

Addressing the Special Education Teacher Shortage in Central Kalimantan: Dynamics, Challenges, and Collaborative Governance Solution

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ABSTRACT

The shortage of Special Education Teachers (SET) relative to Students with Special Educational Needs (SEN) in Central Kalimantan Province remains a critical concern. The current SET-SEN ratio of 1:11, significantly below the national standard of 1:5, undermines equitable access to quality education for SEN students. This study examines the underlying dynamics and structural causes of this imbalance in public special schools (SLBN). A qualitative design was employed, with data collected through in-depth interviews, observations, and document analysis across selected SLBNs and relevant government institutions. Data were analyzed thematically, supported by source triangulation, member checking, audit trails, and peer debriefing to ensure rigor and credibility. The findings reveal that the SET shortage is a systemic and multidimensional issue driven by three interrelated factors: unsystematic, non-data-driven workforce planning; the absence of local undergraduate programs in special education; and limited interest among non-local applicants. These factors interact across policy, institutional, and individual levels, weakening the regional SET ecosystem. Peer debriefing further indicates that the issue reflects fragmented, cross-sectoral governance. Addressing the SET shortage requires a coordinated, collaborative governance approach. A four-stage framework—preparation, recruitment, placement, and continuous professional development (CPD)—is proposed to strengthen the SET ecosystem. Policy redesign that institutionalizes cross-sector collaboration is essential to ensure the sustainable and equitable fulfillment of SEN students' educational rights.

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1. INTRODUCTION

The shortage of Special Education Teachers (SET) in State Special Schools (SLBN) in Indonesia remains a fundamental issue (Dewi & Jasmina, 2023; Nugroho et al., 2025). SET are educators who are professionally trained to adapt instruction, implement individualized education plans, and provide

specialized support to students with disabilities (Bettini et al., 2019). Although access to special education (SE) has increased, the availability of trained SET remains limited (Hadis, 2005; Rasmitadila et al., 2021), and many teachers with a non-special education background do not yet have adequate competencies to meet the diverse needs of Students with Education Needs (SEN) (Ditjen GTK, 2020). SEN are learners who require educational provisions additional to or different from those in mainstream classrooms (Florian, 2019), so SEN education rights require the availability of sufficient and qualified SET (Nisa, 2019).

The previous study showed that the SET-SEN ratio is 1:11, far from the ideal 1:5, and that the projected need for SETs will reach 1,688 by 2029/2030 (Nugroho, 2025). The situation is exacerbated by the retirement of 60% of teachers with civil servant status (ASN) in the next five years, and 20% of non-permanent teachers (GTT) being appointed as Government Employees with Work Agreements (PPPK) with assignments outside SLBN, as well as SLBN formations that are not optimally filled (Dinas Pendidikan Provinsi Kalimantan Tengah, 2024). This condition indicates a complex and multidimensional SE problem, especially in Central Kalimantan Province.

The phenomenon of SET shortage also occurs globally. Many countries employ teachers without adequate qualifications (Kalyanpur, 2008), leading teachers to feel unprepared to address complex challenges (Johnson et al., 2016). Without qualified SET, SEN lose access to individualized learning services (Gilmour et al., 2025), even though competent SET have been shown to improve their achievement (Feng & Sass, 2013). The shortage of SET also increases teachers' workload and fatigue (Klassen & Tze, 2014; Skaalvik & Skaalvik, 2017) and reduces the effectiveness of support for SEN (Lindsay, 2007; McLeskey, 2013).

Globally, the shortage of SET is a complex, multi-layered problem influenced by the structural and policy contexts in each country. Drew et al. (2025) note that teacher readiness, certification, recruitment, funding, and geography all influence the shortage. Cross-country findings by Cooc (2019) show variation in school capacity and professional development needs, suggesting that the root causes of the problem differ across contexts. In the United States, Billingsley & Bettini (2019) identify working conditions such as leadership support, administrative workload, opportunities for collaboration, and professional autonomy, along with policy and individual factors, as key to teacher retention and attrition. Stark et al. (2023) confirm the impact of the work environment on teacher quantity, quality, and effectiveness. Peyton et al. (2020) find that regions with fewer SET shortages have higher per-student spending, higher salaries, stronger preparatory institutions, and a greater proportion of graduates with adequate education. At the policy level, Mason-Williams et al. (2019) linked teacher shortages to certification, incentives, and funding governance, emphasizing the need for a supportive policy ecosystem.

