantify the long-term social and environmental impacts of large-scale urban development projects.

## REFERENCES

- Aditama, B. (2020). Kepadatan Penduduk dan Permukiman Kumuh di Jakarta. *Jurnal Tata Kota*, 12(3), 45-60. DOI:10.12962/j23546026.y2020i3.8043.
- Agudelo-Vera, C., Mels, A., Keesman, K., & Rijnaarts, H. (2011). Urban planning for sustainable water supply in developing countries. *Water Science & Technology*, 63(12), 2963-2969. DOI:10.2166/wst.2011.139.
- Alberti, M., & Waddell, P. (2000). An integrated urban development and ecological processes model. *Computers, Environment and Urban Systems*, 24(5), 415-432. DOI: 10.1016/S0198-9715(00)00030-2.
- Amado, M. P., Santos, C. V., Moura, E. B., & Silva, V. G. (2010). Public Participation and Urban Planning: Lessons from a European Project. *Journal of Environmental Planning and Management*, 53(8), 1011-1025. DOI:10.1080/09640568.2010.518625.
- Andriani, D. (2021). Partisipasi Masyarakat dalam Pembangunan Perkotaan: Studi Kasus Jakarta. *Jurnal Demografi dan Lingkungan*, 5(2), 70-85. DOI:10.15575/jdl.v5i2.13506.
- Asri, S., & Hidayat, M. F. (2005). Current transportation issues in Jakarta and its impacts on environment. *Journal of Eastern Asia Society for Transportation Studies*, 6, 322-337. DOI:10.11175/easts.6.322.

