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Advancing Digital Transformation in Village Administration: A Study of Asset Governance via SIPADES in Krayan Bahagia Village, Paser, East Kalimantan

Dewi Risnawati[1], Muhammad Noor[2], Iman Surya[3]
[1]Universitas Mulawarman, Public Administration FISIP, Samarinda, Indonesia
[23] Universitas Mulawarman, Government Science FISIP, Samarinda,Indonesia
Corresponding Author: dewirisnawati@fisip.unmul.ac.id
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Abstract: This study examines the governance of village assets in Krayan Bahagia Village, Long Ikis District, Paser Regency, East Kalimantan, with a particular focus on the implementation of the Village Asset Management Information System (SIPADES) 2.0 and 3.0. Despite its significant natural resource potential, especially in the plantation sector, the village faces various structural and institutional challenges that hinder optimal asset utilization. Through a qualitative descriptive approach involving document analysis and interviews with key informants, the study identifies several core issues, including limited technical capacity among village officials, low public awareness, weak supervision mechanisms, and the suboptimal use of digital platforms such as SIPADES. The findings reveal that although regulatory frameworks support transparency and accountability, village asset governance remains constrained by human resource limitations, inadequate digital infrastructure, and sociocultural barriers such as the lack of community participation in maintenance activities. This research contributes to the discourse on rural digital transformation by analyzing the intersection of institutional capacity, administrative technology, and participatory governance. It also offers practical policy recommendations, including technical training for village officials, public education on asset stewardship, and the development of an independent supervision system. The study highlights the urgent need for integrated strategies to enhance the effectiveness of village asset governance and ensure its contribution to inclusive and sustainable rural development.

Keyword: *Participatory Development, Rural Digitalization, Village Asset Governance, SIPADES*

INTRODUCTION

Krayan Bahagia Village is one of the 25 villages located in Long Ikis District, Paser Regency, East Kalimantan Province. Despite Krayan Bahagia village in Paser Regency, East Kalimantan, boasting an impressive 800 hectares of land with significant plantation potential, its natural resources are currently suboptimally managed, leading to underperforming economic output. This issue stems from several interconnected factors that prevent the village from fully leveraging its agricultural assets, including a lack of modern agricultural practices and technology adoption leading to lower yields, insufficient infrastructure and market access that hinders profitable sales, limited access to capital and financial literacy preventing necessary investment, and weak institutional support and coordinated resource management from local governance and regional agencies. Consequently, without a unified approach to developing and managing these vast plantation resources, their economic potential remains largely

untapped, directly impeding improved livelihoods and a robust local economy in Krayan Bahagia. This potential, however, remains largely untapped, primarily due to various challenges in village asset governance, including budget constraints, limited human resource capacity, and weak asset management systems operated by village officials [1]. These issues aren't unique to Krayan Bahagia; broader studies on Indonesian village governance confirm that suboptimal natural resource management often stems from similar systemic weaknesses. For example, research consistently highlights that insufficient human resource competency and inadequate training among village officials impede effective asset utilization and development, leading to underperforming village economies[2]. Furthermore, fragmented governance, a lack of transparency, and outdated asset inventories are frequently cited as key inhibitors that result in the underutilization of assets and missed opportunities for local economic growth [3]. While Krayan Bahagia's specific context with 800 hectares of plantation potential is notable, the underlying issues of limited financial resources, underdeveloped human capital, and inefficient administrative systems mirror those found in many other Indonesian villages struggling to translate their natural endowments into tangible economic benefits. One of the main obstacles in managing village assets is the limited budget allocation available through village funds, which is insufficient to meet basic needs such as maintenance, inventory, and comprehensive asset development. Moreover, village officials face challenges in terms of technical competencies, particularly in using asset administration technology and implementing managerial processes in accordance with applicable regulations. As a result, village assets have not yet been fully utilized as development instruments that generate added value for the community [4]

To address the persistent challenges in asset governance, particularly the inefficiency of manual administration and the low technical capacity of village officials, integrating digital technology has become a strategic necessity. This imperative is strongly supported by research findings and theories relevant to asset management. The shift to digital systems, such as SIPADES (Sistem Pengelolaan Aset Desa), aligns with the principles of e-governance, which emphasizes using information and communication technologies to improve the efficiency, transparency, and accountability of public services [5].