Various studies show that the shortage of SET is a multifaceted issue with different manifestations between countries, requiring an ecosystem policy approach. However, no empirical study has examined the dynamics of SET fulfillment in Indonesia, which is diverse in social, economic, and geographical terms, especially in Central Kalimantan Province, which faces extreme challenges in providing SET. This lack of evidence points to a knowledge gap that needs to be addressed to support policies responsive to the local context.

Given that the SET shortage is systemic and multidimensional, policy responses cannot rely solely on sectoral administrative or evidence-based approaches. Although educational decision-making should ideally be based on contextual diagnosis (Gustafsson, 2022; Aldridge & McLure, 2024; Hadden et al., 2025), issues involving cross-sectoral matters require governance mechanisms that enable coordination and alignment of mandates among stakeholders.

In public policy, the Collaborative Governance (CG) approach is used to address complex issues by integrating expertise, resources, and legitimacy across sectors (Ansell & Gash, 2008; Purdy, 2012; Torfing et al., 2012). Although it is still rarely discussed in the context of special education in Indonesia, the literature indicates that CG has the potential to serve as an alternative to the problem of SET provision across actors and levels of government. This qualitative study investigates the dynamics and

challenges of SET provision in SLBN and seeks to understand the structure of the issues that contribute to the SET shortage in the region.

2. METHODS

This study employed a qualitative, interpretive-phenomenological approach to gain an in-depth understanding of stakeholders' lived experiences in the context of special education. This approach enabled exploration of the meanings embedded in actors' subjective experiences, particularly regarding the governance dynamics and challenges of SET provision in SLBN in Central Kalimantan (Creswell & Creswell, 2017). The Heideggerian perspective was adopted to move beyond description toward the interpretation of the assumptions and structural conditions that shape those experiences (Chia & Holt, 2006).

Purposive sampling was used to select information-rich stakeholders (Patton, 2015). Participants included officials from the provincial education office: the Head of the Education Office (KDP-KT), the Head of the Special and Inclusive Education Division (Kabid-PKLIK), the Head of the Personnel Division (Kabid-Ket), two School Principals (KS), and the Head of the Regional Civil Service Agency (K-BKD). These actors were chosen because they hold institutional authority over SET allocation, recruitment, and development. SET and SEN teachers were excluded, as they do not shape staffing policy; thus, the findings reflect institutional rather than classroom perspectives.

Data were collected through semi-structured interviews, observations, and document studies (Moleong, 2013; Kellehear, 2020). Analysis followed thematic procedures (Braun & Clarke, 2014) involving familiarization, coding, pattern identification, theme refinement, and narrative construction (Mahlatji et al., 2023; Maguire & Delahunt, 2017). Codes were derived from key informant insights (Coates et al., 2021), producing themes that illuminate governance challenges surrounding SET provision. The stages of customary analysis are presented in Figure 1.