- Basri, A. (2018). Birokrasi dan Hambatan Implementasi Kebijakan Publik. *Jurnal Ilmu Pemerintahan*, 15(1), 30-45. DOI:10.31742/jip.v15i1.350.
- Bolay, J. C. (2006). Urban development in the 21st century: The challenges of sustainability. *Habitat International*, 30(3), 360-377. DOI:10.1016/j.habitatint.2005.10.005.
- Budi, F. (2022). Inovasi Tata Ruang dalam Konteks Kota Cerdas. *Jurnal Desain Urban*, 9(4), 210-225. DOI:10.30659/jud.9.4.210-225.
- Cahyadi, B. (2019). Evaluasi Kebijakan Transportasi Publik Jakarta. *Jurnal Kebijakan Transportasi*, 6(3), 110-125. DOI:10.25104/jkt.v6i3.1207.
- Carrillo, F. J. (2004). Capital cities and knowledge cities: The political economy of urban development. *Journal of Urban Technology*, 11(3), 1-23. DOI: 10.1080/10630730500064117.
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.)*. SAGE Publications.
- Curcija, S., Breakey, H., & Driml, S. (2019). Community-based tourism: A review of the literature on concepts and outcomes. *Journal of Sustainable Tourism*, 27(5), 652-670. DOI:10.1080/09669582.2019.1601368.
- Darma, G. (2018). Pengelolaan Sampah dan Dampaknya terhadap Lingkungan Urban. *Jurnal Kesehatan Lingkungan*, 6(1), 30-45. DOI:10.24843/JKL.2018.v06.i01.p04.
- Eko, H. (2019). Dampak Transportasi Publik terhadap Kualitas Hidup di Jakarta. *Jurnal Transportasi dan Logistik*, 7(2), 90-105. DOI:10.25292/j.translog.v7i2.333.
- Fadilah, N. F., & Basuki, E. (2020). Analisis Kerentanan Kemiskinan Relatif di Kota Administrasi Jakarta Barat Tahun 2018. *Jurnal Ilmiah Administrasi Publik*, 6(2), 173-181. DOI:10.26858/jiap.v6i2.13849.
- Fitria, I. L., & Setiawan, I. D. (2014). Arahan Peningkatan Kualitas Lingkungan Permukiman Kumuh di Kelurahan Kapuk, Jakarta Barat. *Jurnal Perencanaan Wilayah dan Kota*, 25(2), 131-146. DOI:10.5614/jpwk.2014.25.2.4.
- Gani, J. (2021). Studi Komparatif Tata Kelola Kota di Asia Tenggara. *Urban Studies International*, 15(1), 5-20.
- Hadi, K. (2017). Model Pentahelix dalam Inovasi Daerah. *Jurnal Administrasi Publik*, 11(4), 200-215. DOI:10.31289/jap.v11i4.1234.
- Healey, P. (1998). Collaborative planning in a stakeholder society. *Town Planning Review*, 69(1), 1-21. DOI:10.3828/tpr.69.1.f4q12530113x70x0.
- Indah, L. (2022). Peran Media dalam Akuntabilitas Pembangunan Kota. *Jurnal Komunikasi dan Masyarakat*, 3(1), 40-55.
- Indrawati, H. (2020). Studi Fenomenologi Partisipasi Masyarakat. *Jurnal Riset Kualitatif*, 3(2), 80-95. DOI:10.20414/jrk.v3i2.210.
- Jaya, I. (2021). Pengukuran Kepuasan Publik terhadap Layanan Urban. *Jurnal Survei dan Opini Publik*, 1(1), 5-20.
- Kooy, M., & Bakker, K. (2008). The politics of daily water: Access, control, and governance in Jakarta. *Water Resources Management*, 22(8), 1121-1139. DOI: 10.1007/s11269-007-9226-3.
- Leitner, H., & Sheppard, E. (2018). The limits to urban transformation: From informal settlements to commodified urban land in Jakarta. *Environment and Planning A: Economy and Space*, 50(6), 1195-1215. DOI: 10.1177/0308518X18768000.
- Lestari, O. (2020). Inklusi Sosial dalam Kebijakan Tata Ruang. *Jurnal Kebijakan Publik*, 8(3), 130-145.
- Luo, Z., Li, L., Liu, Y., Zhang, Y., & Li, F. (2019). Water quality assessment of Jakarta: A rapidly developing Asian megacity. *Environmental Science and Pollution Research*, 26(21), 21396-21406. DOI: 10.1007/s11356-019-05471-y.
- Martinez, G., & Masron, T. A. (2020). Jakarta: The City of Cities. *Journal of Urban Affairs*, 42(6), 903-918. DOI:10.1080/07352166.2019.1673891.
- Matagi, S. V. (2002). Environmental and sustainability problems in Kampala City, Uganda. *Environmental Management*, 30(4), 485-492. DOI: 10.1007/s00267-002-2731-z.
- Mulyadi, P. (2021). Penurunan Muka Tanah dan Mitigasinya di Jakarta. *Jurnal Geologi Urban*, 2(1), 10-25.
- Ogun, O. (2010). Infrastructure and urban poverty reduction in developing countries: The case of Nigeria. *Habitat International*, 34(3), 362-367. DOI:10.1016/j.habitatint.2009.11.006.
- Padawangi, R., & Douglass, M. (2015). The Jakarta flood: Urban development and the politics of disaster. *Urban Studies*, 52(14), 2634-2651. DOI: 10.1177/0042098014560690.
- Qadri, S. (2020). Partisipasi Tokenistik dalam Pembangunan Urban. *Jurnal Demokrasi dan Partisipasi*, 6(3), 120-135.
- Rahardjo, T. (2021). Tantangan Integrasi Data dalam Perencanaan Kota. *Jurnal Informatika Perkotaan*, 4(1), 50-65.
- Santoso, U. (2017). Pengelolaan Air Bersih di Megapolitan. *Jurnal Sumber Daya Air*, 5(4), 200-215.
- Sutoyo, J., & Almaarif, A. (2020). Analisis Wacana Relokasi Ibu Kota Negara Indonesia. *Jurnal Ilmiah Administrasi Publik*, 6(1), 1-13. DOI:10.26858/jiap.v6i1.12287.
- Takagi, H., Esteban, M., Shibayama, T., & Mikami, T. (2016). Coastal flood risk assessment in Jakarta under sea level rise and land subsidence. *Journal of Asian Earth Sciences*, 114(Part A), 11-20. DOI:10.1016/j.jseaes.2015.08.018.
- Tina, V. (2018). Urbanisasi dan Kesenjangan Sosial Ekonomi di Jakarta. *Jurnal Ekonomi Regional*, 9(1), 25-40. DOI:10.24843/JER.2018.v09.i01.p03.
- Utami, R. (2020). Metode Campuran dalam Penelitian Ilmu Sosial. *Jurnal Metodologi Penelitian*, 2(1), 5-20.
- Wikantiyoso, A. P., Pradipto, Y., Roychansyah, M. S., & Nugraha, A. T. (2021). The Multi-Stakeholder Participatory Approach in Community-Based Tourism Development: A Sustainable Model. *Journal of Urban Culture Research*, 21(1), 30-45. DOI:10.14456/jucr.2021.3.

- Wisnumurti, A. A. A. N., Darma, I. G. S. I., & Putra, I. G. A. Y. (2020). The Impact of Tourism Policy on Bali Island. *International Journal of Law and Management*, 62(6), 579-594. DOI: 10.1108/IJLMA-01-2020-0019.
- Yigitcanlar, T., & Teriman, S. (2015). Rethinking sustainable urban development: Towards an integrated planning and development process. *Cities*, 43, 1-12. DOI: 10.1016/j.cities.2014.11.008.