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Implementing the Merdeka Curriculum in Remote Primary Schools: School Leadership and Adaptive Strategies in Indonesia's 3T Regions

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ABSTRACT

This study examines school management challenges in implementing Indonesia's Merdeka Curriculum across three primary schools in remote, frontier, and disadvantaged (3T) regions of South Kalimantan Province. Although the curriculum is designed to promote flexibility and contextual learning, its implementation in marginalized settings encounters constraints related to human resources, infrastructure, supervision, leadership capacity, and the need for local policy adaptation. Using a qualitative multiple case study design, data were collected through in-depth interviews with principals and teachers, participant observation, and document analysis at three schools representing distinct geographic conditions: a mountainous site, a swampland site, and a riverine site. Data were analyzed thematically using an interactive model, with cross-case comparison employed to identify convergent and divergent patterns. Findings indicate that principals adopt adaptive and collaborative leadership strategies including contextualizing curriculum to local livelihoods, mobilizing community resources, and providing internal coachingto sustain implementation despite resource limitations. However, the schools differ in the degree of external support and supervision they receive, revealing that implementation outcomes are shaped less by curriculum design alone than by the responsiveness of multi-level support systems. The study contributes empirically by documenting authentic implementation experiences in under-researched 3T contexts and offers practical implications for strengthening teacher capacity, infrastructure equity, and context-responsive leadership development. Rather than indicating local failure, the documented challenges underscore the need for sustained, coordinated investment in marginalized education.

Keywords
Education Quality
Disparities
Educational Leadership
Merdeka Curriculum
School Management
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Introduction

Education is a key determinant of human resource quality and national development. In Indonesia, the Merdeka Curriculum, launched as part of the broader *Merdeka Belajar* (Freedom to Learn) initiative, provides a more flexible curricular framework that emphasizes essential content alongside the development of student character and competencies [1]. Its central principle is to grant teachers and students space to innovate and to align learning with individual interests, talents, and contextual needs. The curriculum is intended not only to improve learning quality but also to promote equitable access to education in remote, frontier, and disadvantaged (3T) regions through affirmative government policy.

With national implementation following several years of pilot testing, school readiness particularly in 3T regions has become a policy priority [2]. This priority is significant because educational disparities between developed and remote regions remain pronounced. Primary education services in 3T areas lag behind urban counterparts across multiple dimensions, including infrastructure, teacher distribution and quality, technology access, and curriculum implementation [3]. Urban schools generally benefit from adequate facilities and resources, whereas 3T schools continue to face constraints in physical infrastructure, human resources, and access to information [4]. National data illustrate the scale of the challenge: a substantial proportion of children in 3T regions complete only primary education, and many remote schools lack permanent teachers, adequate textbooks, and reliable connectivity [5]-[6]. According to national statistics, a considerable share of educational facilities in 3T regions are reported to be in damaged condition, with many lacking electricity or internet access [6].

Importantly, these challenges unfold against a backdrop of substantial educator dedication and demonstrable government commitment. National recognition of exemplary remote-area teachers including a presidential award conferred on one principal in this study for dedicated service signals state-level acknowledgment of the innovation occurring in marginalized schools. Local governments in South Kalimantan have likewise demonstrated commitment within fiscal constraints, providing periodic teacher training, infrastructure investment, and coordination of national programs. Understanding implementation in 3T contexts therefore requires examining not only the constraints educators face but also the adaptive responses and support systems already in place.

Within this context, the role of school management particularly the principal is decisive. Under national regulation, the principal's responsibilities encompass managerial duties, entrepreneurial development, and supervision aimed at ensuring instructional quality and improving learning outcomes [7]. Within the Merdeka Curriculum framework, principals are expected to act as educators, managers, administrators, supervisors, leaders, innovators, and motivators. Principal leadership constitutes a key factor in successful curriculum implementation [8]. This is especially crucial in 3T areas, where limited human resources often require principals to assume multiple roles; in disadvantaged settings, the principal challenge is frequently not remote location alone but teacher shortages [9].