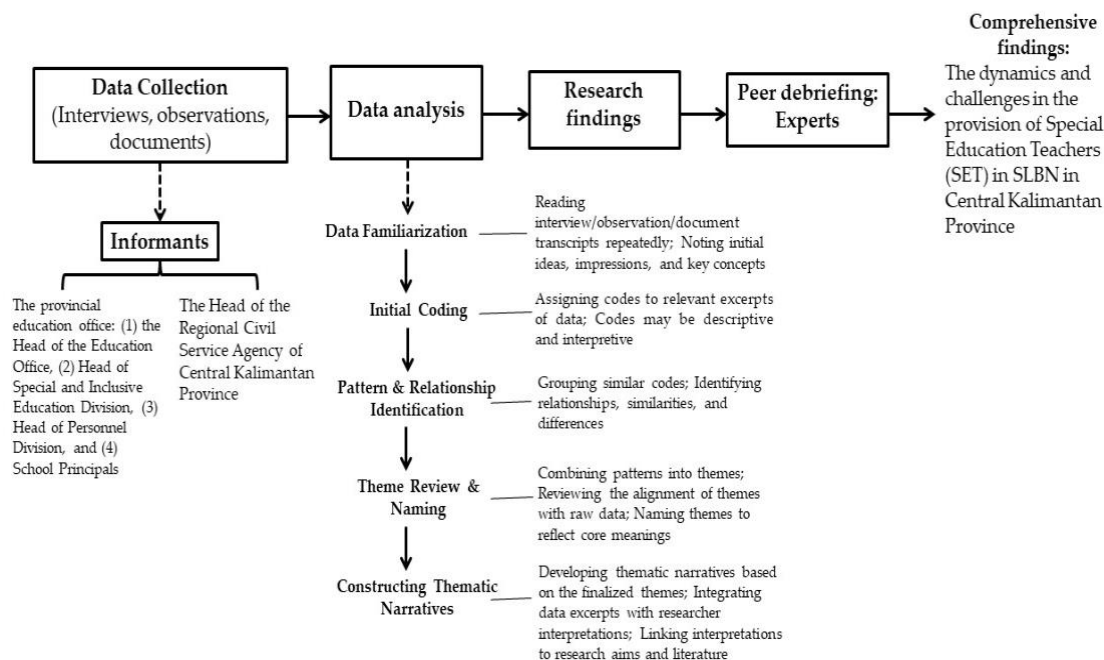


Figure 1. The stages of research data analysis

Following the qualitative data analysis, a peer debriefing process was conducted to enhance the interpretive accuracy of the findings through systematic discussions with an expert who critically examined the coherence and validity of the interpretations (Ahmed, 2024). This process was essential for detecting potential misinterpretations or analytical oversights, including subtle patterns beyond the researcher's expertise (Given, 2008), and for surfacing insights that might otherwise remain unnoticed

(Spall, 1998). Expert involvement was particularly important because SET provision in Central Kalimantan presents systemic, multidimensional challenges that extend beyond technical issues and involve multiple actors, constituting a complex governance problem. To address this complexity, a public policy expert (PKP) was engaged to reassess the empirical findings through a governance-oriented lens. Rather than producing simple recommendations, the peer debriefing generated deeper interpretive insights that informed a potential solution framework, showing how expert engagement can strengthen the theoretical grounding of the findings (Cooper, 1997). This strengthened the study's interpretive robustness and enriched its conceptualization of governance challenges surrounding SET provision.

Researcher positionality reflected a dual insider–outsider stance: academic familiarity enabled contextual understanding, while non-involvement in policymaking or SET recruitment ensured analytical distance. Reflexivity was maintained through memoing, challenging assumptions, and grounding interpretations in participant accounts (Engward & Davis, 2015). Credibility and transparency were reinforced through source triangulation and member checking (Amin et al., 2020), as well as an audit trail (Bowen, 2009). Triangulation compared informant perspectives (Meydan & Akkaş, 2024), and member checking validated interpretations (Candela, 2019). These strategies ensured that insider insight enhanced depth while maintaining rigor (de Kleijn & van Leeuwen, 2018), resulting in credible findings that reflect the empirical realities of SET provision in Central Kalimantan's SLBNs.

3. FINDINGS AND DISCUSSION

3.1 Findings

The findings of the thematic analysis of interviews, observations, and document reviews reveal the systemic, multidimensional dynamics and challenges in the provision of SET in SLBNs in Central Kalimantan Province. The analysis produced three main themes that capture the complexity of issues across policy, institutional, and personal-structural dimensions, collectively highlighting the weaknesses of the SET ecosystem in the region.

3.1.1 Unsystematic and Non-Data-Driven Planning of SET

The first theme highlights that the governance of SET provision planning has not been systematic or data-driven. Interviews, observations, and document analysis show that the planning process remains administrative and reactive, focusing on filling vacant positions each year without any medium- or long-term projections of need. As shown in Figure 2, the weak foundation of this planning policy is a fundamental cause of the scarcity of SET.

