

Bridging the Divide: An Analysis of Community-Led Approaches in Sabah & Sarawak, Malaysia Rural Infrastructure Development

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ABSTRACT

Expanding rural infrastructure remains a key focus of Malaysia's national agenda, though the merits of conventional, top-down approaches have come under criticism. This paper examines the pros and cons of using community-driven approaches to rural infrastructure development in Malaysia especially in Sarawak and Sabah. While using Empowerment Theory and Multi-Level Governance as theoretical perspectives, the literature and case study synthesis highlights the rhetoric vs. reality of participation of this situation. It argues that community-driven approaches to rural infrastructure development economically and socially empower the community, enhance the sustainability of the initiative through ownership, and promote effective problem solving by leveraging local knowledge. However, these advantages are largely absent in the community-driven approaches due to Malaysia's centrally coordinated governance system, which comprises structural silos, a chronic lack of resources and capabilities, and token participation that remains community consultation. The Comparative Governance Framework (CGF) focuses on the deficits of the centralized governance system, particularly the Rural Transformation Programme (RTP), and the potential of hybrid governance as a governance model. It provides for centralised control with local governance autonomy, thereby offering a hybrid of central and local governance as a model. A genuine example happen in Sabah and Sarawak, showcases the mixed outcomes of top-down megaprojects such as the Pan Borneo Highway in contrast with bottom-up community initiatives in renewable energy, community water management, and ecotourism. The argue of participation and the reality of its implementation suggest the necessity of a shift from a protective to an empowering state. This paper understands bridging the gap between the rhetoric of participation and the reality of underground that requires a transition from a federalism to an enabling state. It proposes a set of policy and practice recommendations to support a hybrid model of governance that formally recognizes rural communities as active stakeholders and partners in their development, in order to achieve greater equity and sustainability.

Keyword: rural, community, development, infrastructure, governance, Sarawak

Introduction To Rural Development Paradigms In Malaysia

The Malaysian Rural Context

Ensuring socio-economic equality and balanced development at the national level is fundamentally a key task in Rural Development as a priority in Malaysia's national agenda. Over the past few decades, the nation has undergone considerable industrialization and urbanization, and yet, an estimated 30% of the population continues to live in rural areas (Rashid, Rashid, Azman, Ahmad, & Rejab, 2024). (Rashid, Kamarudin, Rashid, & Zulkifli, 2024) and (Salleh, 2023) thoroughly discuss the socioeconomic and infrastructural inequalities challenges facing rural communities in Malaysia. A substantial portion of settlements and policies to address inequalities have focused on improving the social and economic status of rural regions on the periphery to suffice the needs of rural agriculture and improve the quality of rural livelihoods. Closely related to the mitigation of quality of life disparities on rural and urban areas, improving rural areas living conditions has been a major objective of the government (Ali, 2025) (Tuah, Tedong, & Dali, 2024). The integration of rural areas and socioeconomic activities in the national plan, as stated in the National Rural Physical Planning Policy 2030 (DPF Desa Negara 2030), "Prosperous Rural, Prosperous Nation," rests on the resolve of translating the vision of inclusive policies into concrete activities and sustainable impacts (Ali, 2025) (Tuah, Tedong, & Dali, 2024). The

challenge, therefore, is not a lack of political will or strategic vision, but rather the effective implementation of policies that can translate this vision into tangible, sustainable outcomes on the ground.

Why Sabah and Sarawak

Sabah and Sarawak are one of a kind 'natural laboratory' case example for the study of community-led development because of the odd combination of geographic isolation, a huge of differences communities, culture and social cohesion of the indigenous people. Unlike the more easily accessible at Peninsula Malaysia, Sabah & Sarawak geographically surrounding by mountainous and rough terrain makes centralized development such as electric grid almost possible. This forces a community self-reliance on infrastructure and self-isolation. This scenario places a unique variable in the environment social capital of the community which the longhouse system enables. This unique social structure enables a special community collectively mobilization and the effective management of resources and the resultant control of action. Furthermore, the legal framework of Native Customary Rights (NCR) fundamentally alters the development dynamic. It empowers communities as land-owners rather than passive beneficiaries, necessitating a bottom-up negotiation process. This specific context offers rare academic insight into how traditional governance structures (Adat) successfully bridge the modern development gap where top-down government models mostly fail.