Prior research on Merdeka Curriculum implementation has largely focused on non-3T contexts or specific implementation aspects. Implementation challenges in urban primary schools have been mapped, identifying obstacles related to student readiness, teacher competence as facilitators, and school managerial skills in managing change [10]. A qualitative study in an archipelagic 3T province likewise found that nearly all schools experienced difficulties implementing the curriculum [1]. Despite these contributions, a gap remains regarding implementation in 3T primary schools from a school management perspective. Few comprehensive studies have documented the actual experiences of schools and teachers in remote regions, and most existing literature is either conceptual or urban-focused. Empirical studies are therefore needed to examine how principals and their teams address local constraints within the new curriculum policy framework.

Accordingly, this study investigates school management challenges and strategies in implementing the Merdeka Curriculum in 3T primary schools in South Kalimantan. Specifically, it addresses three research questions: (1) What school management challenges arise in implementing the Merdeka Curriculum in 3T primary schools? (2) How do principals and school teams adapt their leadership and management strategies to address these challenges? (3) What forms of external support shape implementation across cases? By emphasizing principal leadership, the study aims to provide an in-depth account of curriculum implementation under resource constraints, contributing empirical and contextual insights to the literature on educational management in marginalized regions and informing policy support and intervention.

Material and Methods

A. Research Design

This study employed a qualitative multiple case study design to investigate school management challenges in implementing the Merdeka Curriculum in 3T primary schools. The multiple case study approach enables comparative analysis that deepens understanding of

phenomena, reveals patterns across contexts, and strengthens the validity of findings through cross-case comparison [11].

B. Research Sites and Sampling

Three primary schools in South Kalimantan Province were selected through purposive maximum-variation sampling. To protect institutional and participant privacy, the schools are referred to throughout by pseudonyms reflecting their geographic settings: Mountain Peak Primary School (a mountainous site), Swampland Primary School (a flood-prone wetland site), and Riverine Primary School (a river-and-wetland site accessible only by water). Selection criteria included: (1) official 3T designation; (2) active Merdeka Curriculum implementation for at least one academic year; (3) representation of distinct geographic barriers; and (4) willingness of school leadership to participate. These criteria ensured both comparability schools implementing the same curriculum under 3T conditions and variation in geographic context, enabling cross-case pattern identification.

C. Participants

Participants comprised nine individuals across the three schools: three school principals (one per site) and six teachers (two per school) who served as representatives selected for their direct involvement in Merdeka Curriculum implementation. The inclusion of both principals and teachers allowed the study to capture leadership-level and classroom-level perspectives, enabling comparison of how curriculum implementation was understood and experienced across roles and sites.

D. Data Collection

Data were collected over a two-month period, from October 2025 to December 2025, using three complementary techniques. In-depth interviews with principals and teachers explored their experiences, understandings, and the constraints they encountered in implementing the curriculum; with participant consent, interviews were both audio-recorded and documented in field notes to ensure accuracy. Participant observation conducted during school visits enabled the researchers to observe implementation processes and school management dynamics in their natural settings. Document analysis examined curriculum documents, operational curriculum plans (KOSP), teaching modules, evaluation reports, and administrative records. To strengthen contextual understanding, these primary data were further complemented by publicly available documentation and school reports, which provided additional background on each school's geographic conditions, infrastructure, and recent developments.

E. Data Analysis

Analysis followed an interactive model comprising three iterative stages: data reduction, data display, and conclusion drawing and verification [12]. Raw field data were reduced

through selection and simplification to focus on information relevant to the research questions. Initial coding proceeded inductively, with related codes consolidated into broader categories; for example, codes concerning teacher shortages, training access, and competency gaps were grouped under "human resource challenges." Themes were then displayed using descriptive narratives and thematic matrices to facilitate identification of patterns and relationships among categories. Cross-case comparison systematically contrasted findings across the three schools to identify convergent themes and divergent patterns, with divergences examined to understand context-specific variation.