A senior Education Agency official described the current planning practice:

"It is still very simple... and is usually based on reports from schools, without any analysis of long-term needs or retirement projections" (KDP-KT, 2025)

This statement confirms that the current mechanism is not yet fully oriented towards evidence-based SET management and places greater emphasis on meeting short-term needs. The absence of an integrated data system is a key factor that weakens the effectiveness of planning. A similar point was also raised by an official in the field of PKLK:

"There is no integrated database that can map the SET needs for each school... and data between units is not always synchronized." (Kabid- PKLK, 2025)

This lack of synchronization is not only a technical reporting issue, but also points to systemic challenges in data management and cross-unit coordination. Without consistent data, the process of identifying real needs is hampered, and policy decisions lack a strong analytical basis. From the school's

perspective, similar challenges are also felt. A principal of a special needs school in West Kotawaringin Regency said:

"The data at the school and provincial levels are different, so our proposals are often delayed or not approved." (KS-Kobar, 2025)

This information indicates a vertical coordination gap between SLBN and the provincial government, where data inconsistencies delay verification and reduce policy responsiveness to school needs. These coordination and data validation challenges directly affect the accuracy of planning and the effectiveness of cross-level decision-making.

A review of the 2021–2026 Strategic Plan (Renstra) of the Education Office and the 2024 Recapitulation of Educators confirms the absence of quantitative indicators for SET needs, whether based on ideal ratios, disability types, or regional distribution. The available data is aggregate, without differentiation by qualifications, employment status, or assignment location, and there is no systematic monitoring of the number of active SETs in each school, making it difficult to ensure data accuracy.

Overall, these findings indicate that the issue of SET planning is not merely an administrative issue, but reflects structural weaknesses in data management, analytical capacity, and cross-sector coordination. As shown in Figure 2, reactive, fragmented planning patterns underlie SET scarcity because decisions lack accurate information and adequate demand projections. The absence of measurable indicators and regular monitoring has led to planning oriented towards position availability rather than real needs based on SEN dynamics. Thus, the absence of an integrated data system and the lack of long-term projections weaken SET planning policies and impact the quality of educational services for SEN.

3.1.1. Absence of SE Undergraduate Program at Local Universities

The second theme highlights institutional barriers to SET provision, particularly the absence of SE undergraduate programs at local universities. Without this educational pathway, the region lacks a sustainable supply of prospective teachers and must rely on recruitment from outside the region. As shown in Figure 2, this obstacle is the second underlying cause of weakness in the SET supply ecosystem at the provincial level.

"We don't have a university that produces SET candidates in this province... so we have to recruit from outside the region." (KDP-KT, 2025).

This statement from a senior Education Office official confirms that the region lacks the institutional foundation to systematically produce prospective SETs, rendering the SET regeneration process unsustainable. This obstacle is also reflected in the dynamics faced by local universities. Officials in the PKLK Division who have communicated with local universities have revealed the challenges faced in establishing undergraduate programs in SE.

"We have discussed with several local universities to open SE undergraduate programs, but the limited number of qualified lecturers is the main obstacle to proposing new programs." (Kabid-PKLLK, 2025).

Information from Education Agency officials confirms that the obstacles to establishing an SE undergraduate program are not solely due to the limitations of local institutions, but are a consequence of the structural requirements of the national higher education system, which requires lecturers to be fully prepared as a key condition, and is therefore beyond the control of regional universities. A search of the Indonesian Higher Education Database (PDDIKTI) confirms that of the 49 active universities in Central Kalimantan Province, none have an SE undergraduate program, indicating a mismatch

between the need for SET in SLBN and the capacity of local higher education institutions to prepare relevant educators.

From a personnel management perspective, officials in the Personnel Division describe the practical implications:

“As long as there is no SET preparation institution here, it is difficult to manage supply and regeneration in a sustainable manner.” (Kabid-Ket, 2025).

This statement highlights the interdependence between the absence of SE pathways and the difficulties of local governments in planning SET regeneration. This situation is further complicated when a number of teachers retire or transfer to other work units after attaining a certain employment status. The impact of the absence of SE undergraduate programs at the local level is also reflected in the school context. A principal of an SLBN in East Kotawaringin Regency explained that most teachers at SLBNs have a general education background and only obtained their SE qualifications through second bachelor's degree programs in other provinces.

“It is widely recognized that there is a difference in quality between teachers who have been fully qualified from the SE undergraduate program from the start and those who have taken a second undergraduate program.” (KS-Kotim, 2025).

