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INNOVATIVE FINANCING SCHEMES FOR AGRICULTURAL INFRASTRUCTURE: OVERCOMING LOCAL FISCAL CONSTRAINTS THROUGH INTER-GOVERNMENTAL COLLABORATION (A CASE STUDY OF BIREUEN REGENCY)

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Abstract

Efforts to achieve food self-sufficiency in Bireuen Regency are now facing a very serious policy deadlock. Following the floods at the end of 2025, 4,731 hectares of productive rice fields and vital infrastructure, such as the Pante Lhong and Hagu Peudada weirs, suffered massive damage. The root of the problem lies in the local government's 'double fiscal burden'; the Regency Budget (APBK) is tied up in the recovery of settlements, whilst agricultural infrastructure needs amount to Rp1.1 trillion. This policy paper aims to formulate an innovative funding scheme to break through the jurisdictional barriers imposed by Law No. 23 of 2014. Using a qualitative case-study methodology with IFE, EFE and SWOT quadrant analyses, it was found that Bireuen is in a 'Turnaround' position. The results of the William Dunn criteria analysis recommend the issuance of a Regent's Regulation on a Cross-Level Government Funding Collaboration Scheme as the single most logical solution. Through a Cooperation Agreement (PKS) based on Presidential Instruction No. 2 of 2025, the region's fiscal weaknesses can be overcome by securing support from the State Budget (APBN) and the Bireuen Regional Budget (APBA). This policy is not merely an administrative matter, but a humanitarian effort to restore the dignity and livelihoods of thousands of Bireuen farmers from the threat of post-disaster poverty.

Keywords: *Innovative Financing, Agricultural Infrastructure, Collaboration, Disasters, Bireuen.*

INTRODUCTION

The development of agricultural infrastructure is a fundamental pillar in achieving sustainable national food sovereignty, particularly amidst the increasingly unpredictable dynamics of global climate anomalies. Conceptually, effective public policy must be responsive to the complexity of real-world issues on the ground by formulating practical and pragmatic solutions (Young & Quinn, 2003). At the local government level, the agricultural sector often serves as a socio-cultural and economic mainstay for the majority of the population. Nevertheless, the optimisation of this sector

is frequently hampered by the fragility of basic irrigation infrastructure. Development planners are required to possess the analytical capacity to unpick highly complex strategic issues in order to provide a precise basis for decision-making by local leaders (Guspika, 2025). This infrastructure gap creates a sharp disparity between agricultural production potential and actual crop yields, which is directly correlated with the large extent of rain-fed land. Therefore, a policy transformation is required that goes beyond routine bureaucracy, prioritising innovation in overcoming local fiscal constraints.

The Central Government has, in fact, responded to the urgency of food security by issuing Presidential Instruction (Inpres) No. 2 of 2025, which sets out a mandate for the accelerated, large-scale development and rehabilitation of irrigation networks. This regulation explicitly mandates the importance of synergy and collaboration between the central government, provincial governments and district governments to support the ambitious target of food self-sufficiency. Policy analysis is, in essence, equivalent to strategic planning that guides organisations in setting precise objectives through the optimal allocation of resources (Wildavsky, 2001). However, the implementation of this Presidential Instruction at the regional level often hits a dead end due to the limitations of local financial capacity. Policy problem analysis must be oriented towards resolving contemporary issues by presenting concrete alternative solutions (Ringoringo, 2024). Without innovation in funding schemes, the mandate of this national regulation risks being reduced to nothing more than an administrative document with no tangible impact on the ground.

Bireuen Regency, historically recognised as a strategic food basket in Aceh Province, is currently facing an agricultural infrastructure crisis in the wake of the flash floods that struck at the end of 2025. Disaster situation reports confirm severe structural damage to vital irrigation infrastructure, particularly the Pante Lhong Dam and the Hagu Peudada Dam. The latest spatial mapping analysis indicates that the total area of agricultural land directly affected amounts to 4,731.79 hectares, with 1,323.07 hectares classified as severely damaged. This crisis has been further exacerbated by the destruction of 4,943.33 hectares of fish ponds, which has paralysed the backbone of the local fishing economy. In response, local authorities, through official correspondence, have warned of a potential systemic food crisis should the rehabilitation process not be completed before the start of the 2026 planting season. The complexity of these challenges necessitates asymmetric policy interventions through a collaborative funding framework spanning all levels of government.

