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Strengthening Local Government Organisation Capacity for Adaptive Development Policy Responsive to Community Needs

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Abstract

This study examines how to strengthen institutional capacity for regional development planning in Gorontalo Regency, Indonesia, with a focus on policies that are responsive to local community needs. A qualitative case study design was employed, drawing on in-depth interviews, observations, and analyses of planning documents, including the Regional Medium-Term Development Plan and the Regional Annual Work Plan. The findings indicate that robust institutional capacity, inclusive public participation, and the effective use of information technology are pivotal to producing adaptive and sustainable development policy. However, two principal challenges persist: insufficiently trained human resources for adaptive planning and the suboptimal use of information technology. The analysis links these results to the Sustainable Development Goals (SDGs)—notably SDG 11 (sustainable cities and communities) and SDG 16 (strong, transparent, and accountable institutions). Strengthening institutional capacity and deepening participation are expected to accelerate local SDG progress and to support the design of more inclusive, efficient, and data-driven policy. The study contributes to understanding—and improving—the implementation of adaptive, sustainable regional development policy amid social, economic, and environmental change.

Keywords: *Adaptive Development Policy; Community Needs; Institutional Capacity*

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Introduction

Regional development plays a crucial role in improving community quality of life and accelerating progress towards the Sustainable Development Goals (SDGs). The SDGs are a global commitment to creating a more prosperous, secure, and sustainable world (Pogge & Sengupta, 2015; Mahooti et al., 2025). In Indonesia, regional development is not only integral to national development but also a determinant of its overall success. That success depends heavily on the capacity of local governments to formulate and implement policies that align with community needs and aspirations (Pramana, 2020). It is therefore essential that local governments design development policies that are both relevant and responsive to the social, economic, and cultural dynamics of each region (Chen et al., 2025).

Despite substantial governmental efforts, mismatches persist between implemented policies and community aspirations. Such policy gaps reduce the effectiveness of regional development and foster public dissatisfaction with local government performance (Gasco Hernandez & Valle Cruz, 2025). These gaps frequently stem from weaknesses in the capacity of regional planning organisations—including technical and institutional limitations—and from insufficient mechanisms for public participation (Alfayn, 2022). Similar challenges are evident across the Global South. In Thailand, for instance, decentralisation and community-based development planning have prompted efforts to strengthen local government capacity through technocratic training, the digitalisation of development information systems, and the expansion of participatory forums at the village (*tambon*) level (Khongsatjaviwat & Routray, 2015). Yet disparities in capacity across regions, resistance from local bureaucratic elites, and poor data integration continue to impede planning processes. Thailand also struggles to bridge the gap between nationally driven policies and the specific needs of diverse local communities. This experience underscores the importance of national support for building strong and adaptive local institutions, alongside participatory and real-time, data-driven monitoring and evaluation systems (X. Wang et al., 2025).

These lessons are highly relevant to Indonesia, particularly Gorontalo Regency, where strengthening local planning capacity requires supportive institutional frameworks that enable vertical and horizontal coordination, as well as digital infrastructure that facilitates meaningful community engagement. Building adaptive local governance depends on the synergy of institutional capacity, digital innovation, and the institutionalisation of inclusive public participation (X. Wang et al., 2025).

Although many local governments have formulated policies to improve community welfare, implementation often diverges from on-the-ground realities. In Gorontalo Regency, for example, policy execution has not consistently reflected actual community needs, in part due to weak data-driven problem identification and limited community participation in setting development priorities. These policy gaps highlight the need for adaptive governance—namely, the state's capacity to adjust policies to evolving social, economic, and cultural dynamics (Mphahlele et al., 2025; Khairul Islam et al., 2025). An

adaptive government not only responds quickly to change but also recalibrates policies to ensure continuing relevance to community needs.

Addressing these inconsistencies requires action at both policy and implementation levels (Matland, 1995; Apandi et al., 2024). Strengthening institutional capacity is a priority: planning organisations need clearer, more effective structures and adequately trained personnel capable of designing adaptive policies. Deepening public participation is equally important (Janowski, 2016). Inclusive engagement helps ensure that policies reflect not only governmental priorities but also the broader aspirations of communities. Integrating local knowledge into planning can enhance policy relevance and strengthen community commitment to implementation (Moeis et al., 2022).

Information technology (IT) offers further leverage for participation and transparency. E-government and the digitalisation of planning can improve communication between governments and communities and open direct, efficient channels for public input (Tilly et al., 2025). Nonetheless, regional implementation faces constraints, including limited human resources with adequate digital competencies and gaps in supporting infrastructure (Borges et al., 2025). Without sustained capacity building and infrastructure investment, these technologies cannot be fully utilised.

Strong, transparent institutions and meaningful public participation are foundational to high-quality development planning. Evidence-based policymaking supported by accurate data enhances effectiveness, particularly in sectors such as agriculture, health, and education (Clark, 2020). Likewise, inclusive participation improves policy quality and implementation support. In the sphere of environmental resilience, flexible, responsive policies to disaster and climate risks depend on community involvement in decision-making (Tambaip et al., 2023). Yet many regions still struggle with effective implementation, including gaps between centrally formulated policies and their regional execution due to divergent interests and weak inter-agency coordination (Chaerul & Kartika, 2021). Ultimately, the capacity of regional planning organisations is decisive: clear organisational structures and complementary roles across institutions are needed to ensure relevance and effective delivery (Nevescanin & Walczak, 2023).