This statement is not meant to compare individual abilities, but to describe the variation in competence that arises from the absence of a structured SET preparation pathway at the local level. Reliance on “conversion” or advanced bachelor's degree schemes does not always result in pedagogical competencies and specializations equivalent to those of regular program graduates. These findings confirm that the absence of SE bachelor's degree programs is an institutional problem with systemic impacts: limiting SET regeneration, creating an unstable supply of teachers, giving rise to competency variations, and increasing reliance on recruitment from outside the province. As shown in Figure 2, these institutional barriers directly contribute to the scarcity of SET and to reduced service quality at SLBN. In this context, the low interest of non-local applicants emerges as a further consequence of unaddressed institutional issues, which are discussed further in section 3.1.3.

3.1.2. Low Interest of Non-Local Applicants for SET Positions

The final theme highlights barriers related to the supply of SET, caused by low interest among non-local applicants (from outside the province) in filling SET positions in the region. This phenomenon has recurred in several recruitment cycles and has become one of the factors perpetuating the shortage of SET in various schools. As shown in Figure 2, the low interest among non-local applicants contributes to suboptimal filling of SET positions and weakens efforts to meet SET needs sustainably. This condition is the third underlying cause that prolongs the challenge of providing SET and hinders the stability of the SET ecosystem.

An official from the Central Kalimantan Provincial Civil Service Office described the low response from applicants in the existing recruitment process:

“Last year we opened quite a lot of positions for SET with PPPK status, but the number of applicants and those accepted was very small, only seven people.” (K-BKD, 2025)

This information shows that the availability of positions does not automatically attract applicants from outside the region. Although a large number of vacancies were opened, many positions remained unfilled, meaning that SET needs were still far from being met. A similar explanation was also given by PKLK officials, who understand the dynamics of SE at the provincial level.

“Applicants from outside the region may consider distance, cost of living, and social environment compatibility when choosing a location. This situation makes certain areas less desirable.” (Kabid-PKLLK, 2025)

This information shows that, in the context of SE, the availability of positions does not necessarily correspond to the interest of applicants outside the region, so many positions remain vacant even though many are opened. The decisions of non-local applicants are not only determined by job opportunities, but also by various practical and contextual considerations that influence their perceptions of the assignment area.

One school principal who has cross-regional professional experience and understands the perspective of prospective teachers from outside the region, especially from Java, explained similarly:

“Prospective applicants from outside the region often consider family ties and welfare factors, and see placements outside Java as locations that are far from urban centers with limited facilities.” (KS-Kobar, 2025).

Another principal added that perceptions of the balance between incentives and working conditions also influence applicants' decisions:

“They assess that the conditions here are not comparable to the incentives offered in their home regions.” (KS-Kotim, 2025).

Information from all sources indicates that the low interest among non-local applicants is the result of an interaction between internal factors: family considerations, welfare preferences, and relocation concerns; and external factors such as perceptions of the geographical conditions of the assignment and incentives that are not commensurate with the workload and cost of living. The interaction of these two factors weakens the placement's attractiveness from the early stages of recruitment, as reflected in the small number of non-local applicants and the low rate of filling SET positions. Thus, the low interest among non-local applicants is not merely a technical recruitment issue, but a manifestation of personal preferences that align with the region's structural context. This situation prolongs the SET supply gap and reinforces the barriers outlined in the two previous findings. As shown in Figure 2, these factors create ongoing challenges in meeting SET requirements and affect the stability of educational services for SEN.

3.1.3. Interpretive Findings from Peer Debriefing: The Emergence of Collaborative Governance as a Potential Solution

Based on the three previous themes, the problem of SET provision in this region is both technical, systemic, and multidimensional. Fragmented planning, the absence of a SET preparation pathway, and low interest among non-local applicants indicate that this issue lies at the intersection of the provincial government, universities, and other stakeholders. This complexity cannot be understood solely from an educational perspective; it requires an interdisciplinary interpretation. To that end, we conducted a peer debriefing with public policy experts, who, through a series of discussions, confirmed that the pattern of findings reflects a cross-sectoral governance issue.

“The root of the problem is spread across many institutions; therefore, it cannot be solved by one institution alone.” (PKP, 2025)

Based on this interpretation, the expert mapped the relationships between the findings to see how each issue was intertwined and contributed to the scarcity of SET. This mapping showed that the three underlying causes did not stand alone but formed a series of interrelated problems, requiring an

understanding of the issue holistically, beyond separate thematic analyses. Experts then emphasized that the solution requires a policy framework that connects cross-sector actors in a structured manner and recommended Collaborative Governance (CG) as the approach best suited to the systemic, multidimensional, and cross-jurisdictional nature of the problem.