The fundamental problem facing Bireuen Regency is the phenomenon of *a 'double deadlock*', namely the persistence of acute fiscal constraints which clash with restrictions on authority under Law No. 23 of 2014 on Regional Government. Initial estimates of the budgetary requirements to normalise three strategic irrigation areas (D.I.) reach a staggering figure of Rp 1.1 trillion. A comprehensive definition of the problem is half the battle in finding a solution. The latest land-use data confirms that thousands of hectares of productive rice fields across five main sub-districts remain in a critical state as rain-fed land. The failure of the Bireuen Regency Revenue and Expenditure Budget (APBK) to fund this massive infrastructure project autonomously has created a policy stalemate that is directly hindering regional economic recovery.

Consequently, the formulation of a technocratic approach to an innovative funding scheme has become an absolute necessity that cannot be postponed.

An initial examination of the 2025 Work Plan and Budget (RKA) of the Agriculture and Plantation Service reveals an extreme disparity between fiscal allocations and the escalating need for recovery on the ground. The regional expenditure structure remains dominated by programmes supporting routine administrative affairs, leaving a wide gap for capital investment in irrigation networks. Public policy issues arise from the dialectic surrounding problem formulation amidst resource scarcity (Dunn, 1999). Bireuen Regent Regulation No. 19 of 2025 on Amendments to the Regional Development Plan (RKPD) reflects a radical shift (*refocusing*) in regional budget priorities, which have been diverted to address post-disaster housing emergencies. This situation provides empirical evidence that the single conventional funding paradigm, which relies on the General Allocation Fund (DAU), is no longer relevant to addressing the scale of the damage incurred.

METHODOLOGY

This research adopts a qualitative approach using *a case study* design, which aims to explore, understand and analyse holistically the phenomenon of *policy deadlock* within the infrastructure financing architecture (Yin, 2018). Secondary data was extensively gathered through a review of crucial official government documents, including the 2025 Revised Regional Development Plan (RKPD) for Bireuen Regency, the 2024 Government Agency Performance Report (LAKIP), the 2025 Budget Allocation Plan (RKA) of the Agriculture Department, and the 2026 Jitupasna Damage Table. To ensure reliability, primary data was acquired through a structured questionnaire survey distributed to 50 *key stakeholder* respondents, comprising planning officials from the Regional Development Planning Agency (Bappeda), technical experts from the Public Works and Agriculture Departments, sub-district officials, and representatives of the KTNA (Key Farmers and Fishermen Group). Data analysis was carried out by comprehensively assessing strategic positioning using a SWOT analysis matrix, which involved quantitative evaluation of the Internal Factors (IFE) and External Factors (EFE) matrices, as well as the TOWS matrix.

RESULTS AND DISCUSSION

Theoretical and Conceptual Framework of the Solution

Infrastructure disruption, coupled with extreme fiscal pressures in Bireuen Regency, calls for a theoretical framework for problem-solving that goes beyond orthodox public management doctrine. As the primary framework, the *Collaborative Governance* approach has been adopted. The concept of ‘ ’ emphasises a regulatory mechanism in which public institutions do not operate in silos, but rather actively engage stakeholders across different levels of government and non-state actors within

a framework of binding collective decision-making oriented towards tangible implementation (Ansell & Gash, 2008). In the operational context of Bireuen, this theory serves as the academic foundation that legitimises the elimination of sectoral egoism between the Regency, Provincial and Ministry governments.

Furthermore, the *Blended Finance* instrument is recommended as a tool for fiscal analysis. This approach is an innovative lever whereby strategic public funding is allocated to mobilise additional capital injections from various alternative sources, including the private sector (OECD, 2018). A funding shortfall of Rp 1.1 trillion cannot be resolved through a single conventional budgetary paradigm; it requires a combination of the State Budget (APBN), Provincial Budget (APBA), District Budget (APBK), and *Corporate Social Responsibility* (CSR). This entire framework is rooted in Buchanan's (1984) *Public* Choice Theory, which posits that policy formulation amidst resource scarcity must be geared towards aggregate efficiency in order to safeguard the highest public interest—which, in this case, is the restoration of Bireuen's food sovereignty.