Regions with stronger institutions tend to respond more rapidly and accurately to social, economic, and environmental change. Collaboration among local government agencies is crucial to align policy design with community needs and to enable efficient implementation (Z. Wang et al., 2023). Conversely, weak institutional capacity slows decision-making and undermines the adaptiveness of planning.

In the digital era, IT can accelerate data collection, improve transparency, and bolster participation. Indonesia's Regional Development Information System enables real-time data capture to support more efficient and accurate planning and programme implementation (Ginata et al., 2022). However, realising these benefits requires trained personnel and robust digital infrastructure; without them, the potential of IT remains under-exploited (Cao et al., 2025).

This study is timely for advancing SDG 11 (sustainable cities and communities) and SDG 16 (strong, transparent, and accountable institutions) (Hariyani et al., 2025). Its

novelty lies in integrating an adaptive development planning framework that weaves together institutions, public participation, and information technology within Indonesia's regional context (Khairul Islam et al., 2025). The study contributes theoretically to the literature on adaptive development and offers practical recommendations for local governments.

By combining institutional, participatory, and technological dimensions, this research deepens understanding of how local governments can increase policy responsiveness to community needs. It also provides actionable guidance for policymakers seeking to improve planning quality and advance sustainable development in Gorontalo Regency and comparable regions. Using a qualitative approach—comprising in-depth interviews with government officials and community members and analysis of planning documents—the study explores how institutional capacity and public participation shape more inclusive, responsive, and sustainable regional development planning. In doing so, it aims to contribute substantively to regional development theory and to offer practical solutions for local governments designing relevant and sustainable development policies.

Research Methods

This research employs a qualitative approach with a case study design to analyse in depth how institutional planning capacity in Gorontalo Regency shapes development policies that are responsive to local community needs. A qualitative approach was chosen because the issue under study is closely related to perceptions, experiences, and socio-cultural dynamics that are difficult to capture through quantitative methods. A case study was selected as it enables the exploration of complex phenomena within the context of development planning in a specific area—namely, Gorontalo Regency. The site was chosen because it exhibits significant challenges in development planning that do not fully accommodate local community needs. The regency has heterogeneous socio-economic characteristics and limited community participation in the formulation of development policies, making it a pertinent context in which to examine how institutional capacity affects the quality of adaptive development policies.

Informants were selected using purposive sampling, targeting individuals considered to have in-depth knowledge of regional planning and development policies. The principal informants comprised officials from the Regional Development Planning Agency, sub-district heads, village heads, and community leaders representing local residents' aspirations. In addition, beneficiaries of development policies were interviewed to elicit their views on existing policies. Data collection comprised in-depth interviews, non-participant observation, and document analysis (see Figure 1 for the data collection and analysis workflow). In-depth interviews with key informants explored the policy-formulation process, challenges in designing adaptive policies, and the extent to which community aspirations are accommodated in official policies. Non-participant observation was conducted to understand the dynamics of policy implementation in the field (Jamil & Rasheed, 2025), while document analysis included the Regional Medium-

Term Development Plan and the Regional Government Work Plan, which are used to formulate policies.

Data analysis employed a thematic approach, encompassing coding, data reduction, data display, and conclusion drawing. Coding was used to identify the main themes emerging from interviews and analysed documents. The resulting data were organised into categories to identify patterns relevant to the research objective of improving the quality of adaptive development policies that are responsive to community needs. Triangulation was used to enhance validity by comparing information from interviews, observations, and policy documents. This approach is important for capturing diverse perspectives from government and community actors and for ensuring the consistency and accuracy of the findings.

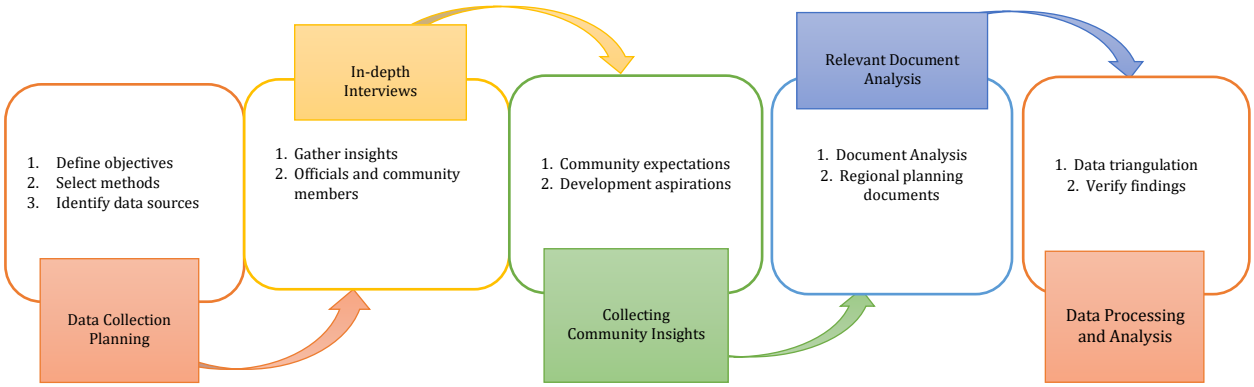


Figure 1. Data Collection and Analysis Workflow
Source: Processed by the authors (2025)

This research not only focuses on developing more adaptive and inclusive policies at the regional level but also contributes to achieving the Sustainable Development Goals (SDGs). It is relevant to SDG 11, which focuses on creating inclusive, safe, resilient, and sustainable cities and communities through participatory development that responds to local needs. In addition, it supports SDG 16, which aims to build strong, transparent, and accountable institutions, emphasising the importance of strengthening institutional capacity and public participation in the development planning process.