“When the problem is complex and multidimensional, the framework must also be multidimensional.” (PKP, 2025)

A comprehensive overview of the mapping results is presented in Table 1, summarizing the problem structure, relevant actors, cross-sector implications, and directions for SET ecosystem development solutions. Following the mapping, the expert explains how CG can form the basis for a more effective and sustainable SET ecosystem. This approach enables the alignment of mandates and cross-sector coordination to strengthen the SET ecosystem through four stages: (1) Preparation: data-based planning reform and the establishment of special education undergraduate programs; (2) Recruitment: selection and distribution of teachers based on projected needs; (3) Placement: assignments that consider regional characteristics and incentive schemes; and (4) Continuing Professional Development (CPD): continuous competency coaching and strengthening of professional communities.

Table 1. Summary of expert analysis of empirical findings

Main Theme	Core Issues	Actors Involved	Systemic Implications	Direction on Solutions SET Ecosystem
Unsystematic and Non-Data-Driven Planning of SET	Fragmented, non-data-driven, and reactive planning.	Education office, Regional Service Agency (BKD), schools, universities	No demand projections; policy becomes supply-driven.	Preparation: reform of planning governance; integrated SET information system; mapping of inter-agency needs.
Absence of SE Undergraduate Program at Local Universities	There is no pathway for SET candidates; the university's capacity is not yet ready.	Universities, provincial governments, potential private sector (CSR programs)	SET supply is unstable; dependent on external recruitment; varying levels of competence.	Preparation: establishment of an SE undergraduate program, strengthening of university capacity, scholarships for prospective SET students.
Low Interest of Non-Local Applicants for SET Positions	Low attractiveness due to family, welfare, geographical, and incentive factors.	BKD, education office, provincial government, potential private sector (CSR programs)	Formations are unfilled; SET distribution is uneven.	Placement: location-based incentive schemes; private partnerships for additional incentives; regional retention strategies. Recruitment: data-based selection process; synchronization of school-province-BKD needs. CPD: government-university-private sector support for CPD; strengthening the SET professional community.

At the end of the peer debriefing, the expert reiterated that the effectiveness of CG is highly dependent on a strong foundation, namely, policy redesign. This redesign is necessary to harmonize institutional mandates, clarify coordination flows, and ensure adequate regulatory and financial support for the implementation of collaboration.

“Collaboration will not work if policies are still designed in a sectoral manner. So far, cooperation has only been incidental. Therefore, policies must be redesigned so that collaboration becomes the working logic, without exception.” (PKP, 2025)

Overall, peer debriefing with experts produced interpretive findings that Collaborative Governance is not merely a normative recommendation, but a potential solution framework that emerged from reading the problem structure identified in the research. With policy redesign support, this approach is seen as capable of forming a more responsive, coordinated, and sustainable SET ecosystem.