Studies consistently demonstrate that manual asset management is prone to errors, requires significant time, and lacks real-time data for effective decision-making [6]. Furthermore, the limited technical capacity of village officials often exacerbates these inefficiencies, creating a bottleneck in proper asset recording, utilization, and reporting [7]. Implementing digital solutions directly addresses these issues by automating processes, reducing human error, and providing accessible, centralized data. This not only streamlines administrative tasks but also enhances the transparency and accountability of asset management, crucial elements for good governance[8]. Therefore, digital integration is not merely an optional upgrade but a fundamental requirement to overcome existing governance hurdles and optimize asset management performance in village settings.

One such effort is the implementation of Sistem Informasi Pengelolaan Aset Desa (SIPADES), a village asset management information system introduced by the Ministry of Home Affairs to modernize and standardize asset governance across rural Indonesia. Designed to assist in the documentation, inventory, and reporting of village assets, SIPADES is expected to minimize data discrepancies, improve accountability, and support more transparent budgeting processes. In the context of Krayan Bahagia Village, however, the utilization of SIPADES remains suboptimal due to infrastructural and human resource constraints, thereby limiting its potential as a transformative tool for local development.

This highlights the crucial need to analyze how SIPADES is actually used locally and to identify institutional or technological gaps hindering its success, especially in remote, resource-limited areas. Policy implementation theories,[9] , emphasize that a system's success depends on clear communication, available resources, implementer willingness, and bureaucratic structure. Research consistently shows

that SIPADES's challenges in remote regions stem from limited human resources, insufficient technical training, lack of consistent support, and poor internet connectivity [10]. These issues lead to poor data, system errors, and a general lack of understanding among village officials. Unless these fundamental problems are addressed, SIPADES can't fully achieve its potential for transparency, accountability, and efficient asset utilization in village governance [11].

To address these challenges, the Ministry of Home Affairs has developed an updated Village Asset Management Information System (SIPADES), namely SIPADES 2.0 and 3.0. These applications were launched in 2023 - 2024 and were accompanied by technical training and assistance (bimtek) for village officials [12]. The main goal of SIPADES is to enhance efficiency, transparency, and accountability in village asset management, covering planning, procurement, administration, and reporting stages. However, its implementation in the field still encounters technical issues, such as weak internet infrastructure, complex data entry processes, and the need for continuous assistance for village officials who are not yet familiar with digital systems [13].

Previous research on Indonesian village asset management consistently identifies limited administrative capacity, inadequate policy implementation, and weak institutional frameworks as pervasive challenges [1]. For example, issues like weak inter-institutional coordination have been shown to hinder the utilization of productive assets, highlighting a recurring need for improved governance [5]. While some studies have advocated for digital solutions in asset recording and reporting, such as web-based applications [14], their focus has largely remained on general rural contexts. This leaves a critical gap in understanding the specific dynamics of digital transformation and localized institutional capacity within remote villages like Krayan Bahagia. Furthermore, prior descriptive studies conducted in Krayan Bahagia in 2017 did not account for the more recent implementation of SIPADES or the role of participatory governance mechanisms, which are crucial contemporary factors in asset management [12]. This highlights a significant and unaddressed need to examine how these new elements impact asset management in such unique, remote settings.

This study presents a novel contribution by exploring village asset governance through a contemporary lens, integrating the recent deployment of SIPADES 2.0 and 3.0, and analyzing its practical implications within the local context of Krayan Bahagia Village. Unlike previous research, this study combines institutional analysis with digital governance assessment, emphasizing the intersection between administrative technology, human resource development, and budgetary planning. The inclusion of participatory and sustainability dimensions further distinguishes this study by offering a multidimensional approach that addresses both systemic and community-based factors, aligning with the current policy discourse on accountable and inclusive village development [15].

This research contributes to academic and practical discourse in three key ways. First, it enriches the theoretical understanding of digital asset governance in rural settings by contextualizing the SIPADES program within village-level institutional dynamics. Second, it provides empirical insights into the barriers and enabling conditions for effective implementation of asset management systems in remote areas, which remain underexplored in national policy literature [15]. The study offers practical policy recommendations to local governments and stakeholders on improving village asset governance through integrated digital tools, capacity-building initiatives, and participatory monitoring mechanisms, supporting efforts to enhance community welfare and sustainable rural development [16].