Results and Discussion

This section presents the results and analysis of research on strengthening adaptive development policy through regional planning capacity in Gorontalo Regency. The study examines the extent to which institutional capacity at the regional level supports a planning process that is more responsive and adaptive to local community needs. Findings draw on in-depth interviews with government officials and community leaders, field observations, and analysis of regional planning documents, including the Regional Medium-Term Development Plan and the Regional Government Work Plan. The discussion also connects the results to relevant academic literature and considers their

relevance to Sustainable Development Goals (SDGs) 11 and 16—namely, inclusive and sustainable urban development and strong, transparent, and accountable institutions.

The analysis underscores the centrality of strengthening institutional capacity and broadening public participation in regional development planning. More effective institutional arrangements enable local governments to respond to social, economic, and cultural changes, while inclusive public participation helps ensure that development policies genuinely reflect community needs and aspirations. The section further highlights the role of information technology in accelerating data collection and enhancing transparency and accountability in regional planning (Javazi et al., 2025).

Aligned with the study's objectives and methodology, the following analysis presents key findings on: (i) institutional factors that shape adaptive planning, (ii) the quality and depth of public participation, and (iii) the challenges and opportunities in implementing information technology in regional development planning in Gorontalo Regency. By examining these factors, the research contributes to understanding the dynamics of more inclusive, responsive, and sustainable regional development planning.

The Importance of Institutional Capacity in Adaptive Planning

Institutional capacity plays a crucial role in enabling adaptive development planning—particularly for local governments that must respond to highly dynamic social, economic, and environmental conditions. In Gorontalo Regency, adequate institutional capacity is a key determinant of effective resource management and responsiveness to community needs. Without it, the ability to address emerging challenges and design relevant, well-targeted policies is limited.

Evidence from Gorontalo indicates that effective institutions underpin adaptive planning processes. Interviews with local officials highlight two factors that most consistently shape success: clear institutional structures and trained human resources. The Head of the Regional Development Planning Agency underscored that a well-structured organisation and sufficient, competent personnel are essential for prompt governmental responses to community needs. In their absence, adaptive planning becomes difficult because rapid societal change requires equally swift administrative action.

These observations align with the literature arguing that strong local institutions not only support project sustainability but also facilitate community participation in policy planning and implementation (Bexell et al., 2025). In Gorontalo, robust institutions enable stakeholders to make timely, efficient decisions; with clear structures and well-organised mechanisms, local government can respond to change and address community challenges more effectively. This is consistent with findings that collaboration across local government agencies is vital to ensure that formulated policies align with community needs and dynamics (Zhao et al., 2025). As a sub-district head noted, institutional clarity also eases inter-agency collaboration—an essential condition for policies that are both adaptive and relevant.

Strong institutional capacity accelerates adaptive planning by ensuring that changes are addressed with appropriate, timely action. Accordingly, strengthening

capacity across organisational structures, work mechanisms, and human resources should be a priority for building responsive and relevant policies (G. Wang & Zhao, 2025).

Table 1. Institutional Factors Affecting Adaptive Planning
Source: Processed by the authors (2025)

Institutional Factor	Frequency Mentioned (%)
Inter-Agency Coordination	72
Adequate Technical Authority	58
Trained Planning Personnel	67
Fast Inter-Actor Communication	63

Based on interviews with community representatives and local government officials, the analysis identifies several institutional factors that influence adaptive planning in Gorontalo. Table 1 summarises the factors most frequently cited as determinants of successful regional planning. Table 1 and Figure 2 show that inter-agency coordination emerged as the most dominant factor, reported by 72% of respondents, underscoring the central role of collaboration in enabling timely and responsive policy formulation. The availability of trained planning personnel ranked second (67%), highlighting the importance of individual capacity and professional competence in managing complex planning processes. Fast inter-actor communication was identified by 63% of informants, reflecting the need for efficient information flows to support swift, context-sensitive decisions. Meanwhile, adequate technical authority was cited by 58% of participants, indicating the importance of clear mandates that allow technical actors to take strategic decisions without bureaucratic delay.