3.2. Discussion

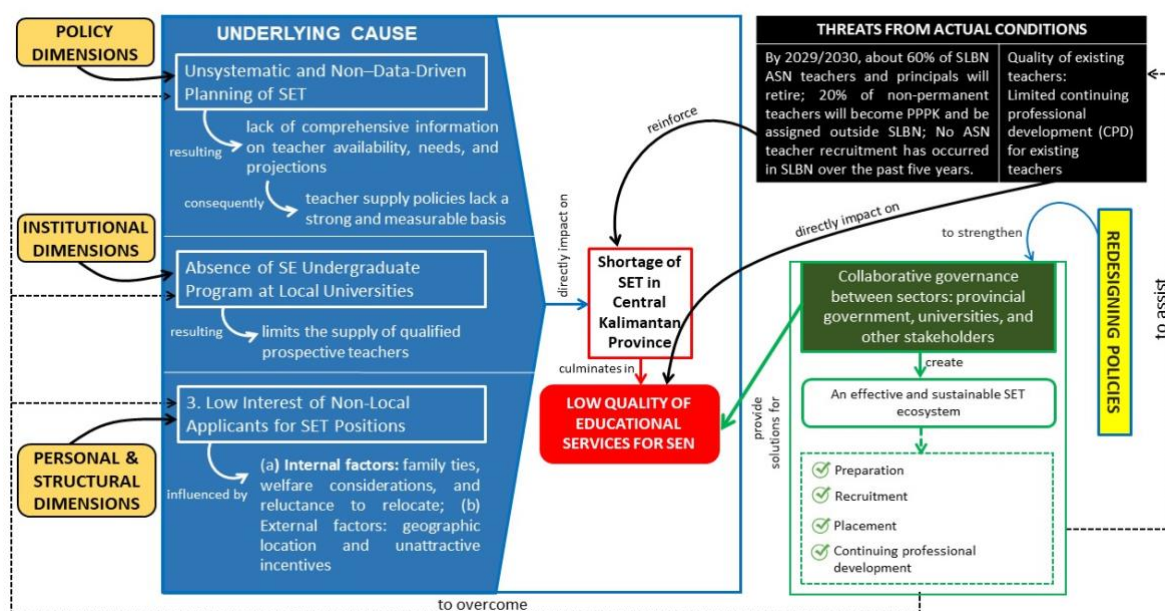


Figure 2. Dynamics and challenges of SET provision at SLBN in Central Kalimantan Province

3.2.1 Unsystematic and Non-Data Driven Planning of SET: Perspectives on Teacher Policy Literature

The findings of this study indicate that the weaknesses in SET provision planning are structural policy issues that affect the entire SET procurement chain. Administrative, reactive planning without medium- to long-term demand projections reflects the absence of comprehensive data governance. This aligns with Billingsley & Bettini (2019) and Nguyen et al. (2024), who emphasize that SET provision requires accurate demand diagnosis for effective recruitment and distribution policies.

The absence of an integrated data system means that information on the availability, needs, and projections of SET is not presented in its entirety, resulting in supply-driven rather than needs-driven planning. This finding is consistent with Peyton et al. (2020) and Domović & Drvodelić (2025), who show that the lack of data integration across institutions results in fragmented policies that are less responsive to local dynamics.

Similar patterns are evident in other parts of Indonesia. Chang et al. (2014) note that weak data systems cause a mismatch between teacher formation and school needs in Indonesia, including in specialized fields such as SE. Regionally, OECD/UNESCO (2016) also reports that Southeast Asian countries face planning obstacles due to weak data infrastructure. When linked to the teacher supply ecosystem model, these upstream planning weaknesses have a knock-on effect on recruitment and distribution. Peyton et al. (2020) and Billingsley & Bettini (2019) emphasize that without accurate data, recruitment is not targeted, potentially leading to a mismatch between teacher training and the real needs of schools. The findings of this study reinforce this argument through evidence of data inconsistency at the school and agency levels. Thus, the issue of SET planning is not merely administrative, but part of a broader governance problem, making data system reform the main foundation for an effective and sustainable SET ecosystem.

3.2.2 Institutional Challenges in the Teacher Preparation Ecosystem: The Absence of Local SE Undergraduate Programs

Research findings show that the absence of SE undergraduate programs at local universities creates institutional barriers that limit SET regeneration and result in an unstable supply of teachers with varying levels of competence. This condition aligns with Flores et al. (2025), who assert that when higher education fails to tailor programs to educators' needs, teacher shortages will persist.

Without an SE pathway, prospective teachers do not receive adequate pedagogical and contextual training. Ruppert et al. (2018) emphasize that teachers' readiness to work with SEN depends on their understanding of the social, economic, and cultural context. As a result, many SLBN teachers come from non-SE backgrounds and follow the "conversion" pathway, which does not always yield competencies equivalent to those of regular program graduates. The impact is evident in the quality of learning: variations in competency, dependence on graduates from outside the region, and instability in the supply of teachers reflect patterns also noted by Cameron et al. (2024) and Vanassche (2025) that the issue of SET shortage is not only related to quantity but also to the continuity of unmaintained professional capacity. The absence of SE undergraduate programs has become an institutional "bottleneck", hindering the formation of a stable SET ecosystem.

National inequality exacerbates this problem. PDDIKTI data from 2025 shows that of the 27 universities in Indonesia that offer SE programs, most are located in Java, while Central Kalimantan has none. This imbalance explains the region's high dependence on external recruitment and conversion mechanisms, thereby hindering strategies to increase the number, retention, and quality of SETs in a sustainable manner.