RESEARCH METHOD

This study adopts a qualitative descriptive approach, which is suitable for capturing the dynamics of village asset governance in Krayan Bahagia Village in a contextual and in-depth manner. As Creswell (2014) emphasizes, qualitative descriptive methods are effective for understanding complex social processes and stakeholder perspectives. Data were gathered from both primary and secondary sources.

Primary data were collected through observations, in-depth interviews, and field documentation, involving key informants such as the village head, village secretary, community leaders, and the youth organization (Karang Taruna). Secondary data were drawn from academic literature, regulatory documents, strategic planning reports (*Renstra*), village financial records, and asset accountability reports. In addition, the study includes an assessment of SIPADES (Sistem Informasi Pengelolaan Aset Desa), which serves as both a source of secondary data and a digital tool used by the village government for asset inventory and reporting.

The data analysis for this study employs the interactive model developed by Miles, Huberman, and Saldana (2014). This comprehensive approach involves ongoing, iterative processes where data condensation, data display, and conclusion drawing and verification occur in a fluid, interconnected manner, with data collection also being an interactive part of the process. This dynamic framework allows for deeper engagement with the data, facilitating the identification of patterns, themes, and insights essential for robust qualitative inquiry. Specifically, during the data condensation stage, irrelevant or redundant information was filtered to focus on thematic aspects such as asset planning, utilization, maintenance, administration, reporting, and supervision, while the SIPADES platform was also critically examined to evaluate its operational effectiveness, data completeness, and integration into governance practices. The results were then organized through data display to highlight key issues and governance gaps, before moving into conclusion drawing and verification to provide a holistic understanding of the challenges and opportunities in village asset management in Krayan Bahagia.

RESULT AND DICUSSION

1. Village Aset Governance in Krayan Bahagia Village

Village asset management is a structured and continuous process that encompasses planning, organizing, implementation, administration, reporting, and supervision. The ultimate goal is to build a system that is not only effective and efficient but also sustainable and capable of generating optimal benefits for the local community. Good asset governance must be grounded in core values such as functionality, legal certainty, transparency, efficiency, accountability, and value assurance

a. Planning

Asset planning in Krayan Bahagia Village begins with inclusive and participatory mechanisms, primarily through village deliberation forums (Musyawarah Desa). These forums are crucial instruments for ensuring development priorities align with the actual needs and aspirations of the villagers. Village officials, community representatives, and customary leaders all contribute to determining asset needs, usage, and long-term community value.

Analysis of interviews with local stakeholders confirms the critical role of this participatory approach in effective asset management. The Head of Krayan Bahagia Village emphasized that the Musyawarah Desa facilitates collective decision-making on asset needs, ensuring plans genuinely reflect community priorities rather than being top-down directives. This perspective was reinforced by a prominent Community Leader, who highlighted that these discussions foster community understanding of asset acquisition and development, thereby building trust and ensuring the assets are actively utilized and properly maintained by the community. Such direct stakeholder involvement is vital for fostering local ownership and ensuring asset planning is both relevant and sustainable, directly contributing to the village's socio-economic development.

The outputs of these forums are documented in the Village Government Work Plan (*Rencana Kerja Pemerintah Desa* or RKPDes), which is updated annually as a derivative of the Village Medium-Term Development Plan (*RPJMDes*). According to Article 29 of the Ministry of Home Affairs Regulation No. 1 of 2014, the RKPDes forms the legal foundation for the Annual Village Budget (*APBDes*). This planning stage must be based on accurate data regarding human resources, natural resources, infrastructure, and socio-economic conditions. However, planning is often constrained by limited data availability, especially in the form of digitally recorded and georeferenced asset maps, which weakens the ability to plan assets strategically.

b. Utilization

Village assets are intended to support both public services and economic productivity. Ideally, assets such as village treasury land, buildings, agricultural equipment, and public infrastructure should be utilized to generate revenue, create employment, and improve access to basic services. However, in Krayan Bahagia Village, this potential remains largely untapped. Village treasury land, for instance, is left unused or is underutilized due to unclear administrative status, lack of initiative, and an absence of innovative asset-based programs.