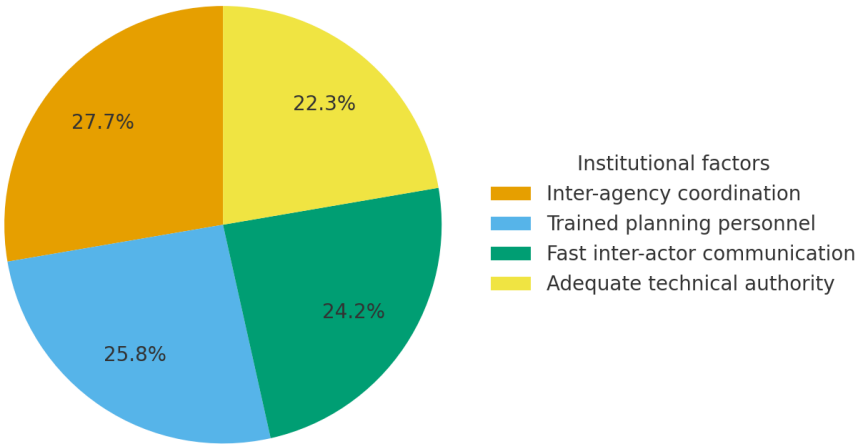


Figure 2. Key Institutional Factors Supporting Adaptive Planning
Source: Processed by the authors (2025)

Figure 2 complements Table 1 by depicting the proportional distribution of these factors in a pie chart: inter-agency coordination 27.7%; trained planning personnel 25.8%; fast inter-actor communication 24.2%; and adequate technical authority 22.3%. Together, these results suggest that strengthening local institutional capacity requires not only clear organisational structures but also qualified personnel, effective communication systems, and well-defined technical mandates for decision-makers.

Based on the frequency data, cross-governmental coordination is the most frequently cited key to adaptive planning success in Gorontalo. In addition to a clear institutional structure, effective cooperation among agencies creates synergy that improves planning quality. When each agency has clear duties and authority—and coordinates effectively—decision-making becomes faster and more precise, thereby accelerating implementation and increasing efficiency in resource management. Alongside coordination, adequate technical authority and trained planning personnel are crucial for ensuring that decisions are data-driven and relevant. Rapid communication among actors further facilitates implementation by enabling all relevant parties to work together efficiently (Hariyani et al., 2025).

Strong institutional capacity is closely linked to SDG 16, which emphasises transparent, effective, and accountable institutions. Robust institutions enable local governments to respond to social and economic challenges and to design policies that are not only reactive but also proactive (Gupta & Sigdel, 2024). In this context, strengthening institutional capacity contributes directly to improving the quality of local governance and, ultimately, to achieving sustainable development.

In practical terms, Gorontalo Regency should continue to invest in organisational strengthening and planning mechanisms: ensuring a clear and coherent institutional structure, enhancing human resource capacity, and improving inter-agency coordination. These steps will enable faster responses to dynamic social, economic, and environmental changes and support the creation of more inclusive and participatory policies. Overall, institutional capacity is foundational to adaptive planning; by reinforcing institutions, improving coordination, and elevating human resource quality, local governments can deliver development planning that is more responsive to community needs. Consequently, capacity strengthening must remain a top priority in advancing adaptive and sustainable development policy.

The Role of Public Participation in the Quality of Development Policy

Public participation plays a vital role in achieving inclusive and responsive development planning. As a core pillar of decision-making, participation helps ensure that policies reflect community needs and directly consider local aspirations. In Gorontalo Regency, although the development planning deliberation forum functions as an official channel for community input, interviews with 60 residents indicate that most people feel their voices are not sufficiently valued in the resulting policies; only 15% reported that their aspirations were reflected in planning documents.

Residents explained that they are often invited to attend the forum, yet the aspirations they convey are rarely followed by concrete programmes. This has led to

disappointment, as many feel their voices are not fully heard in decision-making. The finding highlights a gap between the formal process of participation and the recognition of community aspirations in policy outputs. As noted by Janowski (2016), effective participation not only increases policy legitimacy but also builds a sense of shared responsibility for implementation. When contributions are valued, communities are more willing to engage, which in turn supports policy effectiveness and sustainability (Gustafsson et al., 2025).

Participation is also an instrument for transparency, inclusivity, and democratic engagement. Although the forum provides a formal platform for gathering input, evidence from Gorontalo shows that the quality of involvement remains limited. Many community members attend without providing opinions, while others report that their aspirations are ultimately rejected (Gupta & Sigdel, 2024). Consequently, inputs collected are not fully translated into meaningful policy adjustments.

According to a sub-district head, despite the forum's regular convening, participation tends to be passive; many residents do not actively contribute, and some perceive their inputs as ignored or dismissed. This underlines the gap between facilitated participation and effective incorporation of community inputs into local policy.

Comparative findings reinforce this point. Masuda et al. (2022) show that in India, robust public participation in urban planning accelerates implementation because communities feel directly involved in decisions. Conversely, limited involvement in Gorontalo is linked to a mismatch between community expectations and policy execution (Parsa et al., 2025). This not only undermines programme effectiveness but also reduces the legitimacy of policies, affecting long-term outcomes. Improving the quality of participation is therefore essential to produce policies that are more responsive and acceptable across social groups.

Table 2. Public Perceptions of Public Participation
Source: Processed by the authors (2025)

Form of Participation	Percentage of Respondents (%)
Attended Without Expressing Aspirations	40
Expressed Aspirations Rejected	45
Aspirations Accepted	15

Table 2 summarises public perceptions of participation in development planning forums. A majority reported limited or ineffective engagement: 40% attended meetings without expressing aspirations, 45% stated that their aspirations were rejected, and only 15% felt their inputs were acknowledged and incorporated into planning. These results reveal a concerning pattern of procedural rather than substantive inclusion. Although mechanisms exist, they fall short of delivering meaningful representation of community interests.