The Sarawak Scenario Initial Top-Down Illustrative Case: Initial SALCRA Schemes (1970s–1990s)

This shift portrays the progress from 'development for the people' to 'development with the people' (people own the resources, and the government possesses the support role). One of a popular Program in Sarawak run by Sarawak Land Consolidation and Rehabilitation Authority (SALCRA) in managing the Oil Palm Schemes Era was established in 1976 during the periods of rapid land development in the 1980s and 90s, activities increased significantly. The early SALCRA model aimed to develop Native Customary Rights (NCR) land regarded as 'idle' or 'underused'. It constituted a classic 'in-situ' development model with quite an altitude of a top level of hierarchy. The government office (SALCRA) merged small pieces of NCR land into one big plantation for estates. The office did everything include land clearing, planting oil palm, labor management, crop harvesting, and produce selling. The landowners or communities (participants of the scheme) were mostly passive. Their main role was land provision. They were mildly motivated to work on the estates for daily wages. Most of them did not. They were simply waiting for dividends - payments that were issued by the central office in relation to the profits gained by the estates. All the decision making concentrated at SALCRA headquarters located in Kuching. Farmers had very little input in what crops were chosen, when fertilizers were applied, and how crops were marketed. The scheme's success was predicated on how efficient the government agency was. If the agency were to delay a harvest or have some management issue, the landowners would receive a lower dividend and have no recourse. The dominant belief was that the state had the superior knowledge of how to modernize agriculture compared to traditional farmers (Sanggin & Mersat, 2012). This is the example of the top down proctet implemented by government that not to success and consider problem at the end.

More Recent Participatory Case: The Tagang System (2000s – Present)

The Tagang (River Conservation) System is a community-based program in the management of fisheries initiated by the Sarawak Department of Agriculture (Indigenous Fisheries Division). It uses the 'Tagal' (prohibition of fishing) concept as the basis to innovations in the economics of fishing and fishing management, where adapt from the success of Sabah Tagang Program. The Tagang was introduce and implemented at Kampung Terbat Mawang (Serian) and Long Tuyo (Lawas). A local village committee takes responsibility for a section of fishing for a stretch of the river. The community themselves police the river to avoid overfishing and poisoning. The community awardees are the main managers of the river. They feed the fish, defend the river, supervise the related hunt and fish tourism (charging for feed to the 'friendly' fish and local tourism handicraft, home and complete service rent). The JKKK (Village Development and Security Committee) or a special Tagang Committee react as a team leader and establishes the by-laws (adat) and rules the dates of opening the river to surficial harvest by the community and rules the distribution of the income from tourism. The role of the government is a facilitator of the project, not a manager of the project. The Department of Agriculture provides fish fry (baby fish), gives technical advice, and provides blue tanks for reproduction, but does not manage the

project. It became a smart partnership between government and communities. The community has a direct incentive to keep the river clean and safe due to benefits of increased tourism and protein recovery (Ansley, Kiong, & Sanggin, 2018).

Table 1: An early top down program versus a newer participatory one in Sarawak Scenario

Feature	Early Top-Down (Early SALCRA)	Newer Participatory (Tagang System)
Primary Driver	State Agency (SALCRA)	Local Community Committee (JKKK)
Community Role	Passive Landowner / Dividend Receiver	Active Manager / Enforcer / Entrepreneur
Government Role	Manager & Operator	Facilitator & Technical Advisor
Success Metric	Hectares planted & dividends paid	Fish population recovery & tourism income
Risk	Bureaucratic inefficiency reduces dividends	Community conflict or lack of commitment fails the project

Evolution of Development Strategies

Over the last few decades have seen considerable and evolution regarding the strategies used to achieve and expedite the rural transformation. For a long time ago, and similar to most post-colonial countries, Malaysia continued to practice a centralized system governance, top-down form of development (Ngah, Preston, & Asman, 2010), all the decision and approval only can be made at the top-level layers or central agencies. In this framework, the federal government took on the role of the primary planner and implementer of development initiatives, with rural policies and plans created and initiate by government offices and then sent to be carried out in the state levels (Ahmad, 2016). Eventually, the flaws of this type of approach became clear, particularly when it came to the local relevance and acceptance of the initiatives, the problem is a community ownership become less which ultimately led to poor results and responsibility.

