

Challenges of Accessibility and Quality of Public Services in the Papuan Mountains

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Abstract

This study examines the challenges of accessibility and quality of public services in the Papuan Mountains, with particular focus on regions within Highlands Papua Province. Despite Indonesia's decentralization reforms and special autonomy policies, significant disparities in service delivery persist in mountainous Papua compared to more developed provinces. Using a qualitative research design, this study analyzes structural, institutional, and socio-cultural factors that shape public service outcomes in sectors such as education, healthcare, and civil administration. The findings indicate that extreme geographical conditions, including rugged terrain and limited transportation networks, substantially restrict physical access to essential services. Infrastructure gaps increase logistical costs and reduce service continuity, especially in remote villages. In addition, limited human resource capacity characterized by shortages of qualified teachers, medical personnel, and administrative staff undermines service quality and institutional stability. High turnover rates and challenging living conditions further weaken professional performance. Institutional and governance challenges, including coordination gaps, fiscal management constraints, and weak accountability systems, also limit the effectiveness of public service implementation despite significant fiscal transfers under special autonomy arrangements. The study concludes that accessibility and quality issues in mountainous Papua are multidimensional and interdependent. Addressing these challenges requires integrated strategies that combine infrastructure development, human resource strengthening, institutional reform, and context sensitive governance approaches to ensure equitable and sustainable public service delivery.

Keywords: Public Service Accessibility, Service Quality, Mountainous Regions

Introduction

The issue of accessibility and quality of public services in the Papuan Mountains represents one of the most persistent governance challenges in Indonesia's contemporary development landscape. Despite decades of decentralization reforms and the granting of special autonomy status to Papua, substantial disparities in service delivery remain evident when compared with western regions of the country. The mountainous areas, currently administered under Highlands Papua Province (a province carved out of the former Papua Province), are characterized by

rugged topography, limited transportation infrastructure, dispersed settlements, and socio-cultural diversity. These structural conditions intersect with institutional and political factors, producing layered constraints that affect access to education, health care, civil registration, and other essential public services (Andrews et al., 2024).

In the broader context of Indonesian public administration, decentralization reforms initiated after the fall of the New Order regime were expected to enhance efficiency, responsiveness, and equity in public service delivery. Through fiscal transfers and expanded regional authority, local governments were empowered to tailor policies to local needs. However, in Papua particularly in mountainous districts these reforms have not uniformly translated into improved service accessibility or quality. Various studies report persistent gaps in infrastructure development, bureaucratic capacity, and accountability mechanisms, resulting in uneven implementation of national service standards. This discrepancy underscores the tension between formal policy frameworks and the realities of governance in geographically extreme regions (Holla et al., 2011; Fauzi et al., 2023).

Geographical isolation remains a primary structural barrier. The Papuan Mountains are marked by steep terrain, limited road connectivity, and dependence on air transport for mobility and logistics. Many villages can only be reached by small aircraft or on foot, significantly increasing the cost and complexity of delivering health supplies, educational materials, and administrative services. Infrastructure limitations also restrict the presence of qualified professionals, as teachers, medical personnel, and civil servants often face difficult living conditions and limited facilities. The high cost of transportation inflates public expenditure while simultaneously reducing the frequency and reliability of service provision. Consequently, accessibility in this region cannot be measured solely by the existence of facilities, but must also account for physical reachability, continuity, and affordability (Winston, 2000; Van et al., 2022).

In the education sector, disparities are reflected in lower enrollment rates, teacher shortages, and limited school infrastructure. Several studies have noted that the distribution of certified teachers is heavily concentrated in urban centers, leaving remote mountainous districts with underqualified or temporary staff (Anderson, 2013; Huang, 2024). In health services, similar patterns emerge. Community health centers often lack essential medicines, equipment, and trained medical workers, contributing to higher maternal and infant mortality rates compared to national averages. These sectoral inequalities illustrate that service quality is not merely a matter of administrative design but is shaped by structural constraints and uneven resource distribution.