Enhancing participation—particularly for marginalised and under-represented groups—is critical to grounding policy in community realities and priorities. Communities are more likely to support implementation when they are genuinely involved in decision-making (Sofiyah et al., 2025). Inclusive participation improves policy relevance and legitimacy and contributes to smoother implementation and stronger community ownership over time.

These findings align with SDG 16, which calls for accountable, transparent, and inclusive institutions, and with SDG 11, which emphasises inclusive, safe, resilient, and sustainable cities and communities. Strengthening public participation in Gorontalo should therefore be viewed not as a procedural formality, but as a strategic imperative for sustainable, community-centred development (Zhang et al., 2025).

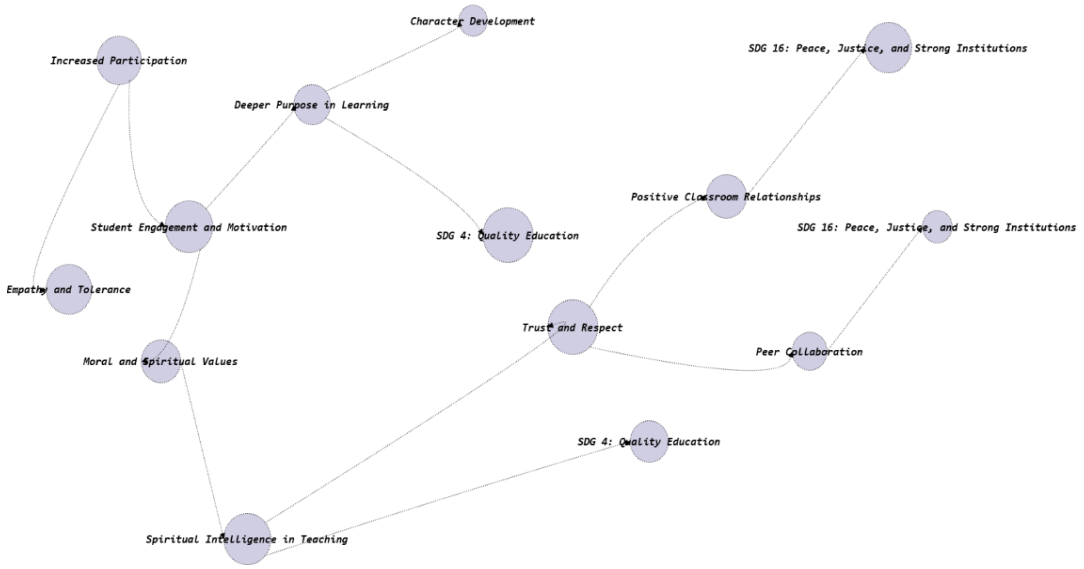


Figure 3. Links Between Educational Development Factors and SDGs
Source: Processed by the authors (2025)

Figure 3 illustrates the relationship between levels of participation and progress towards the SDGs. The distribution—present without input (40%), input rejected (45%), and input accepted (15%)—shows how the effectiveness of participation shapes both institutional quality (SDG 16) and sustainable urban and rural outcomes (SDG 11). When communities feel heard and involved at each planning stage, policies are more responsive and more likely to deliver tangible impacts (Mishra et al., 2025).

In terms of implications for adaptive planning, successful adaptation requires capable institutions and meaningful participation to ensure policies are flexible, responsive, and aligned with shifting social, economic, and environmental conditions. Public participation is not merely a channel for collecting aspirations; it underpins policy legitimacy and accelerates the implementation of targeted programmes. Strong collaboration among local institutions is essential to ensure that policies align with community needs can be implemented effectively (Osman & Zablith, 2021). In Gorontalo,

efforts to strengthen participation constitute a key strategic step towards adaptive planning that can respond to dynamic change.

More inclusive participation will strengthen decision-making while enhancing transparency and accountability, contributing to stronger institutions (SDG 16) and to sustainable cities and communities (SDG 11). Ultimately, improving the inclusiveness and quality of participation will yield policies that are more responsive, effective, and durable. By ensuring that community aspirations are genuinely considered, Gorontalo Regency can advance both the quality of policy and the achievement of the SDGs, particularly in relation to inclusive and sustainable development (Miao & Li, 2025).

Utilisation of Information Technology in Development Planning

The utilisation of information technology (IT) in development planning has become a crucial element of contemporary practice. IT plays a major role in accelerating data collection, increasing transparency, and ensuring that planning can be carried out more efficiently and responsively to community needs. In Gorontalo Regency, the implementation of the Regional Development Information System has enabled real-time data collection, allowing local government to access essential data quickly and accurately for planning and implementing development programmes (Hariyani et al., 2025).

However, although Regional Development Information System offers various advantages, significant implementation challenges remain. One of the main obstacles identified in interviews with planning staff is the limited technical ability of personnel to operate the system. An IT staff member from the Gorontalo local government noted that the Regional Development Information System has proved valuable for real-time data collection; however, the limited technical capacity of personnel has hindered its full utilisation. The staff member emphasised the need for additional training to optimise the system's potential. This indicates that, although technology has been implemented, limitations in technical skills and understanding still hinder the maximisation of its potential. Without adequate capacity building, technology cannot be used optimally to support development planning.