The world has shifted strategic frameworks to more participatory structures, focusing on empowerment and involvement at the local and community levels in planning and decision making (Ngah, Preston, & Asman, 2010) (Ahmad, 2016). This change is driven and spirit by and overlaps with the global conversation on sustainable and inclusive growth, primarily attached through the United Nations Sustainable Development Goals (SDGs) (Ali, 2025) (Tuah, Tedong, & Dali, 2024). The global normative influence and local needs to deal with rural-urban inequalities have drive the use of collaborative language in national policies such as the Shared Prosperity Vision 2030 and the Twelfth Malaysia Plan (2021-2025). The Twelfth Plan, along with the Vision 2030 document, promotes the idea of community involvement as a development pillar and support (Rahman, Rofik, Yani, & Eryani, 2025) (Singh & Rahman, 2017). This change in the language of the policies is an formulation of cooperation and community-driven for rural development as a formal goal, rather than a goal of merely delivering development to rural communities (Wan Ahmad, 2025).

The Central Research Problem and Knowledge Gap

This study aims to explore the community based approaches to rural Malaysia's infrastructure development (Tuah, Tedong, & Dali, 2024) Hashim & Abdullah, 2009). Even though Malaysia has embraced community involment governance for over a decade, the actual collaborative inclusion remains one of the most underdeveloped aspects of the governance system (Ali et al., 2025; (Wahab & Zakaria, 2010) (Rahman, Rofik, Yani, & Eryani, 2025). This operational gap manifests a conflating consultation with decision-making power of practical community engagement, especially the balancing act of local self-determination and the organized systems of support and cooperation for community participation (Ali, 2025). This misunderstanding generates a stigma concerning the nature of community engagement, are communities empowered and entrusted with genuine decision-making, or are they bestowed a hollow function to add legitimacy to determined schemes? ((Rom, 2022) (Hashim & Abdullah, 2009) (Singh & Rahman, 2017), Confusion surrounding the Rural Growth Centre (RGC) and Local Agenda 21 (LA21) serves as a case in point, the initiative has been recognized for

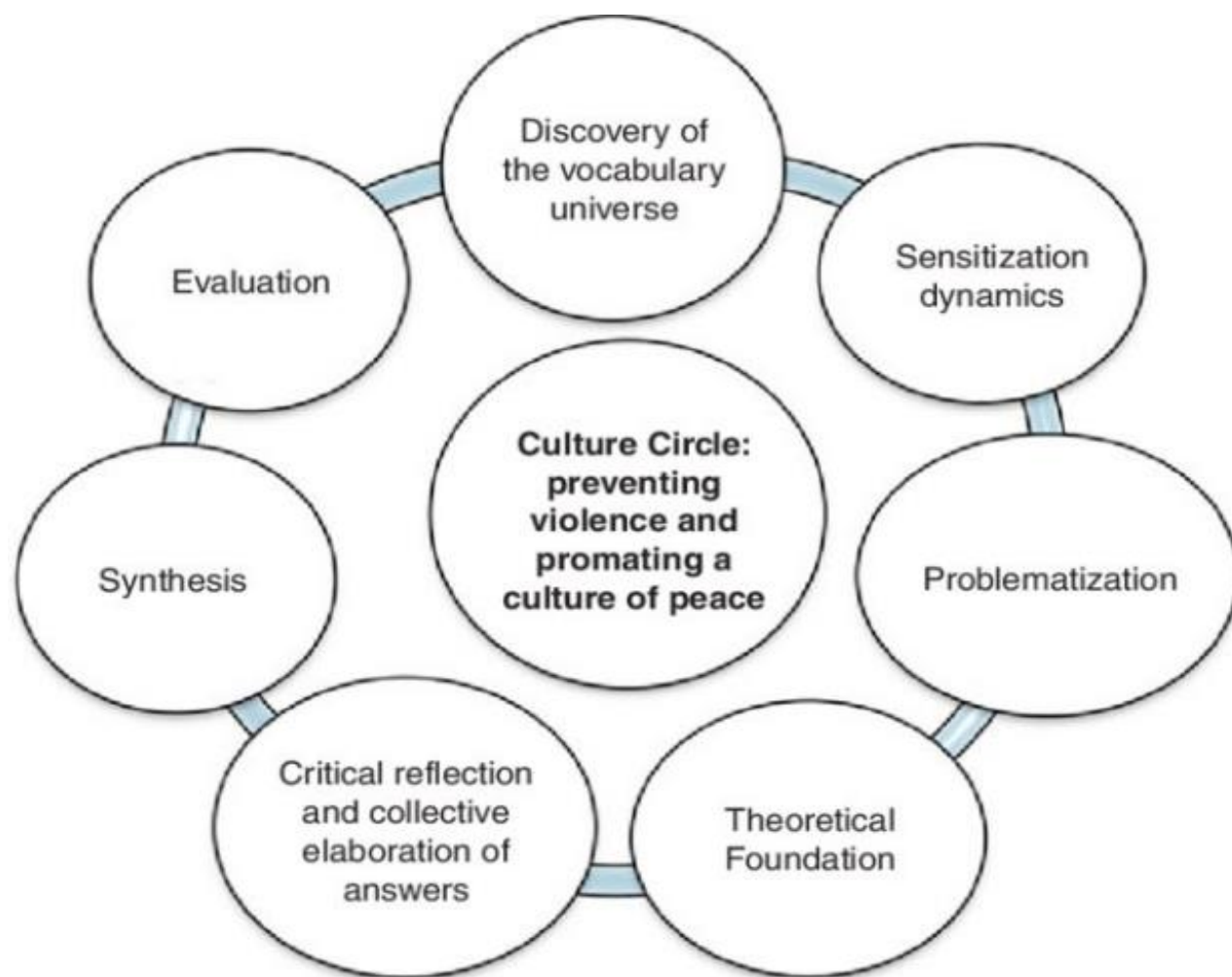
significant community engagement, while later has been critiqued for surface participation (Rom, 2022). These gaps lead to the poorest outcomes, poorly targeted investments, infrastructure limitations, and declining socio-economic returns to the communities that developments are intended to support.