3.2.3 Teacher Supply Barriers: The Dynamics of Low Interest Among Non-Local Applicants

The findings show that the low interest of non-local applicants in filling SET positions at SLBNs is a supply barrier that arises from the interaction of personal factors (family considerations, welfare, relocation) and structural factors (geographical conditions, unattractive incentives). This combination reduces the profession's attractiveness from the application stage, leaving a number of positions unfilled. This phenomenon is consistent with Gilmour et al. (2025), Bettini et al. (2019), and Harper et al. (2023), who confirm that perceptions of the SET profession are greatly influenced by work-life balance, institutional support, and professional recognition. The findings of Cameron et al. (2024) and Sirkko & Mankki (2025) also show that the shortage of SET professionals is not only related to the number of graduates but also to working conditions and professional support.

Systemically, the low interest of non-local applicants reflects an ecosystem that is not yet able to offer competitive attractions, including location incentives, welfare, and career paths. The study by Heyward et al. (2017) shows that areas with limited access in Indonesia tend to experience teacher shortages due to low incentives and limited facilities. This aligns with Kluge-Brück et al. (2025) and Peyton et al. (2020), who emphasize that the imbalance in teacher distribution results from the interaction between systemic and personal factors.

Thus, the low interest of non-local applicants is an integral part of the causes of the SET shortage. Without strategies to increase the profession's attractiveness, whether through regional incentives, welfare support, or career development, meeting the SET needs at SLBN in Central Kalimantan will be difficult to sustain.

3.2.4 Collaborative Governance as a Solution Framework for Systemic and Multidimensional Issues

The results of the peer debriefing on the three underlying causes indicate that the lack of SET in SLBN Central Kalimantan Province is not merely a technical issue but a complex, cross-institutional

governance problem. As experts emphasize, it cannot be resolved by a single institution alone. This perspective aligns with the Collaborative Governance (CG) framework, which emphasizes cross-sector coordination to address multidimensional public issues (Ansell & Gash, 2008; Purdy, 2012; Torfing et al., 2012). This finding also expands the application of CG in the context of special education in Indonesia, which so far has not appeared in the discourse of education governance literature, and is in line with Vanassche (2025), Fullan (2016), and Spillane et al. (2002), who emphasize the importance of a collaborative ecosystem in education reform.

Based on CG, the strategy to strengthen the SET ecosystem can be realized through four stages: preparation, recruitment, placement, and CPD. In the preparation stage, the Education Office needs to reform data-based planning so that school needs are mapped and SET provision projections are accurate (Eminarni et al., 2025; McLeskey et al., 2004; Payne, 2005) and support the establishment of SE undergraduate programs at local universities (O'Brien et al., 2023), including scholarships from the private sector's CSR programs (Nugroho et al., 2025). The recruitment stage requires a data system that efficiently distributes teachers (Day & Nagro, 2025). The placement stage requires regional incentives to attract non-local applicants (Mason-Williams et al., 2019; Theobald et al., 2021), supported by private-sector CSR programs. Finally, the CPD stage emphasizes strengthening professional communities that support collaborative learning (Codina & Robinson, 2024; Sirkko & Mankki, 2025). Although CG offers a powerful potential solution, its implementation requires policy redesign as an absolute prerequisite for realizing systemic and integrative cross-sector collaboration. Without it, efforts to build an effective, sustainable, and responsive SET ecosystem that meets SEN needs will be difficult.

4. CONCLUSION

This study shows that the provision of SET at SLBNs in Central Kalimantan Province is a systemic problem rooted in three intertwined underlying causes that reflect governance vulnerabilities across the policy, institutional, and personal-structural dimensions. This condition calls for a transformation towards progressive, integrative, and collaborative governance to ensure the availability of professional, equitable, and sustainable SET. The findings of this study confirm the relevance of CG as an approach to synergize cross-sector actors in strengthening the SET ecosystem: preparation, recruitment, placement, and CPD. In practical terms, the provincial government needs to immediately improve data-based planning governance, reorganize needs-based recruitment mechanisms, and strengthen the attractiveness of non-local applicants through incentive schemes developed in collaboration with the private sector. At the same time, strengthening institutional capacity needs to be a strategic agenda, including the establishment of SE undergraduate programs at local universities, the development of more systematic career paths and teacher retention, and policy redesign to institutionalize the implementation of CG. Further research is needed to develop a more operational CG framework for a decentralized education system.

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