F. Trustworthiness

Trustworthiness was addressed through several strategies. Credibility was enhanced through direct school visits, observation of school activities, and member checking, in which preliminary findings were shared with participants for validation. Triangulation was conducted across sources principals, teachers, and documents and across methods, namely interviews, observation, and document analysis [13]-[14]. Where divergences emerged between official school documentation and interview or observational data, both perspectives were retained and interpreted analytically rather than reconciled by privileging a single source. Dependability was supported by maintaining an audit trail of analytical decisions, transferability by providing thick description, and confirmability through reflexive documentation of interpretive choices.

G. Ethical Considerations

Research permission was obtained from the participating schools and the relevant district education authorities prior to data collection. Written informed consent was secured from all participating principals and teachers, who were informed of the study's purpose, their right to withdraw, and the measures taken to protect their confidentiality. To protect privacy and institutional dignity, all school and individual names have been anonymized, and geographic details have been generalized to the provincial level while retaining sufficient context for analytical validity. Preliminary findings were shared with the participating schools prior to publication to ensure accurate representation.

Results and Discussions

Findings are organized by the major themes that emerged from the data: human resources; facilities and infrastructure; supervision and monitoring; principal leadership; and curriculum policy adaptation and external support. Each theme integrates interview and observational data, incorporates participant perspectives, and concludes with cross-case analysis before being interpreted against relevant literature.

A. Human Resource Challenges

Human resources, particularly teachers, constitute a central factor in implementing the Merdeka Curriculum in 3T areas, where teacher readiness and competence represent major considerations [15]. Across the three schools, educators demonstrated notable dedication, frequently undertaking arduous journeys to reach their posts and engaging in self-directed learning to compensate for limited formal training. This commitment provides a foundation upon which systemic support can build.

At Mountain Peak Primary School, staffing was minimal a small number of classroom teachers and one religious-education teacher serving a modest student population requiring individual teachers to teach multiple grades and subjects simultaneously. As one teacher explained:

> *"Because the number of teachers here is limited, we often teach more than one subject at once. Sometimes in a single day I have to prepare materials for several different classes. The challenge lies in lesson preparation, because the characteristics and needs of each class are not the same."* (Teacher, Mountain Peak Primary School)

Multi-grade teaching thus created high workloads and constrained teachers' capacity to meet curriculum expectations that ideally assume single-grade instruction. Swampland Primary School was comparatively better staffed, yet still faced multi-grade conditions alongside variation in competence and pedagogical adaptation. Notably, school documentation and leadership assessments at Swampland Primary characterized teachers as well prepared, citing competence in designing teaching modules, applying differentiated and active learning, and using assessment appropriately. Interview and observational data, however, pointed to ongoing adaptation: teachers acknowledged continuing to refine differentiated instruction in practice, particularly given diverse student abilities and limited materials. A teacher at Riverine Primary School reflected:

> *"Conceptually, differentiated learning is indeed good, but in the field it is not always easy. Students' abilities vary widely, while the available media and teaching materials are limited. Sometimes we have to make our own adjustments so that all students can still follow the lesson."* (Teacher, Riverine Primary School)

This divergence is analytically significant. It suggests a distinction between *formal readiness* teachers are trained and actively implementing the curriculum and *full mastery*, in which teachers feel fully confident across all components. This gap is not unique to 3T schools, but it is exacerbated by limited ongoing professional development, weak peer networks, and minimal external mentoring in remote contexts. At Riverine Primary School, readiness similarly varied despite roughly two years of implementation, as some teachers continued to strengthen their understanding of differentiation and newer approaches that required further mentoring. Beyond competence, the difficulty of attracting and retaining highly qualified teachers in remote postings remains a structural constraint, as higher-performing teachers frequently prefer urban placements [16].