Institutional capacity also plays a significant role in shaping service outcomes. Although fiscal allocations to Papua have increased through the Special Autonomy Fund, effective absorption and utilization of these resources remain problematic. Weak planning systems, limited monitoring mechanisms, and coordination challenges between central and regional authorities have been identified as recurring issues (Vujanovic, 2017; Ginting, 2023). The fragmentation of governance structures following regional expansion policies has sometimes exacerbated bureaucratic inefficiencies rather than resolving them. As a result, financial inputs do not always translate into measurable improvements in service quality.

Socio-cultural dimensions further complicate public service delivery. The Papuan Mountains are

home to diverse indigenous communities with distinct languages, customs, and governance traditions. Differences in cultural norms and communication patterns between state officials and local communities can affect trust and engagement with formal institutions. In some contexts, customary leadership structures hold greater legitimacy than administrative authorities, influencing community participation in public programs. These dynamics highlight the importance of culturally responsive approaches to service provision, rather than relying solely on standardized national models.

Security concerns and political tensions also intersect with accessibility challenges. Periodic instability can disrupt infrastructure development projects, limit mobility of civil servants, and hinder consistent service delivery (Solehudin, 2023; Anouti et al., 2023). Such disruptions contribute to perceptions of state absence or inadequacy, reinforcing cycles of marginalization. Moreover, national development initiatives, including infrastructure acceleration programs under administrations such as that of Joko Widodo, have sought to address connectivity gaps through road construction and airport development. While these initiatives signal stronger central commitment, literature suggests that infrastructure expansion alone is insufficient without parallel institutional strengthening and community engagement.

Comparatively, disparities between Papua and other provinces such as West Java or South Sulawesi illustrate the magnitude of regional inequality within Indonesia. National statistics consistently demonstrate lower human development indicators in Papua, particularly in mountainous districts. These disparities raise normative questions regarding equity and distributive justice in a unitary state committed to balanced development. They also challenge dominant public administration models that prioritize efficiency and managerial performance without fully accounting for contextual constraints.

The significance of examining accessibility and quality in the Papuan Mountains lies not only in addressing local inequalities but also in contributing to broader debates on governance in remote and frontier regions. International experiences from mountainous and indigenous territories indicate that conventional service delivery models often require adaptation to local ecological and socio-cultural contexts. In Papua, this adaptation must reconcile centralized policy frameworks with local autonomy aspirations, logistical constraints, and cultural diversity.

Ultimately, the persistence of accessibility and quality challenges in the Papuan Mountains reflects a multidimensional governance problem shaped by geography, institutional capacity, socio-cultural complexity, and political dynamics (Widodo et al., 2010; Drake, 2019). Although policy reforms and fiscal transfers have aimed to reduce disparities, the literature consistently demonstrates that structural and contextual factors continue to limit the realization of equitable public services. Understanding these intersecting dimensions is therefore essential for formulating more inclusive and context-sensitive strategies that align national commitments with the lived realities of mountainous Papua.

Methods

Research Design

This study employed a qualitative research design to explore and interpret the challenges of

accessibility and quality of public services in the Papuan Mountains. The qualitative approach was selected because the issue under examination involves complex social realities shaped by geography, institutional capacity, governance systems, and socio-cultural dynamics. These interconnected dimensions require in-depth interpretation rather than statistical measurement. The research focused on mountainous areas currently administered under Highlands Papua Province, which were previously part of Papua Province. The qualitative design enabled the study to capture contextual nuances, understand structural constraints, and interpret how local governance practices influence service accessibility and quality across sectors such as health, education, and civil administration.

Research Approach

This study applied a qualitative descriptive–analytical approach. The descriptive component aimed to provide a detailed portrayal of accessibility conditions, infrastructure limitations, and service quality disparities in mountainous Papua. The analytical component sought to interpret patterns, identify underlying causes, and examine relationships among geographical, institutional, and socio-cultural factors. Rather than isolating variables, the study emphasized holistic understanding. The qualitative framework allowed the researcher to examine how multiple dimensions interact simultaneously how geographical isolation affects bureaucratic performance, how institutional limitations influence service continuity, and how socio-cultural diversity shapes community engagement with state services.