Conceptual And Theoretical Framework

To navigate this complex landscape, this paper adopts a multi-layered conceptual and theoretical framework. Community-led approaches pertain to models of participatory governance in which the local knowledge, collective action, and empowerment of local people are the central drivers of the development process (Kwok, Samah, Hashim, Redzuan, & Jaafar, 2015); (Ahmad, 2016) (Loh, Zaman, & Ab-Hamid, 2022). In this sense, rural infrastructure development entails the provision and ongoing management of a suite of physical and social infrastructures like roads, bridges, and water and energy supplies, as well as community halls, schools, and digital centres (Fadzil et al., 2017; Salleh, 2023).

Finally, two major theories identified direct the analysis. Empowerment Theory, initially inspired by the works of Paulo Freire, and subsequently advanced by feminist scholars offers the basis for critiques on the quality of participation (Ali, 2025) (Abid, Sulaiman, Al-Wathinani, & Goniewicz, 2024). It claims that genuine empowerment is a transformative process that uplifts individuals and societies from a state of dominated to critical awareness whereby one recognizes inequitable structures, and has the ability to command resources and determine shape their futures (Ali, 2025). This perspective suggests that there is a difference between comfort that passively participate and those that fully participate.

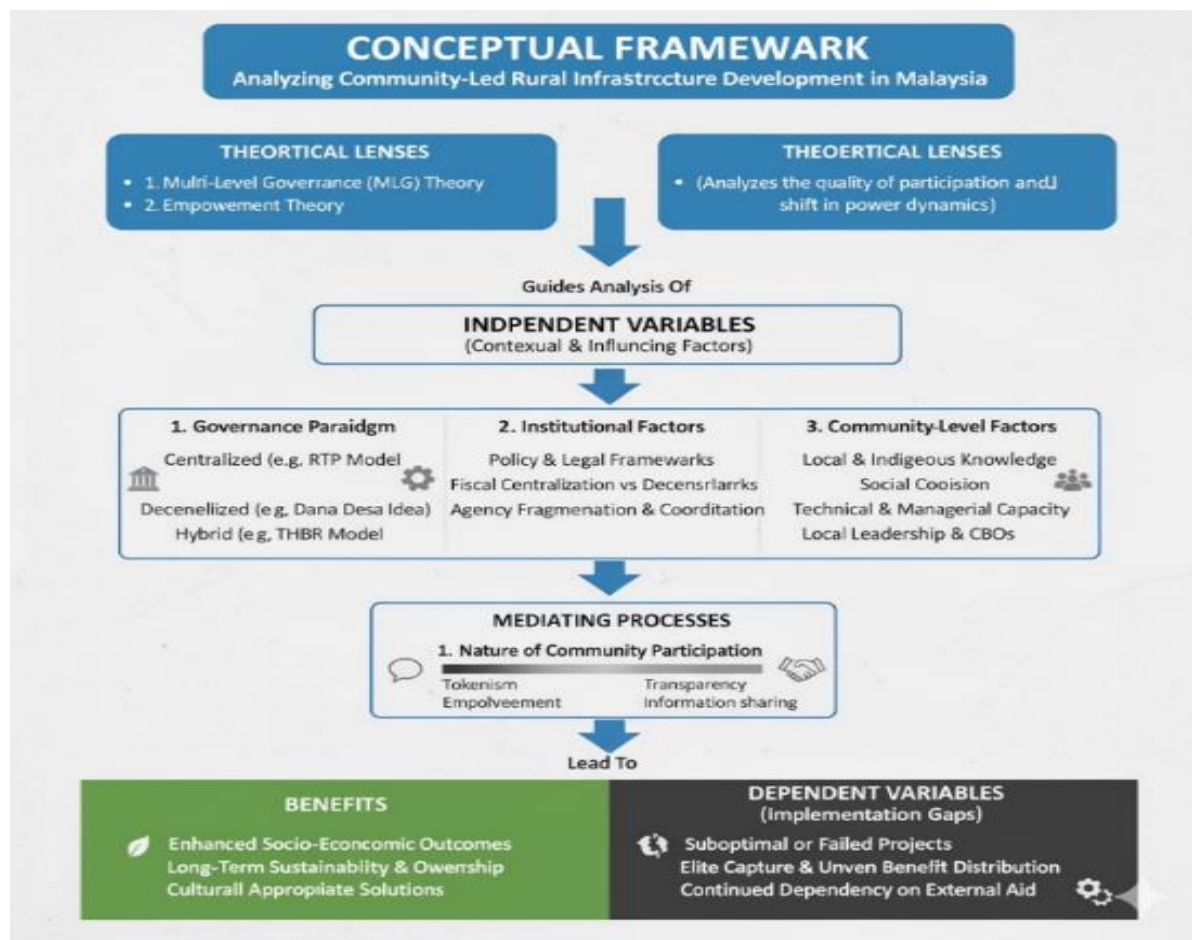
Figure 1: Phases of Paulo Freire's method proposed by Monteiro and Vieira (2008) and applied in this study.



In addition, there is the theory of Multi-Level Governance (MLG), which investigates the complicated, complex, and tricky relationships among various actors and institutions operating at the local, regional, national, and supranational (Ali, 2025) levels. This theory is most relevant in the