Regarding training, teachers generally reported that intensive, in-depth formal training before implementation was limited, with distance and transportation acting as barriers to attending technical guidance typically held in district centers; consequently, teachers often relied on independent study using available modules and guidelines. The principal of Riverine Primary School described this pattern:

> *"Not all training can be attended in person. The main obstacle is distance and transportation. When there is an activity in the regency, teachers have to leave the school for quite a long time. That is why we more often learn independently through modules, the [national teaching] platform, and by sharing good practices among teachers."* (Principal, Riverine Primary School)

At the same time, school documentation at Swampland Primary indicated that completed training had meaningfully strengthened teachers' understanding of student-centered learning, module development, and assessment again illustrating that improvements are real even as needs persist. Difficulties with technology adoption further compounded these constraints, though access improvements brought gradual progress. A senior teacher at Mountain Peak Primary School recalled:

> *"At first we found it quite difficult to use digital platforms because internet access was inadequate and we were not yet accustomed to them. After better internet became available, we began learning to use the [national teaching] platform and other learning applications, although we still need guidance."* (Senior teacher, Mountain Peak Primary School)

Reports from national policy analysts corroborate that many 3T schools struggle to access curriculum information owing to limited digital competence and infrastructure [17]. Primary implementation challenges thus include teachers' pedagogical competence and capacity to design differentiated instruction [18].

All three schools share two features: dedicated teachers and geographically constrained access to professional development. They differ in staffing adequacy and in the gap between formal assessments of readiness and classroom-level experience, with this gap most visible where official documentation is most optimistic. The findings reinforce the view that implementation quality depends heavily on teacher readiness as the frontline of change [19]; without competent, well-supported teachers, the curriculum's student-centered aspirations are difficult to realize.

B. Facilities and Infrastructure

Infrastructure conditions present a complex picture in which genuine improvement coexists with persistent constraint. School leaders demonstrated ingenuity in adapting to deficits, yet foundational gaps continue to shape implementation. At Mountain Peak Primary School, located in a mountainous region of South Kalimantan accessible only by a multi-day trek, the school was not connected to the public electricity grid and relied on batteries and generators, yielding an unstable power supply. Limited or absent connectivity further hindered access to national teacher platforms. In response, the principal independently financed the installation of satellite internet, enabling connection to external resources despite

a high recurring cost an example of entrepreneurial leadership compensating for systemic gaps. The principal explained the rationale and its limits:

> *"We installed satellite internet because the learning and administrative needs of the school could no longer rely only on the existing network. The biggest challenge is actually the subscription cost and the availability of electricity, because in our village there is still no stable power supply."* (Principal, Mountain Peak Primary School)

Conditions at Swampland Primary School illustrate the value of triangulating data sources across time. Official documentation and interview data described facilities that had improved substantially. Before renovation, several learning spaces were inadequate, particularly in poor weather; following a government-supported revitalization, conditions changed markedly. A teacher recounted this transition:

> *"Before the renovation, some learning spaces were no longer fit for use. When the weather was not favorable, teaching and learning became uncomfortable. After the renovation was completed, students were far more enthusiastic because the classrooms were safer and more comfortable."* (Teacher, Swampland Primary School)

This account aligns with documented infrastructure improvements: the school received central-government revitalization (new classrooms, sanitation facilities, and furnishings) and local-government transportation support, illustrating responsive multi-level investment in a setting where building materials had to be transported by boat. Nevertheless, digital infrastructure remained a constraint, with connectivity and power supply intermittent. As another teacher noted:

> *"When the electricity or the internet network has problems, activities that use digital devices are automatically delayed. In the end, we return to simpler teaching methods and adjust to the conditions at hand."* (Teacher, Swampland Primary School)

This divergence between earlier conditions and post-renovation realities is itself a finding. Relative to prior years and to comparable remote schools, facilities have improved substantially; yet connectivity and energy reliability remain insufficient for the demands of a technology-oriented curriculum. The gap reflects not local failure but a mismatch between 3T infrastructure needs and available investment, partly addressed through responsive government action.

Riverine Primary School similarly faced access and infrastructure constraints owing to its wetland location, with ICT facilities for digital learning scarce and instructional materials limited. Infrastructure readiness is widely recognized as an important prerequisite for implementing new curricula in primary schools [20], and inadequate access and infrastructure are primary drivers of educational-quality disparities in remote regions [21]-[22]. Comparable patterns appear internationally, including rural India, where schools often lack laboratories and digital equipment amid teacher shortages [23]; inland Australia, where access to educational infrastructure remains uneven [24]; and remote Philippine schools, where teachers display resilience under similar constraints [25]. These parallels indicate that

infrastructure and resource disparities are a global concern with direct consequences for educational-policy implementation.