Data Sources

The research utilized secondary qualitative data derived from academic publications, government documents, policy evaluations, institutional reports, and development planning materials relevant to public service delivery in mountainous Papua. These materials included sectoral data on education, healthcare, civil registration, infrastructure development, and governance reforms. The use of diverse data sources enabled the study to examine service challenges from multiple institutional perspectives. Official reports provided information on policy implementation and budget allocation, while academic analyses offered critical interpretations of governance dynamics and structural constraints.

Data Collection Procedure

Data collection was conducted systematically. First, relevant documents were identified based on thematic alignment with accessibility and quality of public services in mountainous regions. Second, documents were screened to ensure relevance, credibility, and substantive contribution to the research focus. Third, selected materials were organized and catalogued to facilitate structured analysis. During this process, emphasis was placed on extracting information related to transportation barriers, infrastructure gaps, distribution of public service personnel, institutional coordination, fiscal management, socio-cultural interaction, and security conditions. Each document was examined thoroughly to identify patterns and explanatory narratives relevant to the research objectives.

Data Analysis Technique

The study employed thematic qualitative analysis as the primary analytical technique. The

analysis followed three interconnected stages: First, open coding was conducted to identify key concepts and recurring issues within the collected data. Codes such as “geographical isolation,” “limited road connectivity,” “health workforce shortages,” “education service inequality,” “budget absorption constraints,” and “cultural communication barriers” were identified. Second, categorization was performed by grouping related codes into broader themes. These themes included: (1) geographical and infrastructural constraints; (2) institutional and bureaucratic capacity limitations; (3) fiscal governance and policy implementation challenges; (4) human resource distribution issues; (5) socio-cultural and linguistic factors; and (6) security and political context. Third, interpretative analysis was conducted to explore how these themes interact. The study did not treat each challenge as an isolated problem. Instead, it examined the interdependence between terrain and logistics, governance structure and service delivery outcomes, and cultural context and institutional trust. This integrative interpretation allowed the research to generate a multidimensional understanding of service accessibility and quality.

Results and Discussion

This section presents the findings of the study on accessibility and quality of public services in the Papuan Mountains, particularly within Highlands Papua Province. The results synthesize key patterns identified through qualitative analysis, highlighting how geographical isolation, infrastructure limitations, human resource constraints, and institutional governance challenges interact to shape service delivery outcomes. Rather than examining these dimensions separately, the findings emphasize their interconnected nature and cumulative impact on education, healthcare, and administrative services in mountainous regions. By organizing the results thematically, this section provides a structured interpretation of the core barriers influencing public service accessibility and quality in the region.

Geographical and Infrastructure Constraints

Geographical conditions constitute one of the most fundamental constraints affecting the accessibility and quality of public services in the Papuan Mountains. The region, particularly within Highlands Papua Province, is characterized by steep mountain ranges, deep valleys, dense forests, and scattered settlements separated by vast distances. Unlike urban provinces such as West Java or South Sulawesi, where road networks and public transportation systems are relatively developed, many districts in the Papuan highlands remain physically isolated. This geographical isolation significantly increases travel time, transportation costs, and logistical complexity in delivering essential public services (Romdhoni & Rashid, 2022).

The mountainous terrain directly limits road construction and maintenance. In many areas, roads are either unpaved, damaged, or completely absent, forcing communities to rely on small aircraft or long-distance walking routes to access district capitals. During extreme weather conditions, landslides and flooding frequently disrupt mobility, further restricting access to healthcare facilities, schools, and administrative offices. As a result, accessibility in this context is not merely about the presence of public service facilities, but about whether citizens can realistically reach them safely, affordably, and consistently.