Table 3. Benefits of IT in Development Planning
Source: Processed by the authors (2025)

Benefit of IT	Percentage Mentioned (%)
Fast Data Access	68
Process Transparency	54
Facilitates Programme Monitoring	46
Supports Online Participation	42

This finding is also supported by an official who said, "Technology helps, but most staff are more accustomed to manual methods and are not sufficiently trained to use

technology effectively." Such limitations may stem from a mismatch between staff capabilities and rapidly evolving technologies. Without sufficient training and deeper understanding, technology cannot be utilised optimally to accelerate the planning process and make it more efficient.

Based on Table 3, derived from interviews with respondents, the majority mentioned substantial benefits from IT in development planning, especially in accelerating data access (68%) and increasing process transparency (54%). In addition, IT is considered to facilitate programme monitoring (46%) and support online participation (42%). This suggests that the use of technology enables timelier and data-driven decision-making. Li et al. (2025) also emphasise that IT is very important in public financial management because it increases transparency, thereby supporting governmental accountability.

One effective form of IT use in Gorontalo Regency is the application of Geographic Information Systems (GIS). GIS enables spatial data analysis that is highly useful in spatial planning and infrastructure management. With GIS, planners can evaluate geographical factors affecting development decisions, such as land availability, infrastructure conditions, and potential natural hazards. Gustafsson et al. (2025) states that GIS plays an important role in infrastructure management by providing in-depth data on how infrastructure can be built or improved according to regional needs. The use of GIS therefore enables development planning that is more data-driven, more responsive, and better aligned with community needs.

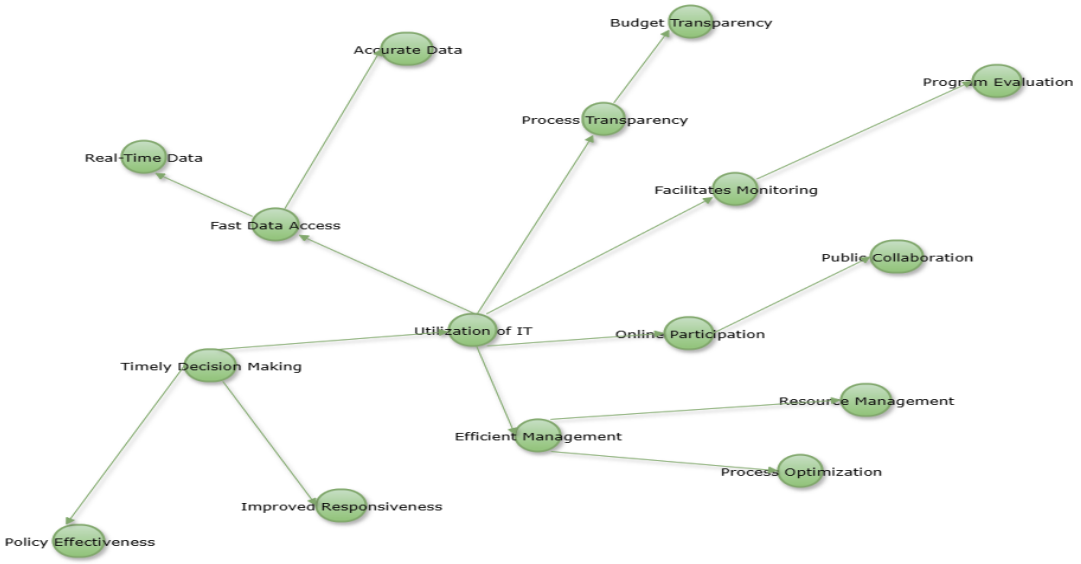


Figure 4. Relationship Among Factors Supporting IT Utilisation
Source: Processed by the authors (2025)

Figure 4 shows that the utilisation of IT in public policy planning and management can enhance the quality of decision-making, transparency, and public participation. At the centre of the diagram is "IT Utilisation", which is connected to key elements such as fast and accurate data access, enabling more precise and efficient decisions. Process and

budget transparency is strengthened through IT, thereby increasing accountability in policy implementation. Programme monitoring and evaluation also become easier with technological support, allowing for quicker and more responsive adjustments to evolving conditions. Public collaboration and online participation are likewise encouraged, providing space for communities to be directly involved in decision-making (Hügel & Davies, 2024). IT also supports more efficient resource management and process optimisation, leading to more timely decision-making and enhanced governmental responsiveness to emerging issues. Ultimately, this improves policy effectiveness, making IT utilisation a key factor in realising a more transparent, participatory, and responsive government. One of the main benefits is increased public participation: based on the 42% of respondents who stated that IT supports online participation, this technology opens opportunities for wider involvement without constraints of time and location. Online participation allows the public to provide direct input to government, increasing inclusivity and giving space to voice opinions and aspirations (Kidd & Reynolds, 2024).