Review of Existing Policies

From a legal perspective, the scope for implementing collaborative solutions has, in fact, already been accommodated by the national regulatory framework. Presidential Instruction No. 2 of 2025 serves as an 'umbrella' policy providing absolute legal legitimacy for the acceleration of irrigation, acting as the main incentive for ministerial investment in the regions. The restrictions on authority mandated by Law No. 23 of 2014 can be negotiated through Government Regulation (PP) No. 28 of 2018 on Regional Cooperation. This subsidiary regulation opens the door for regional autonomy to forge formal agreements with provinces and ministries, overhauling the status quo that separates infrastructure management responsibilities based on land area classifications.

Analysis of Internal and External Factors (Formulation of the SWOT Matrix)

In order to establish an accurate policy trajectory, an assessment of the local government's internal capacity must be weighed against its ability to respond to the external environment in a measurable way. An evaluation of the internal strengths of the Bireuen Regency Government highlights advantages in the validity of rural spatial data (Sandingan Lahan 2025 and Jitupasna 2026), the political commitment of responsive local leaders, and the track record of investment realisation in 2024, which exceeded 279 per cent. Nevertheless, fundamental weaknesses are weighing on the region, including constrained fiscal capacity due to the dominance of transfer expenditure (over 80 per cent), poor coordination of irrigation programmes between the Agriculture and Public Works Departments, and the absence of an operational draft of the Cooperation Agreement (PKS) for the ' ' funding scheme. Based on calculations using the *Internal Factor Evaluation* (IFE) Matrix, the cumulative score stood at 2.05. This score, which is below the median value (2.50), validates the premise that Bireuen's

internal structure is currently in a vulnerable state and lacks the resilience to execute large-scale development projects autonomously.

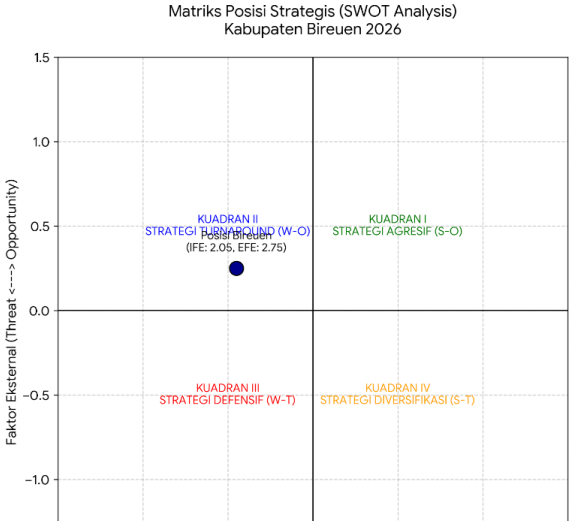
Turning to the external analysis, the available '*Opportunities*' variable is highly promising. The momentum generated by the launch of Presidential Instruction No. 2/2025 provides a direct channel to the national recovery budget. This is reinforced by the guarantee of support from the academic community and the Aceh Government's commitment to macroeconomic recovery, which has the potential to be underpinned by local industry CSR funding schemes. *The* '*Threats*' that must be mitigated include the probability of recurring climate anomalies, competition for central government budget funds amongst disaster-affected regions, and the risk of inflation in construction materials. *The External Factor Evaluation* (EFE) matrix calculation yielded a strong score of 2.75. This high score indicates that policy instruments from outside the region have significant potential to be utilised as a safety net.

Integration of the IE Matrix and the TOWS (Stratégic Determination) Quadrant

The integration of the IFE (2.05) and EFE (2.75) scores places Bireuen Regency precisely in Quadrant II within the SWOT Strategic Position Matrix framework. Technically, the internal axis shows a deficit (-0.45), representing the dominance of fiscal weaknesses, whilst the external axis shows a surplus (+0.25), signifying the extent of opportunities arising from national regulations. This top-left coordinate position requires the local government to implement a *Turnaround* Strategy. In terms of implementation, Bireuen is strictly prohibited from forcing through development projects reliant on the already depleted District Budget (APBK). Instead, the macro strategy must be redirected to reduce internal weaknesses through the drafting of legal instruments (Memoranda of Understanding) and data harmonisation, in order to aggressively capitalise on external funding opportunities (Presidential Instruction Funds and the Provincial Budget (APBA)).