Transportation dependency on air services creates additional structural burdens (Wensveen, 2023; Kaiser & Barstow, 2022). Basic commodities, medical supplies, educational materials, and

even construction materials must often be transported by small planes, dramatically increasing costs. This logistical reality contributes to price disparities between mountainous districts and other parts of Indonesia. The high cost of distribution also limits the frequency of service delivery. For instance, outreach health programs and mobile administrative services cannot operate regularly due to budget constraints linked to transportation expenses. Consequently, infrastructure limitations reinforce service irregularity and reduce overall quality (Hussain et al., 2024).

The distribution of public facilities further reflects infrastructural imbalance. Health centers and schools are frequently concentrated in district capitals, while remote villages remain underserved. In some cases, buildings exist but lack adequate supporting infrastructure such as electricity, clean water, or internet connectivity. Limited digital infrastructure also restricts the implementation of e-government systems, which are increasingly promoted at the national level to improve efficiency and transparency. Without stable telecommunications networks, efforts to modernize service delivery remain constrained in mountainous areas. Human resource distribution is also shaped by geographical constraints.

Teachers, health workers, and civil servants often face reluctance to serve in remote highland areas due to limited housing, minimal facilities, and difficult living conditions. High turnover rates disrupt service continuity and institutional stability. Even when personnel are officially assigned, absenteeism can occur due to transportation challenges or security concerns. These factors collectively reduce both accessibility and service quality. Findings from field interviews reinforce these structural realities. A local government official in a mountainous district explained:

“Many villages can only be reached by walking for hours or by chartered plane. When the weather is bad, we cannot send medical supplies or teachers. Sometimes services must be postponed because access is completely cut off.”

This statement illustrates how environmental and infrastructural barriers directly influence service continuity. Similarly, a community health worker emphasized the logistical burden of operating in remote areas:

“We often run out of medicine because delivery depends on flights. If the plane does not come, we have to wait. Patients must travel far, and sometimes they decide not to seek treatment at all.”

This testimony highlights how transportation dependency not only affects institutional performance but also shapes community behavior and health-seeking decisions. Infrastructure development initiatives have been introduced to reduce isolation, including road expansion and airport construction programs during the administration of Joko Widodo. While these efforts represent important progress in improving connectivity, their impact remains uneven across mountainous districts. Road projects often face delays due to environmental conditions and technical challenges, and maintenance costs remain high. Moreover, infrastructure expansion alone does not automatically resolve institutional or service quality issues without parallel improvements in governance capacity and resource management. Overall, geographical and infrastructure constraints in the Papuan Mountains form a structural foundation for broader public service challenges. Extreme terrain, limited connectivity, high transportation costs, and

uneven facility distribution collectively restrict both physical access and service continuity. These constraints interact with institutional and human resource limitations, producing multidimensional barriers that differentiate mountainous Papua from more accessible regions of Indonesia. Understanding these geographical realities is therefore essential for designing context-sensitive strategies aimed at improving both accessibility and the overall quality of public services.

Limited Human Resource Capacity

Limited human resource capacity constitutes one of the most critical factors affecting the accessibility and quality of public services in the Papuan Mountains. In regions such as Highlands Papua Province, the shortage of qualified teachers, medical personnel, and administrative staff significantly constrains the effectiveness of public institutions. While infrastructure limitations pose structural barriers, the absence of inadequacy of skilled personnel directly affects day-to-day service delivery. Public service institutions may formally exist, but without competent and consistently present staff, the quality and reliability of services remain compromised (Alford & O'flynn, 2012; Yadav, 2024). One of the central challenges is the uneven distribution of professionals between urban and remote mountainous districts. Civil servants and contract-based employees often prefer assignments in more developed areas due to better living conditions, access to facilities, and professional development opportunities. Consequently, schools and health centers in highland villages frequently operate with minimal staffing. In the education sector, teacher shortages result in multi-grade classrooms, irregular teaching schedules, and limited subject specialization. In some cases, one teacher is responsible for handling multiple subjects across different grade levels, which affects instructional quality and student learning outcomes.