All three schools lack fully reliable electricity and connectivity, confirming that digital-infrastructure deficits are systemic rather than incidental. The schools differ in the form of their vulnerabilities altitude and terrain, recurrent flooding, and wetland isolation and in their mitigation pathways, ranging from principal-led private investment to government-supported rehabilitation and incremental local improvement. Effective policy must therefore combine universal interventions (reliable connectivity for all) with context-adaptive solutions (flood-resistant structures, energy support).

C. Supervision and Monitoring

Supervision practices varied considerably across the three schools, demonstrating that 3T status does not uniformly determine oversight quality. This variation is itself analytically informative. At Swampland Primary School, both internal and external supervision were reported to be well established and planned. Internal instructional supervision was conducted regularly by the principal through classroom observation, reflective discussion, and constructive feedback, focusing not only on administration but also on instructional processes such as differentiation, student engagement, and assessment use, with a developmental orientation intended to support continuous improvement. The principal described the practice:

> *"We conduct supervision periodically through classroom observation. Afterward there is usually a reflective discussion with the teacher to address what has gone well and what still needs improvement."* (Principal, Swampland Primary School)

External monitoring by supervisors and the district education office was likewise reported to operate well, through periodic visits, evaluation, and guidance on implementation. A teacher confirmed this support:

> *"On several occasions the supervisor and the education office came to provide mentoring. Their presence helped us understand the implementation of the Merdeka Curriculum and the preparation of learning tools."* (Teacher, Swampland Primary School)

Evaluation mechanisms included classroom observation, review of teaching tools (modules and assessments), reflective discussion with teachers, and periodic evaluation meetings with follow-up actions. This relatively robust supervisory structure contrasts with conditions at the other two sites.

At Mountain Peak Primary School, by contrast, external supervisory visits were infrequent owing to difficult geographic access and limited resources at the district level. Internal supervision was implemented through a coaching approach in which the principal discussed challenges directly with teachers, sought solutions collaboratively, and brought unresolved issues to a monthly learning-community forum. At Riverine Primary School, internal supervision by the principal and teaching staff occurred periodically commonly twice per semester while direct external mentoring was less available; the district education and culture

office nonetheless provided support through training to strengthen implementation, and evaluation proceeded through reflection and iterative improvement. Teachers at the more isolated sites expressed a desire for more frequent external support, as one explained:

> *"We hope mentoring can be carried out more often, especially regarding differentiated learning and assessment. Because our location is quite far, sometimes the latest information reaches us late."* (Teacher, Riverine Primary School)

Continuous support and monitoring are essential for teachers to adapt to a new curriculum [26],[27]. Government efforts to address supervisory constraints in remote areas through technological means are notable: a national teacher-development center conducted post-training remote monitoring using devices distributed to schools without internet, and teachers confirmed receiving training from provincial teams followed by written-report monitoring given connectivity limitations. These initiatives represent adaptive policymaking responsive to 3T realities; teachers valued such support while noting that complementary, more frequent mentoring would further enhance outcomes. Where supervision is weak, accountability for implementation risks decline, consistent with the principle that monitoring and evaluation are central to effective policy implementation [28],[29].

Supervision ranged from well-structured internal and external systems (Swampland Primary) to coaching-based internal supervision with sparse external visits (Mountain Peak Primary) and periodic internal supervision supplemented by district training (Riverine Primary). This variation suggests that supervisory adequacy in 3T contexts depends on the interaction of geographic accessibility, district capacity, and principal initiative rather than on remoteness alone. Adaptive supervision models combining scheduled in-person visits with technology-mediated monitoring may best fit such conditions.