Strategic Implications: The *Turnaround* Strategy emphasises that Bireuen Regency must not continue to rely on the old approach of depending solely on the Regency Budget (APBK). We must 'change course' by focusing on **addressing internal weaknesses** (by preparing PKS regulations and synchronising data) so that we can **capitalise on external funding opportunities** (**from** the central government and the province).

The following is a visualisation of the Strategic Position Matrix:



TOWS Matrix: Policy Strategy Formulation

The analysis of the SWOT Quadrant Matrix revealed a 'Turnaround' strategy, emphasising that Bireuen Regency must not continue to rely solely on the Regency Budget (APBK). The implications of this *Turnaround* position were further formulated using the TOWS Matrix, resulting in the W-O (*Weaknesses-Opportunities*) strategy as the primary option. The W-O Strategy is translated into operational tactics through the comprehensive drafting of a *Resource Sharing* Cooperation Agreement (PKS). In this scenario, Bireuen will capitalise on its role as a provider of land-use guarantees and primary technical data, using these as barter instruments to attract physical construction investment worth trillions of rupiah from the central government and the province. This inter-jurisdictional approach represents the most rational way to cut through bureaucratic barriers and overcome the budgetary constraints that have long hampered the governance of Bireuen's agricultural infrastructure.

This strategy is entirely logical, as we are not 'deluding ourselves' by expecting the Bireuen District Budget (APBK) to suddenly see an increase in revenue. Instead, we consciously acknowledge our weaknesses (low fiscal capacity) and seek 'leverage' from external sources (the Central Government/Province) through legal instruments (Cooperation Agreements).

ALTERNATIVE POLICY OPTIONS

Formulation of Policy Alternatives

As a manifestation of the *Turnaround* (*Weaknesses-Opportunities*) strategy formulated in the previous TOWS matrix analysis, this study sets out three mutually exclusive policy alternatives to address the fiscal impasse and the massive damage to post-disaster irrigation infrastructure in Bireuen Regency. The formulation of these alternatives is based on the spectrum of local government interventions, ranging from an isolationist approach to a comprehensive collaborative approach.

The first alternative is the Regional Fiscal Autonomy Policy, or maintaining *the status quo*. In this scenario, the Bireuen Regency Government relies entirely on its internal capacity through the reallocation of remaining funds from the Contingency Expenditure (BTT) and routine transfer funds such as the General Allocation Fund (DAU) and the Special Allocation Fund (DAK), which are structured within the 2026 Regency Budget (APBK). This policy shares a focus on infrastructure rehabilitation based on the 2026 Jitupasna damage data, but fundamentally rejects or does not formally involve external budgetary intervention from the outset of the planning phase.

This approach is projected to have a very low probability of success. Given that the accumulated recovery needs amount to Rp 1.1 trillion, which is at direct odds with the very limited capacity of the BTT, this option is certain to trigger an extreme deficit and result in infrastructure projects being abandoned or coming to *a* complete *standstill*.

The second alternative centres on the Central Government's Full Assignment Policy through reactive *ad-hoc* lobbying. This mechanism assumes that the Regency Government engages in sporadic diplomatic and bureaucratic lobbying with the relevant ministries, namely the Ministry of Public Works and the Ministry of Agriculture. This scenario relies on the hope of capitalising on external opportunities arising from Presidential Instruction No. 2 of 2025. However, the fatal flaw of this alternative is the absence of a legally binding written agreement across levels of government or a clear Cooperation Agreement (PKS). The likelihood of resolving the issue through this option is moderate, as Bireuen would face a high risk of losing out in the budget competition with other disaster-affected regions in Indonesia due to the lack of legal instruments and institutionalised certainty regarding the sharing of responsibilities (*resource sharing*).

The third alternative, which is also the central recommendation of this study, is a policy of cross-sectoral collaboration through the proactive innovation of cooperation agreements (PKS). This option is a pure implementation of the *Turnaround* strategy, which requires the drafting of a formal tripartite Cooperation Agreement (PKS) between the Bireuen Regency Government, the Aceh Provincial Government and the Central Government. This policy operates on the basis of technical data from the 2025 Land Comparison as its basis for argumentation. Its fundamental distinction lies in its ability to remove the administrative barriers mandated by Law No. 23 of 2014, by utilising the legal instruments of regional cooperation mechanisms under Government Regulation No. 28 of 2018 and adopting a *Blended Finance* scheme. The probability of success for this alternative is considered very high as it is the only formulation that is both the most rational and logical for closing *the* funding *gap* of Rp 1.1 trillion amidst conditions *of fiscal stress*.