Increased transparency is also a major benefit of using IT in development planning. By using technology, government can ensure that all planning stages are accessible to the public, supporting SDG 16. Greater transparency increases public trust in adopted policies, which in turn accelerates implementation. With its capacity to open data, bridge communication between government and the public, and enable transparent programme monitoring, IT plays a significant role in creating an accountable and effective government. The utilisation of IT in development planning is directly related to achieving two highly relevant SDGs—SDG 16 and SDG 11. SDG 16 emphasises the importance of transparent, accountable, and effective institutions in government, which can be achieved through IT utilisation (Ikudayisi & Adejumo, 2025). Additionally, SDG 11 focuses on building inclusive, safe, resilient, and sustainable cities and communities. By utilising IT, development planning becomes more data-driven, allowing government to plan and implement programmes that are more targeted and aligned with community needs (Hanh & Nga, 2025). IT also facilitates better communication between government and the public, supporting increased participation in decision-making. This aligns with SDG 11, which promotes more inclusive and sustainable areas. By increasing public participation, communities can play a greater role in planning, which in turn improves policy quality and the sustainability of development initiatives.

Building Adaptive Planning Capacity for the SDGs

The implementation of adaptive planning in Gorontalo Regency faces significant challenges that may hinder the success and effectiveness of regional development policies, particularly in relation to achieving the Sustainable Development Goals (SDGs). Based on the research findings, one of the principal challenges is the limited number of human resources trained in adaptive planning principles, which are essential to support inclusive and sustainable development (Jamil & Rasheed, 2025).

This highlights a substantial skills and knowledge gap in flexible planning—crucial for responding to dynamic social, economic, and environmental change and consistent with the SDGs. Research by Ciaffi et al. (2024) reveals that a lack of technical capacity

among human resources is a major obstacle to implementing policies grounded in adaptive planning. This limitation results in policies that are less relevant to community needs, despite the imperative to adopt approaches responsive to rapid change. Without data-driven, accurately analysed adaptive planning, achieving the SDGs—especially those related to poverty eradication (SDG 1), quality education (SDG 4), and sustainable cities and communities (SDG 11)—will be difficult (Hariyani et al., 2025).

The study's findings also indicate that human resource challenges involve limited understanding and use of relevant data-driven tools and methods. Without mastery of technology and data-based analysis, the capacity of local government to design policies responsive to shifting social and economic conditions is constrained. This further undermines efforts to address social and economic inequality and slows progress towards SDGs oriented to justice and sustainability.

The implementation of data-driven adaptive planning is crucial to mitigating climate change impacts, accelerating a transition to a greener and more inclusive economy, and improving access to health and education services. Javazi et al. (2025) similarly confirm that mastery of technology and data-driven analysis is needed to increase policy responsiveness to ongoing change, aligning with SDG 9 on industry, innovation, and infrastructure.

Another challenge is resistance to change among stakeholders at both governmental and community levels. A village head explained that some community members and certain officials feel uneasy about proposed changes and prefer familiar methods perceived as effective, even when these no longer align with evolving social and economic dynamics. This tendency to maintain the status quo slows the adoption of more adaptive policies. Uncertainty associated with new policies, as well as concerns about power and control over resources, fuels resistance. According to Janowski (2016), uncertainty regarding the impact of new policies often triggers resistance among stakeholders accustomed to established planning methods.

As part of efforts to achieve the SDGs, such resistance should be addressed through approaches that prioritise active participation from communities and stakeholders. Empowerment through education and training on adaptive planning—and on the value of change for a sustainable future—can build awareness and encourage support for more responsive, inclusive policies.

A further challenge is the suboptimal use of information technology (IT) in planning. Limited technological infrastructure, coupled with insufficient training for personnel managing such technology, exacerbates implementation difficulties. A head of the IT department at the Gorontalo Regional Government stated: "We often face challenges from inadequate hardware and software, as well as a lack of training to utilise information technology to its fullest." Sulistyaningsih et al. (2021) argue that constraints in IT infrastructure and a lack of training are major obstacles to implementing transparent and efficient data-driven policies.

With optimal IT utilisation, data collection and decision-making can be conducted more efficiently, enabling faster responses to change and supporting the achievement of SDG 17 on partnerships for the goals. Optimising technology will also accelerate the

monitoring and evaluation of SDG progress, which is crucial for ensuring the successful implementation of development policies in Gorontalo Regency.

Overall, to realise sustainable development and support SDG achievement, Gorontalo Regency needs to: strengthen human resource capacity in adaptive planning; increase acceptance of change among stakeholders; and optimise the use of IT in planning and implementing development policies. Without these steps, current challenges will continue to impede progress towards more inclusive, equitable, and sustainable development.

Planning Capacity and Sustainable Regional Development

Strengthening planning capacity has a significant impact on policy quality and the sustainability of regional development in Gorontalo Regency, aligning with the Sustainable Development Goals (SDGs) (Sharma et al., 2022). A core aspect of sustainable development is the ability of local government to respond to rapid, dynamic changes in community needs. By strengthening institutional capacity, local government can design more targeted and responsive policies, thereby enhancing sustainability across sectors.

This underscores the importance of institutional capacity for policy effectiveness. When capacity is strengthened, local government can respond to social, economic, and environmental change more swiftly and efficiently—a prerequisite for achieving SDG 1 (No Poverty) and SDG 2 (Zero Hunger). As a concrete example, the agricultural sector in Gorontalo demonstrates how stronger institutional capacity helps farmer groups adapt to increasingly volatile market and climate conditions. As stated by Qomariya et al. (2023), "Farmer groups with good institutional capacity are able to adapt quickly to market and climate changes," strengthening their resilience in the face of new challenges. Capacity strengthening also contributes to enhanced public participation in planning, which produces policies that are more relevant to community needs and accelerates implementation.