case of Malaysia, a federation where the division of constitutional power is Centralized (Manaf, Zan, & Ananthan, 2017) (Wahab & Zakaria, 2010). It offers the analytical perspectives necessary to examine the balance between local community interaction and central policy frameworks, showing how local actors negotiate, adapt, or resist national governance (Ali, 2025). From these perspectives, in conjunction with the other frameworks, enable a detailed assessment of the community rural development of the benefits, the challenges, and the governance issues. For this paper, the MLG will analyses the structures, while Empowerment Theory evaluates the quality of community agency within them.

From these 2 theories, we develop the conceptual framework as below;

Figure 2: Conceptual framework (Author)



Paper Structure and Objectives

This research paper aims to provide an analysis and critical examination of the benefits and challenges of incorporating community-led approaches in rural infrastructure development in Malaysia. Its specific objectives are to:

1. Systematically review the socio-economic, sustainability, and cultural benefits of community led models.
2. Critically analyze the institutional, resource based, and participatory challenges that barrier their effectiveness.
3. Conduct a comparative analysis of the dominant governance paradigms in Malaysia and understand their respective impacts on community engagement.
4. Grassroot analysis, ground-level realities through an examination of diverse case studies from rural Malaysia, with a particular focus on Sabah and Sarawak.

5. To propose a comprehensive framework of policy and practice recommendations for fostering more inclusive, effective, and sustainable rural development.

To provide an actionable outcome to the policymakers, communities, NGOs and interested parties involve in communities lead programme.