Qualitative-Comparative Assessment Using William Dunn's Criteria

To ensure that the selection of policy alternatives is not merely a justification on paper, this study conducted a systematic assessment using Multi-Criteria Analysis (*MCA*) based on six canonical evaluation criteria according to Dunn (2018). These criteria were selected for their comprehensive ability to analyse the viability of policy options across various technocratic and sociological dimensions relevant to *the* problem *statement* in Bireuen Regency.

The first criterion is Effectiveness, which measures the extent to which the outcomes or ultimate objectives of a policy can be achieved with precision (Dunn, 2018). Under this criterion, Alternative 1 is rated very low because the limited availability of funds threatens the completion of the project, whilst Alternative 2 is rated moderate because the certainty of allocation is heavily dependent on the whims of central government discretion without any written guarantee. Conversely, Alternative 3 recorded a very high effectiveness score because the PKS instrument provides legally

binding certainty regarding the flow of funds from the central government and the province, thereby ensuring that the food self-sufficiency target is guaranteed to be achieved.

The second criterion, Efficiency, focuses on the ratio between the effort or resources expended and the results obtained (Dunn, 2018). Compulsory funding through the Bireuen Regency Budget (APBK) under Alternative 1 is assessed as having a very low level of efficiency, as it places one hundred per cent of the construction costs on the Regional Budget, which is currently experiencing a liquidity crisis due to the disaster. Alternative 2 is also inefficient due to the high political costs and time required for lobbying, which offer no guarantee of cumulative results. Alternative 3 demonstrates high efficiency; the Bireuen Regency Government is not required to allocate the full construction budget, but only needs to bear a minimal financial burden for the costs of cross-sectoral coordination and compensation for the provision of social security and land data.

The third criterion relates to *Adequacy*, namely the capacity of policy alternatives to address the root causes of the problem in their entirety (Dunn, 2018). Both Alternative 1 and Alternative 2 have a low to moderate level of adequacy, as their funding capacity is projected to cover only a small portion of repairs to infrastructure with minor damage, without addressing the reconstruction of the main dam. Alternative 3 scores very highly on this criterion, as the pooled resources from the *Blended Finance* scheme—which combines the State Budget (APBN), the Provincial Budget (APBA) and potential *Corporate Social Responsibility* (CSR) contributions—constitute a single, adequate solution to comprehensively cover the funding shortfall of Rp 1.1 trillion.

The fourth criterion is Equity, which assesses the fairness of the distribution of policy benefits across all sections of the target population (Dunn, 2018). The regional autonomy alternative (Alternative 1) would create acute spatial inequity, with improvements focused solely on specific sub-districts due to funding being cut off partway through. Similarly, the *Ad-Hoc* Lobbying Alternative (Alternative 2) tends to benefit only those areas that are specifically the focus of negotiations. On the other hand, Alternative 3 embodies a very high standard of fairness, as its framework is designed to reach and guarantee irrigation rights for farmers across all five affected sub-districts—namely Peudada, Makmur, Gandapura, Peusangan Selatan and Peusangan Siblah Krueng—in a proportionate manner without discrimination.

The fifth criterion, Responsiveness, assesses the extent to which a policy aligns with the expectations, urgency and actual needs of the target group (Dunn, 2018). Amid the threat of crop failure and a rural economic crisis following the floods at the end of 2025, the partial measures under Alternative 1 and the sporadic approach under Alternative 2 are assessed as having only a moderate level of responsiveness, as they fail to provide a comprehensive solution to the crisis on the ground. Alternative 3 is justified as having a very rapid and high level of responsiveness, as it directly implements the emergency mandate set out in the Regent's instructions and comprehensively addresses all the critical points mapped out in the 2026 Jitupasna damage data.