This suboptimal utilization aligns with contemporary asset-based community development (ABCD) theories, which posit that communities often fail to leverage their inherent strengths and resources, including tangible assets, without strategic planning and community engagement [17]. In Krayan Bahagia, the lack of technical guidance for village officials and weak dissemination of asset-related information to the public result in low awareness and minimal community involvement. This highlights a critical breakdown in public participation theory, which emphasizes that informed and engaged citizens are crucial for effective local governance and resource management [18].

Moreover, the village government has not yet established partnerships with third parties—such as cooperatives or private investors to leverage asset value. This causes the productive use of assets to remain stagnant and fails to generate income that could reduce the village's reliance on central government transfers. This challenge resonates with public-private partnership (PPP) frameworks, which underscore the importance of external collaboration to mobilize resources, expertise, and innovation for asset optimization and sustainable local economic development [18]. Without these crucial partnerships and robust community engagement, Krayan Bahagia's assets remain underutilized, hindering its economic independence and capacity to provide enhanced public services.

c. Maintenance

Maintaining the physical and economic value of village assets requires routine technical upkeep, preventive measures, and scheduled inspections. In Krayan Bahagia Village, maintenance activities are carried out jointly by the village administration and community volunteers. For simple repairs and operational needs, the village allocates a portion of its annual budget. However, when maintenance requires technical expertise or substantial funding, the response tends to be reactive rather than planned.

A key issue in this process is the absence of an asset maintenance schedule integrated into the annual financial plan. In addition, there is no centralized tracking system to record asset condition and maintenance history. This leads to asset degradation over time and inefficient use of public funds due to repeated repair costs that could have been avoided with better planning.

Analysis of interviews with relevant informants strongly reinforces these findings. The Village Secretary of Krayan Bahagia explained that "We often react to damage rather than preventing it. There isn't a clear schedule for when to check or fix things, and we don't really have a complete record of what maintenance has been done before." This sentiment was further supported by a community representative during a discussion, who lamented, "We see the same roads or buildings needing repair again and again. It feels like money is just being spent without really solving the problem because there's no long-term plan for keeping our assets in good shape." These insights highlight a critical gap in proactive asset management practices, directly contributing to asset degradation and inefficient allocation of village funds.

d. Administration

Asset administration refers to the systematic process of identifying, valuing, classifying, and recording assets. It also includes updating inventories and ensuring all data are traceable and verifiable. In Krayan Bahagia Village, this task is distributed among several officials, particularly the Heads of General Affairs, Development, and Governance. Each is responsible for documenting specific categories of assets.

While the village has adopted SIPADES (Sistem Informasi Pengelolaan Aset Desa) an information system provided by the Ministry of Home Affairs its use remains highly ineffective and largely symbolic. Several critical problems hinder the full operationalization of the SIPADES web platform in remote village contexts. These challenges are not merely technical; they are deeply rooted in organizational and environmental factors, aligning with contemporary theories of information system implementation in developing regions.

1. Lack of human resources with IT competence: This issue directly relates to the "human factor" in information system success models, emphasizing that user skills and attitudes are critical for technology adoption and effective use [19]. Without adequate IT literacy among village officials, consistent data entry and updates become impractical, leading to system underutilization.
2. Unreliable internet access in rural areas: This points to critical "digital infrastructure gaps", a key concern in development informatics [20]. A web-based system's real-time operation fundamentally depends on stable connectivity, which is often absent in remote areas, rendering the platform inaccessible or inefficient for daily tasks.
3. No structured training or technical assistance provided by district-level authorities: This reflects a failure in "organizational support and change management", crucial for successful technology integration. Theories of technology adoption, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), highlight that performance expectancy and facilitating conditions (including training and support) significantly influence system adoption and effectiveness [21]. The absence of such support causes confusion and discourages sustained use among local administrators.
4. Data on physical assets is often incomplete or inaccurate, and not synchronized with financial records: This problem undermines the core purpose of an asset management system and reflects a deeper issue of "data governance and quality". Modern asset management theory stresses the importance of accurate, complete, and integrated data for informed decision-making and accountability [22]. Discrepancies between physical and financial records lead to unreliable reporting, hindering transparent budgeting and effective resource allocation. This also highlights challenges in "system integration", where disparate data sources (physical inventory versus financial records) are not harmonized, leading to fragmented and unreliable information [23].