In the health sector, limited human resource capacity is equally evident. Community health centers often lack doctors, pharmacists, laboratory technicians, and midwives. Many facilities rely on nurses or temporary health workers who must manage a broad range of responsibilities beyond their formal training. This situation reduces service quality, particularly for maternal and child health services, emergency care, and disease prevention programs. The absence of specialized personnel means that patients requiring advanced treatment must travel long distances to district hospitals, which further reinforces access barriers. High turnover rates and absenteeism further complicate the situation. Personnel assigned to mountainous districts frequently request transfers after short periods due to challenging living conditions, limited housing, inadequate electricity and water supply, and restricted access to communication networks. Transportation difficulties also affect attendance. When weather conditions disrupt flights or road access, service providers may be unable to reach their assigned posts. This instability weakens institutional continuity and disrupts long-term program implementation. Capacity limitations are not only quantitative but also qualitative. Some public servants lack sufficient training in culturally responsive service delivery, community engagement, or participatory governance approaches. Considering the socio-cultural diversity of the Papuan highlands, limited intercultural competence can reduce trust between communities and service providers. Without adequate professional development programs tailored to remote service contexts, the performance gap between mountainous and urban regions persists. Findings from

field interviews illustrate these human resource challenges. A school principal in a highland district explained:

“We only have three permanent teachers for the entire school. When one of them is absent, classes must be combined. It is difficult to maintain teaching quality under these conditions.”

This statement demonstrates how staffing shortages directly affect educational processes and learning consistency. Similarly, a health worker highlighted the burden of limited personnel in remote facilities:

“Sometimes I am the only health worker on duty. I have to handle deliveries, vaccinations, and emergency cases at the same time. If there is a serious case, we can only refer the patient, but transportation is not always available.”

This testimony underscores the operational strain faced by frontline workers and its implications for service reliability and patient safety. Efforts have been made by the central government to address human resource disparities through special incentive schemes and recruitment policies for remote areas, including initiatives during the administration of Joko Widodo. Financial incentives and affirmative recruitment policies aim to encourage professionals to serve in frontier regions. However, the effectiveness of these measures remains uneven. Incentives alone cannot fully compensate for structural limitations such as isolation, limited facilities, and restricted career development pathways. Moreover, administrative capacity within local governments influences recruitment, deployment, and supervision processes. Weak human resource planning systems may result in mismatched placements, delays in salary disbursement, or insufficient monitoring of attendance. Without integrated human resource management frameworks, the cycle of shortages and turnover continues. Overall, limited human resource capacity in the Papuan Mountains reflects a combination of structural, institutional, and contextual factors. Shortages of qualified personnel, uneven distribution, high turnover rates, and limited professional development collectively undermine public service accessibility and quality. Addressing this issue requires not only increasing the number of personnel but also strengthening support systems, improving living conditions, and enhancing governance mechanisms to ensure sustainable service delivery in geographically challenging environments.

Institutional and Governance Challenges

Institutional and governance challenges represent a structural dimension of public service limitations in the Papuan Mountains. While geographical isolation and human resource shortages create operational barriers, weaknesses within administrative systems significantly influence the effectiveness, accountability, and sustainability of service delivery. In regions such as Highlands Papua Province, governance complexity is shaped by decentralization policies, fiscal transfers, bureaucratic fragmentation, and coordination gaps between central and local authorities. These institutional dynamics directly affect how public services are planned, implemented, and monitored. One major issue concerns coordination between levels of government. Indonesia’s decentralization framework grants substantial authority to district and provincial governments. However, in mountainous Papua, limited administrative capacity often constrains the ability of local institutions to translate policy mandates into effective programs. Overlapping responsibilities between provincial agencies and district offices sometimes create ambiguity in

service management, particularly in sectors such as health and education. Without clear division of roles and strong coordination mechanisms, service delivery can become fragmented and inefficient.