The final criterion is Appropriateness, which highlights the relevance and strategic utility of the programme in relation to the government's macro-level objectives (Dunn, 2018). Forcing the use of local government funds that are currently frozen (Alternative 1) is an option that is, from a technocratic perspective, misguided and actually jeopardises the stability of other public services. Alternative 2 is also considered inappropriate in terms of administrative practice as it contravenes the principle of planning certainty. Conversely, Alternative 3 is deemed highly appropriate as it aligns perfectly with the direction of national technocratic policy as set out in Presidential Instruction No. 2 of 2025 on Accelerating the Improvement of National Agricultural Production and Productivity.

Based on a rigorous analytical comparison using William Dunn's six criteria, it can be conclusively established that Alternative 3—namely, the Cross-Sectoral Collaboration Policy through PKS Innovation—dominates all assessment criteria and is identified as the sole most feasible option for immediate implementation by the Bireuen Regency Government. This policy was selected not on the premise of ease, but because of its empirically logical construction to address two core issues simultaneously: breaking through 'barriers of authority' using legitimate legal instruments for regional cooperation, and overcoming 'fiscal constraints' through realistic and measurable cross-budget resource-sharing mechanisms. This approach positions the Bireuen Regency Government not as a passive applicant constrained by fiscal poverty, but as a proactive actor dictating the governance of its region's recovery.

Key Policy Recommendations

To summarise the issues identified in Chapter I regarding *the 'policy deadlock*'—namely, a fiscal constraint of Rp 1.1 trillion that conflicts with the rigid division of powers under Law No. 23 of 2014—and drawing on the analysis of the *'Turnaround'* quadrant in Chapter III, Bireuen Regency requires a transformative policy leap that moves away from *'business as usual*'. Mathematically speaking, the Bireuen Regency Government lacks the capacity to shoulder the burden of post-disaster recovery autonomously. On the other hand, allowing 4,731 hectares of productive land to degrade into rain-fed land, as recorded in the 2025 Land Comparison Data, will undermine the national macro-level food self-sufficiency target (Presidential Instruction No. 2 of 2025). Therefore, the rationale for the sole solution lies in regulatory reform to facilitate the integration of inter-governmental funding.

On the basis of this argument, the definitive policy recommendation proposed is the issuance of a Bireuen Regency Regent's Regulation (Perbup) on Accelerating the Recovery of Agricultural Infrastructure through *a Cross-Level Collaborative* Funding Scheme. This recommendation goes beyond a mere technical proposal on paper; it is a regulatory instrument with binding force, which dictates the internal procedures of the Bireuen Regency Government in initiating a Cooperation Agreement (PKS) for ' ' funding with the Government of Aceh and the relevant technical ministries at the central level, based on the legitimacy of Presidential Instruction No. 2 of 2025 and Government Regulation No. 28 of 2018.

The logical coherence of this policy is systematically structured. Firstly, this formulation addresses the problem statement by presenting a concrete solution to the deficit of Rp 1.1 trillion through a financial burden-sharing scheme under a transparent legal framework. Secondly, this formulation constitutes an empirical follow-up to the W-O Strategy (TOWS Matrix), validated through the application of William Dunn's criteria. Thirdly, the binding nature of this Regent's Regulation will compel all Regional Work Units (SKPDs) to treat the 2026 Jitupasna Document and the 2025 Land Comparison Data as the sole precedent and an absolute requirement for data synchronisation when applying for funding *sharing* at higher levels.

Concrete Steps for Decision-Makers

To transform this concept of collaboration into a tangible reality, the Regent of Bireuen, as the highest authority and policy-maker, is mandated to immediately implement three tactical steps. The first step is to provide administrative legitimacy by instructing the Legal Division of the Regional Secretariat and the Regional Development Planning Agency (Bappeda) to design and draft a Regent's Regulation on the Collaboration Scheme, which sets out in detail the percentage distribution of responsibilities for the construction of the dam and the irrigation network from upstream to downstream.

The second step focuses on implementing the cooperation through data validation and the signing of a Memorandum of Understanding (MoU) and a precise Tripartite Cooperation Agreement. These legal documents must strictly delineate roles, whereby the Regency Government acts as the provider *of land-clearing*, social safeguards and definitive technical data (Jitupasna 2026 and Sandingan Lahan 2025), whilst the Central and Provincial Governments act as providers of funding for large-scale construction. The third step is the mobilisation of resources through direct instructions to the Department of Agriculture and the Department of Public Works to integrate data on these 4,731 hectares of critical rice fields into the national planning framework, either via the KRISNA (Collaboration on Planning and Budget Performance Information) application or through a proposal for an integrated Special Allocation Fund (DAK) Assignment scheme.