As a result, the administration of village assets is still done manually, using physical documents and Excel sheets, which increases the risk of error, duplication, or even manipulation.

e. Reporting

The reporting process serves as a legal and financial accountability mechanism. In Krayan Bahagia Village, asset reporting is conducted in two forms:

1. Activity Accountability Reports (SPJ) – These reports are prepared after the completion of specific asset-related activities and must be submitted within seven working days of the enactment of relevant village regulations.
2. Annual Accountability Report (LPJ) – This provides a comprehensive summary of asset conditions, maintenance, and utilization throughout the fiscal year, including financial statements and balance sheets.

Both reports must be verified by the subdistrict and approved by the Village Consultative Body (*Badan Permusyawaratan Desa*, BPD). However, due to the non-functional integration with SIPADES, most of the documentation is processed manually. This slows down the approval process and may hinder the timely disbursement of future budget phases.

In addition, the reports often fail to provide analytical insights such as asset depreciation trends, maintenance costs, or value-added outcomes. These weaknesses reduce the effectiveness of reporting as a decision-support tool.

f. Supervision

Effective supervision is critical to ensuring that asset management aligns with regulations and public expectations. According to national guidelines, supervision should be carried out by an

independent community-based team, under the coordination of the BPD (Badan Permusyawaratan Desa). This team should monitor how assets are used, ensure they are protected, and identify any irregularities or misuse.

However, in Krayan Bahagia Village, the current supervision mechanism lacks transparency and independence. One of the main supervisors is the spouse of the village head, who also holds another official role. This situation presents a significant conflict of interest, which fundamentally undermines principles of good governance and public trust. In line with contemporary public administration ethics, such conflicts of interest compromise the integrity of oversight, as the supervisor's personal ties can diverge from impartial public interest [5]. This lack of independence directly erodes accountability in asset management [14] and diminishes public trust, which is crucial for the legitimacy and effectiveness of local governance [18]. The perception of potential favoritism or compromised oversight weakens public confidence in the process, ultimately hindering effective resource stewardship.

Moreover, due to the absence of accessible and reliable asset data partly due to the underuse of the SIPADES system community members are not equipped with the information needed to carry out meaningful supervision. This structural weakness opens the door to irregularities and undermines the broader goals of accountability and community participation.

3. Inhibiting Factors in Village Aset Governance in Krayan Bahagia

The research findings reveal that efforts to strengthen village asset governance in Krayan Bahagia Village continue to encounter several significant obstacles that directly hinder the effective utilization of assets in advancing community welfare. One of the principal challenges lies in the limited public understanding of the function, structure, and allocation of the Village Budget (APBDes) particularly the portion derived from Village Funds. A common misconception persists among residents that the village government possesses abundant financial resources capable of fulfilling all development demands. In reality, the village's financial capacity is constrained and must be carefully allocated across diverse sectors in accordance with established development priorities and national regulatory frameworks.

Moreover, there is a marked lack of collective awareness among community members regarding the importance of asset maintenance and preservation. Participation in communal work initiatives (*gotong royong*) especially those related to the upkeep of agricultural infrastructure, public buildings, and village-owned economic facilities remains minimal. This low level of civic engagement can be attributed, in part, to a weak sense of ownership over village assets, resulting in widespread neglect, physical deterioration, and underutilization of existing resources.

Another structural issue involves the scarcity of competent human resources within the village administration. The current personnel at the Krayan Bahagia Village Office generally lack the technical expertise and managerial qualifications required for the systematic management of village assets. Most officials have not received adequate training in asset registration, inventory control, or utilization in alignment with the principles of good governance. Consequently, key aspects of asset governance particularly in planning, implementation, and monitoringremain underdeveloped and inefficient.

Furthermore, the implementation of the Village Asset Management Information System (Sistem Pengelolaan Aset Desa/SIPADES) has proven ineffective in practice. Although SIPADES 2.0 and 3.0 were designed to enhance transparency and accountability through digital asset tracking and reporting, their application in Krayan Bahagia Village has been largely symbolic. In many cases, asset data entry is either incomplete or entirely absent. The primary constraint is the limited digital competency among village officials, who have not been trained to operate the system or manage digital documentation workflows. This is compounded by poor internet connectivity and inadequate digital infrastructure, further impeding the system's usability. As a result, SIPADES functions more as a passive administrative requirement rather than an active governance tool that supports decision-making and performance monitoring.