D. Principal Leadership

Principal leadership emerged as a decisive factor in sustaining implementation amid contextual constraints. Across the three schools, principals functioned as directors of change, facilitators of collaboration, and shapers of teachers' psychological work climate, though the intensity and form of their strategies varied. At Mountain Peak Primary School, the principal emphasized accompanying teachers through change so they did not feel isolated, providing space for experimentation, encouraging the sharing of effective practices, and maintaining open communication to address challenges collectively. A teacher described this support:

> *"The principal always tries to accompany us when there are policy changes. We often discuss together the teaching tools, assessment, and the obstacles that arise during the implementation of the Merdeka Curriculum."* (Teacher, Mountain Peak Primary School)

The most salient challenges were not solely technical but also involved managing teacher anxiety amid curricular change and facility limitations; the principal responded by reinforcing teacher confidence through regular monthly discussions and proportional task allocation, fostering a sense of being heard and increasing engagement during the transition.

At Swampland Primary School, the principal was described as an active and strategic instructional leader who provided direction, motivation, and support; facilitated training and supervision; and encouraged collaboration among teachers, contributing to more focused and sustainable implementation. The principal built communication and teamwork through routine meetings, discussions, and peer-sharing forums that promoted openness and mutual support during the transition. Drawing on both interview and documentary data, the principal identified a combined set of leadership challenges: differences in teacher readiness and mindset; resistance to change; constraints of time and workload; limited facilities; the demands of preparing new teaching tools and conducting diagnostic assessment; concerns regarding student literacy and numeracy; and the difficulty of maintaining consistent implementation. The principal of Riverine Primary School articulated a comparable challenge:

> *"The biggest challenge is aligning teachers' understanding and readiness. Each teacher has different experience and ability, so the adaptation process requires time and continuous mentoring."* (Principal, Riverine Primary School)

In addition, where environmental conditions disrupted normal schooling, the principal of Swampland Primary led the design of alternative learning arrangements and coordinated with external parties for assistance, indicating that adaptive leadership in this setting also encompasses crisis response and the strengthening of support networks:

> *"When environmental conditions made it impossible for learning to proceed normally, we sought alternatives so that learning activities could continue. We also actively coordinated with the local government and other parties to obtain the assistance the school needed."* (Principal, Swampland Primary School)

At Riverine Primary School, the principal's role was comparatively more concentrated on supervisory functions related to implementation, with challenges centered on teachers' capacity to manage and deliver learning. Communication and teamwork were cultivated through internal school learning-community training conducted approximately monthly for knowledge renewal.

The cases illustrate a spectrum of leadership: strong psychological accompaniment and daily collaboration (Mountain Peak Primary); highly active, facilitative, and crisis-responsive leadership embedded in external networks (Swampland Primary); and leadership more concentrated in supervision and periodic internal training (Riverine Primary). This variation cautions against treating all practice as uniformly "transformational"; leadership is better read as a layered strategy calibrated to school capacity, teacher workload, and available systemic support. The findings align with evidence that principals in 3T regions rely on collaborative and adaptive leadership to optimize limited resources and that teacher empowerment and contextual project-based learning matter for implementation [30]-[31]. They further show that transformational leadership operates through concrete practices building safe communication, regulating workload, providing technical facilitation, and connecting schools

to external actors consistent with conceptions of principals as directors of change and learning [32],[33], and as liaisons with the external environment in their role as change agents [34].

E. Curriculum Policy Adaptation and External Support

Implementation in 3T areas is inseparable from school-level policy adaptation and contextual external support. All three schools adapted the curriculum to local realities, including students' sociocultural conditions, facility limitations, and the initial capacities of students and teachers. The Merdeka Curriculum was generally regarded as relevant because it allows contextual, flexible learning and character development. At Mountain Peak and Riverine Primary Schools, adaptation appeared in locally grounded teaching modules and more realistic scheduling suited to teacher and facility conditions, with teachers granted latitude to adjust strategies to student needs while preserving learning objectives. A teacher at Riverine Primary School illustrated this contextualization:

> *"We try to connect the learning material to students' daily lives. For example, in the P5 project, students observe the swamp environment, the activities of fishers, and the local wisdom around where they live."* (Teacher, Riverine Primary School)

At Swampland Primary School, contextualization was likewise explicit and tied to the surrounding community's socioeconomic life; project-based learning and character strengthening were linked to students' familiarity with aquatic livelihoods, and the school developed its operational curriculum (KOSP), teaching modules, and Pancasila Student Profile Strengthening Projects (P5) around themes such as sustainable living and local resource management. The school simultaneously addressed low literacy and numeracy among some students by adapting projects to remain inclusive, simplifying instructional tools, maximizing environment-based media, and scheduling activities flexibly around weather and access; where technology was limited, digital activities were substituted with manual or nature-based exploration, and teacher tasks were reorganized to sustain continuity.