Policy Implementation Roadmap (2026–2030)

To ensure that this policy intervention does not end in mere administrative euphoria, compliance with a five-year implementation roadmap is required, aimed at permanently eliminating post-disaster vulnerabilities by adhering to the *'Build Back Better'* resilience standards. **In the first phase in 2026**, the focus will be on laying the foundations and establishing regulations. This period is allocated for the enactment of the Regent's Regulation on the Collaboration Scheme, the signing of cooperation agreements for three strategic irrigation districts affected by flooding, and the deployment of emergency response funds for temporary rehabilitation of critical dams such as Hagu Peudada and Pante Lhong. Interventions during this phase must, in

accordance with the ‘ ’ principle, prioritise areas with the highest levels of damage, namely the sub-districts of Peudada, Makmur and Gandapura, as mandated by the 2026 Jitupasna Table.

As 2027 began, the second phase of Massive Construction and Fund Accumulation was launched. At this stage, the physical construction of key irrigation infrastructure was fully funded through injections from the State Budget, in accordance with the mandate of Presidential Instruction No. 2 of 2025. Comprehensive sediment clearance operations on the irrigation networks in the five affected sub-districts are also being carried out simultaneously, accompanied by the launch of a locally funded protective agricultural insurance scheme to mitigate the risk of crop failure for farmers on rain-fed land who are still awaiting their turn for construction.

The year 2028 is dedicated to the third phase: Synchronisation and Expansion of Coverage. During this equilibrium phase, the District Government utilises its recovering District Budget (APBK) capacity to complete the construction of tertiary-level network infrastructure, which serves to channel water from the central government’s main network directly to the community’s rice fields. This new infrastructure must also be integrated with the *Early Warning System* for flood mitigation. Furthermore, in the fourth phase—Operations and Maintenance—in 2029, the handover of construction assets from the central and provincial governments to the local authorities will take place. Bireuen must respond to this by establishing a Regional Technical Implementation Unit (UPTD) for Integrated Irrigation, staffed by professionals to oversee sustainable post-disaster routine maintenance. Finally, 2030 marks the fifth phase: Evaluation and Sustainability. The government is required to conduct an agricultural impact audit to ensure that productivity across 4,731 hectares of land has returned to normal levels or higher, as well as to assess the replication of this Collaborative PKS governance model for application to the recovery of other critical infrastructure sectors, such as road networks and bridges.

Conclusion

Summarising the dialectic and in-depth analysis of the entire structure of this study, three strategic conclusions can be drawn. Firstly, the fact of *fiscal stress* in Bireuen Regency is an indisputable empirical reality. An evaluation of the 2025 RKA Distanbun and the 2025 Revised RKPD provides absolute confirmation that the Regency Budget (APBK) will not have the leverage to finance the irrigation rehabilitation needs amounting to Rp 1.1 trillion, unless the local government is willing to sacrifice mandatory expenditure on public services and other post-disaster socio-economic and humanitarian recovery sectors.

Secondly, the urgency and latent danger of the impact of this disaster are critical. The paralysis of key infrastructure such as the Pante Lhong and Hagu Peudada dams—as recorded in the 2026 Jitupasna Data—combined with the existence of 4,731 hectares of critical land without irrigation (2025 Land Comparison Data), constitutes a socio-economic time bomb. If physical interventions are not implemented this year, this crisis will lead to the collapse of local food security, which will double the rate of structural poverty at the rural level.

Thirdly, collaborative breakthroughs are the sole antidote to this paralysis. The projections from the *Turnaround* Quadrant analysis validate the thesis that resolving the crisis does not rely on the illusion of increasing Local Own-Source Revenue in the short term , but depends entirely on the agility of the local bureaucracy in capitalising on external regulatory opportunities through collaborative funding schemes (*Blended Finance* and the State Budget/Regional Budget), which are legally binding through the issuance of a Regent's Regulation on Cooperation Agreements.

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