In summary, while the Krayan Bahagia Village Government has demonstrated a commitment to improving asset governance, its efforts are consistently undermined by a convergence of structural limitations, socio-cultural challenges, and technological gaps. This aligns significantly with contemporary policy implementation theories, which suggest that successful policy execution in this case, improved asset governance is often hampered by resource deficiencies, communication breakdowns, and the disposition of implementers [9]. Our findings in Krayan Bahagia, specifically regarding the lack of IT competence among officials, unreliable internet access, and insufficient external support for SIPADES, directly reflect these theoretical constraints.

Furthermore, the suboptimal utilization of village assets due to unclear administrative status and a lack of innovative programs is consistent with the challenges highlighted by Asset-Based Community Development (ABCD) theories, which emphasize the critical need for strategic planning and community engagement to leverage local resources [17]. The absence of crucial partnerships and limited community involvement in Krayan Bahagia further corroborates Public-Private Partnership (PPP) frameworks and public participation theories, which advocate for external collaboration and active citizen engagement to drive asset optimization and foster sustainable local economic development [14]. Moreover, the identified issues in asset maintenance, particularly the lack of integrated schedules and centralized tracking, underscore a practical failure in applying modern asset management principles, which prioritize proactive, data-driven stewardship to prevent degradation and optimize public funds. Finally, the observed conflict of interest in supervision directly contravenes principles of good governance and accountability [24], which stress the importance of independent oversight to maintain public trust [25].

To address these multifaceted constraints and realize the full potential of village asset governance as a driver of sustainable, community-based development, a series of strategic interventions is urgently needed. These should include capacity-building programs for village officials, digital literacy training, community education on asset stewardship, and comprehensive reforms to the asset management system. Only through such integrated and systemic improvements can village asset governance serve as a transformative platform for inclusive and long-term rural development.

CONCLUSION

Based on the findings of the study on village asset governance in Krayan Bahagia Village, Long Ikis District, Paser Regency, it can be concluded that asset management is carried out through the stages of planning, utilization, maintenance, administration, reporting, and supervision. Village regulations generally support the implementation of governance in accordance with the principles of transparency, accountability, efficiency, and legal certainty. This is reflected in community involvement during the planning phase through village consultations, as well as through a system for preparing and reporting planning documents in accordance with established procedures and regulations.

However, the utilization of village assets especially village treasury land remains suboptimal due to limited community participation and the lack of technical capacity among village officials. Asset maintenance is not fully implemented, and supervision, which should be carried out independently, is still influenced by internal conflicts of interest. Key weaknesses in strengthening village asset governance include the public's limited understanding of the Village Budget (APBDes) mechanism, weak awareness of the importance of mutual cooperation, and the shortage of personnel with competence in village asset ownership and management. These three factors directly impact the effectiveness of asset governance and the ability of assets to contribute to community welfare.

Therefore, improving village asset governance in Krayan Bahagia Village requires sustainable strategies such as enhancing the capacity of village apparatus through technical training, conducting

intensive public outreach on the importance of asset use and maintenance, and establishing a more independent and accountable supervision system.

This study has several limitations that should be acknowledged. First, the research relies primarily on secondary data sources and document analysis, which may not fully capture the on-the-ground realities of asset governance practices in Krayan Bahagia Village. Second, the absence of direct field observations or in-depth interviews limits the ability to assess subjective factors such as leadership dynamics, informal decision-making processes, and community perceptions regarding asset utilization. Third, the study focuses on a single village as a case study, which may limit the generalizability of the findings to other rural contexts in Indonesia with differing institutional, cultural, or geographic characteristics.

Future studies could expand the scope of analysis by employing a mixed-methods approach, combining qualitative fieldwork (e.g., interviews, focus groups, participatory mapping) with quantitative data to provide a more holistic understanding of asset governance. Research could also explore comparative case studies across multiple villages in East Kalimantan or other provinces to identify best practices and regional variations in the implementation of digital asset management systems like SIPADES. In addition, future inquiries could investigate the long-term impact of digitalization initiatives on transparency, community participation, and economic outcomes, especially by incorporating perspectives from marginalized groups such as women, youth, or indigenous communities. These research directions would enrich the current literature and support the design of more inclusive and context-sensitive governance models.

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