Conceptually, these practices support understanding curriculum in 3T areas as adaptive policy modifiable to local conditions without abandoning essential objectives [35] and reflect school-level agency within a decentralized system. Crucially, the success of internal adaptation depends on adequate, equitable, and context-appropriate external support. Across the schools, district governments provided training, mentoring, monitoring, guidance, and supporting facilities, which strengthened teacher understanding and implementation. The principal of Swampland Primary affirmed the tangible value of this support:

> *"The assistance we have felt is quite real, ranging from improvements to school facilities to transportation support. This assistance has greatly helped the school improve the quality of its educational services."* (Principal, Swampland Primary School)

Documentary evidence from Swampland Primary further identified district government commitment as a model of good practice, citing sustained training and mentoring, active monitoring and evaluation, and partnerships with multiple stakeholders to improve learning

quality. At the same time, schools expressed hope that future support would be more evenly distributed and more closely tailored to remote-school needs. The principal of Mountain Peak Primary articulated this aspiration:

> *"Going forward, we hope support will not only be for physical construction, but also for strengthening teacher capacity, providing learning technology, and improving internet and electricity access."* (Principal, Mountain Peak Primary School)

These perspectives indicate a gap between support that is available and support that fully addresses implementation problems. At Swampland Primary, external support was most consequential where it addressed critical factors infrastructure rehabilitation and transportation provision whereas continuous capacity-building support remained more constrained by access.

Adaptation and external support are complementary. Schools require room to innovate, while government and external stakeholders must provide more support-intensive assistance: more intensive field mentoring, training accessible despite weak connectivity, and realistic ICT provision including substitution strategies when facilities are limited. The findings suggest that curriculum-implementation models in disadvantaged areas should be incremental and accompanied by continuous, multi-level support so that schools can implement the curriculum independently without widening educational-quality disparities.

Conclusion

This study demonstrates that implementing the Merdeka Curriculum in three remote primary schools in South Kalimantan is shaped by the interaction of constrained resources and adaptive school management. Schools faced challenges related to teacher availability and ongoing competence development, infrastructure deficits, variable supervision, leadership demands, and the need for local policy adaptation. Yet they also displayed considerable adaptive capacity contextualizing the curriculum to local livelihoods, mobilizing community resources, exercising entrepreneurial and collaborative leadership, and, in one case, sustaining relatively robust supervisory and government-supported structures.

The principal scholarly insight is that implementation outcomes in 3T contexts depend less on curriculum design alone than on the responsiveness and coordination of multi-level support systems and on the adaptive, collaborative capacity of school leadership. The marked variation across schools particularly in supervision and external support indicates that remoteness is not a uniform determinant; rather, the alignment of geographic accessibility, district capacity, government responsiveness, and principal initiative governs whether curricular innovation can be sustained.

Practically, the findings point to clear priorities: strengthening accessible, continuous teacher professional development; advancing infrastructure equity, including connectivity and climate-resilient facilities; and building context-responsive leadership capacity through

change-management and instructional-leadership training. These should build upon, rather than replace, the foundations already laid by dedicated educators and committed local governments. The documented challenges should thus be read not as indictments of local effort but as evidence that 3T educational equity requires sustained, coordinated investment across governmental levels, with central government assuming proportionally greater responsibility given the structural disadvantages remote districts face.

The study contributes empirically by documenting authentic implementation experiences in under-researched 3T primary schools and contextually by extending existing leadership and policy-implementation frameworks to extreme-marginality settings. It is limited to three schools in a single province, so generalization warrants caution. Future research should encompass broader regions and consider mixed-methods or quantitative approaches to evaluate the impact of curriculum implementation on student learning outcomes and teacher-capacity development across diverse 3T contexts.

Conflict of Interest

The authors declare no conflict of interest.

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