Local stakeholders consider community participation essential because it allows policies to reflect real needs. Direct citizen involvement creates space for local aspirations to be meaningfully incorporated, improving both effectiveness and legitimacy. In the same vein, the Gorontalo Regional Government has begun to utilise information technology to accelerate data collection and improve transparency in budget management. This digitalisation initiative is expected to strengthen bureaucratic accountability and broaden public access to development information, enabling more open and informed participation.

Research by Uula and Surbakti (2024) shows that active community involvement in planning not only improves policy quality but also hastens acceptance and implementation. Broader participation supports SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice, and Strong Institutions) because, by directly involving communities, policies become fairer, more inclusive, and more relevant to diverse groups. Strengthening institutional capacity also improves transparency and accountability in budget management. Through the use of information technology (IT), budget processes

become more efficient and transparent, allowing communities to monitor fund use more effectively—consistent with SDG 16.

Schrage et al. (2025) likewise show that IT use in public planning strengthens participation via digital platforms, providing wider opportunities for input and feedback. IT thereby supports SDG 9 (Industry, Innovation, and Infrastructure) through better technological infrastructure and SDG 16 by increasing transparency and accountability across government.

Overall, strengthening institutional capacity, expanding public participation, and optimising IT use will yield more adaptive, inclusive, and sustainable development policies in Gorontalo Regency. A capacity-oriented approach—featuring more transparent and efficient resource management and heightened responsiveness to community needs—contributes directly to SDG 11 (Sustainable Cities and Communities) and SDG 16 (Peace, Justice, and Strong Institutions). Such inclusive and transparent development advances fairer, more sustainable outcomes at the regional level and supports holistic, long-term progress.

Strengthening planning capacity is thus highly relevant to achieving the SDGs, particularly SDG 11 and SDG 16. Berman et al. (2017) show that robust institutional capacity strongly influences the successful implementation of policies that respond to social, economic, and environmental change. This accords with the principle of adaptive planning, which requires flexible, responsive systems for planning, implementation, and evaluation.

A key aspect is improving governmental organisational structures and enhancing the quality of human resources. Suriadi et al. (2024) emphasised that without trained and skilled personnel, resulting policies will be suboptimal and unable to respond precisely to community needs. Accordingly, strengthening capacity—through human resource training and better organisational structures—is critical to ensuring policies are adaptive and responsive.

Zhang et al. (2025) also highlight the important role of IT in regional development planning. In Gorontalo, the use of the Regional Development Information System and Geographic Information Systems (GIS) has improved real-time data accessibility, enabling evidence-based decisions. This technology also facilitates transparency and efficiency in planning. As noted by Wangsa et al. (2023), GIS is vital in spatial planning and infrastructure management to ensure development considers geographical characteristics and disaster risk. Such technological adoption can accelerate SDG 9, which emphasises improving infrastructure quality and access and developing sustainable technologies.

However, a principal challenge in IT utilisation is the limited technical capacity among officials. Efendi et al. (2024) emphasised that, without adequate training, personnel cannot utilise technology optimally. Beyond investment in infrastructure, intensive training is therefore essential to ensure that technology is used efficiently and supports effective policy implementation.

Public participation likewise plays a crucial role in producing more inclusive and responsive policies. According to Gupta (2021), effective participation not only increases

policy legitimacy but also accelerates implementation because communities feel more involved in decision-making. In Gorontalo, even though a development planning deliberation forum is provided, findings indicate a gap between formal participation and policy outcomes aligned with community aspirations; only 15% of the community felt their aspirations were reflected in formulated policies. Yin et al. (2025) argue that, to achieve SDG 10, participation must be strengthened so that policies better reflect the needs of diverse groups, especially the marginalised.

Furthermore, Li et al. (2025) find that more inclusive, technology-enabled participation can hasten progress towards SDG 11, which focuses on sustainable cities and communities. With broader inclusion, policies are more relevant and more readily accepted, accelerating implementation in support of development sustainability.

By integrating institutional capacity strengthening, optimising IT use, and promoting more inclusive participation, local government in Gorontalo Regency can design policies that are more adaptive, responsive, and sustainable. Tisnawati and Setyowati (2024) affirm that collaboration among local government agencies is essential for creating policies that meet community needs and can be implemented effectively—strongly supporting SDG 16 on strong, transparent, and accountable institutions.

Conclusion

This study underscores the importance of strengthening institutional capacity to enable development planning that is adaptive and responsive to social, economic, and environmental dynamics. In Gorontalo Regency, robust institutions, inclusive public participation, and the effective utilisation of information technology are pivotal to designing policies that are effective, efficient, and sustainable. Despite constraints in technical capacity and the quality of participation, the findings indicate that targeted institutional strengthening and deeper community involvement can accelerate progress towards the SDGs—particularly SDG 11 and SDG 16.

The local government should continue investing in capacity-building, improving inter-agency coordination, and optimising IT use to realise inclusive and sustainable development. Taken together, these steps can help ensure that policies are not only aligned with community needs but also enhance quality of life and strengthen social justice at the local level.

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