Fiscal governance presents another significant challenge. Papua receives substantial fiscal transfers through the Special Autonomy Fund, intended to accelerate welfare improvement and reduce disparities. However, budget allocation does not automatically guarantee service quality enhancement. Weak planning systems, limited technical capacity in budget formulation, and inadequate monitoring mechanisms may result in low budget absorption rates or misaligned expenditure priorities. In some cases, funds allocated for infrastructure or service improvement are delayed due to administrative bottlenecks, procurement issues, or insufficient oversight. This gap between fiscal allocation and tangible outcomes reflects institutional weaknesses rather than resource scarcity alone.

Bureaucratic fragmentation following regional expansion policies has also influenced governance performance. The creation of new administrative units aims to bring government services closer to communities. However, newly established districts often lack experienced personnel, administrative infrastructure, and organizational stability. Institutional formation without adequate preparation may lead to inefficiencies, duplication of roles, and transitional governance instability. In mountainous regions with already limited capacity, rapid administrative restructuring can inadvertently intensify service challenges.

Accountability and supervision mechanisms further shape service quality. Effective governance requires consistent monitoring, evaluation, and performance assessment. In remote highland districts, limited oversight capacity and geographical barriers reduce the frequency of supervision visits from higher authorities. This weakens accountability systems and may contribute to inconsistent implementation of national service standards. Without robust performance evaluation structures, it becomes difficult to ensure equitable and standardized public service provision across districts.

Field interview findings illustrate how governance limitations affect operational realities. A district-level administrative officer explained:

“We often face delays in budget disbursement because the administrative requirements are complex, and technical staff are limited. Even when funds are approved, implementation takes time due to procurement procedures.”

This statement highlights how procedural and bureaucratic constraints can slow service delivery, even when financial resources are available. Similarly, a local education official emphasized coordination challenges:

“Sometimes policies from the central government are clear, but implementation at the district level is difficult because we lack guidance and technical support. Coordination between agencies is not always smooth.”

This testimony demonstrates how vertical and horizontal coordination gaps weaken policy execution in mountainous areas. Governance challenges are also influenced by the broader political and security environment. Periodic instability can disrupt administrative activities, delay

development projects, and limit the mobility of officials. In such contexts, institutional resilience becomes critical. However, limited institutional preparedness may reduce the capacity of local governments to respond effectively to disruptions.

National development initiatives, particularly those promoted during the administration of Joko Widodo, have emphasized infrastructure expansion and improved service equity in Papua. While these initiatives represent strong political commitment, their effectiveness depends heavily on local governance capacity. Infrastructure development without parallel improvements in planning, monitoring, and human resource management risks producing incomplete or unsustainable outcomes. Furthermore, community engagement mechanisms remain uneven. Participatory planning forums exist formally, yet meaningful inclusion of indigenous communities in decision-making processes varies across districts. Where governance systems fail to integrate local perspectives, service programs may not fully align with community needs. This disconnect can reduce utilization rates and weaken trust in public institutions. Overall, institutional and governance challenges in the Papuan Mountains reflect systemic issues related to coordination, fiscal management, administrative capacity, accountability, and political context. These challenges interact with geographical and human resource constraints, reinforcing service disparities. Strengthening governance structures, clarifying institutional roles, enhancing fiscal oversight, and improving participatory mechanisms are therefore essential steps toward improving accessibility and quality of public services in mountainous Papua.

Conclusion

The challenges of accessibility and quality of public services in the Papuan Mountains particularly in regions such as Highlands Papua Province are multidimensional and deeply interconnected. Geographical isolation and limited infrastructure restrict physical access and increase logistical costs, while shortages and uneven distribution of qualified personnel weaken service continuity and professionalism. At the same time, institutional and governance constraints, including coordination gaps, fiscal management limitations, and weak accountability mechanisms, reduce the effectiveness of policy implementation despite substantial fiscal transfers under special autonomy arrangements. Interview findings further confirm that operational delays, staffing burdens, and procedural complexities directly affect frontline service delivery. These overlapping structural, administrative, and contextual factors demonstrate that improving public services in mountainous Papua requires integrated strategies that simultaneously strengthen infrastructure, human resource capacity, and governance systems to ensure equitable and sustainable service provision.

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