METHODOLOGY OF LITERATURE SELECTION

METHODOLOGY

This study employed a Systematic Literature Review (SLR) enhanced by Artificial Intelligence to ensure a comprehensive analysis of community-led approaches in rural infrastructure development. Following PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. To minimize coverage bias, the search spanned multiple indexing services:

1. **Global Academic Databases:** Scopus and Web of Science were queried to retrieve high-quality, peer-reviewed international literature on development studies and public administration.
2. **Regional and Local Repositories:** MyJurnal (Malaysian Journal Management System) and Google Scholar were utilized to locate Malaysian-specific studies, dissertations, and government reports that often elude global indices but offer crucial contextual depth.
3. **AI-Enhanced Discovery:** SciSpace was employed as a semantic search tool to identify relevant literature through concept matching and citation chaining, ensuring that recent and semantically related but keyword-dissimilar papers were not missed.

Query Transformation Logic and Boolean Architecture

Standard keyword searches often fail to capture the nuance of "community-led" in a non-Western context. Therefore, an iterative "Query Transformation" process was employed. This involved taking the natural language research question and expanding it into a series of Boolean strings and semantic vector queries to be deployed across the SciSpace platforms. The transformation followed the logic outlined in **Table 1**.

Table 1: Query Transformation and Concept Expansion Matrix

Concept Block	Primary Keywords	Synonym Expansion (Semantic & Contextual)	Exclusion Terms
Intervention	"Community-led"	"Community-driven development" (CDD), "Participatory Rural Appraisal" (PRA), "Bottom-up approach", "Gotong-Royong", "Hybrid governance", "Social capital", "Self-help"	"Centralized planning" (unless comparative), "Top-down" (unless critique)
Domain	"Rural Infrastructure"	"Basic amenities", "Rural electrification", "Water gravity systems", "Feeder roads", "Digital infrastructure", "Social infrastructure", "Public works"	"Urban transit", "Smart cities" (unless rural linkage), "High-speed rail"
Geography	"Malaysia"	"Sabah", "Sarawak", "Borneo", "Peninsular Malaysia", "Southeast Asia" (if comparative), "Global South" (only if comparative)	"Indonesia", "Thailand" (unless comparative study)

This transformation process was critical for interacting with the AI-driven search engines. Unlike rigid legacy databases (e.g., Web of Science), tools like SciSpace allow for natural language queries which are then internally transformed into vector representations to match against the 270+ million papers in their repositories. The

inclusion of terms like "PRA" (Participatory Rural Appraisal) was particularly important, as this methodology is widely used in development studies to assess village needs but might not always be indexed under "infrastructure".

The Initial Screening Process

The initial search yielded **144** potential papers. Strict inclusion criteria were applied, filtering for peer-reviewed journal articles, dissertations, and credible reports published between 2010 and 2025. We specifically targeted studies addressing rural infrastructure sectors while excluding purely top-down projects or those lacking a comparative Southeast Asian perspective. To ensure theoretical and methodological depth, we performed both backward and forward citation chaining on core papers, identifying an additional **169** relevant works.

The transformed queries were executed across the selected databases. To ensure the manageability and relevance of the retrieved corpus, strict Inclusion and Exclusion Criteria were applied (**Table 2**). This initial broad sweep was designed to maximize recall (sensitivity), ensuring that no potentially relevant study was prematurely discarded.

Table 2: Inclusion and Exclusion Criteria

Query ID	Core Concept Focus	Transformed Search String (Boolean Logic)	Rationale & Scope	Results (n)
Q1	General Overview	("Community-led" OR "Community participation" OR "Participatory approach") AND ("Rural infrastructure" OR "Rural development") AND "Malaysia"	To capture the broadest set of literature specifically linking participation to rural development in the national context.	42
Q2	Governance & Policy	("Governance models" OR "Decentralization" OR "Bottom-up") AND ("Rural transformation" OR "Public policy") AND ("Malaysia" OR "Southeast Asia")	To identify studies focusing on the institutional frameworks, legal statutes, and political dimensions of development.	38
Q3	Empowerment & Agency	("Empowerment" OR "Capacity building" OR "Social capital") AND ("Infrastructure projects" OR "Community assets") AND "Challenges"	To target literature discussing the "soft" side of infrastructure—leadership, cohesion, and skill transfer.	29
Q4	Comparative Regional	("Village fund" OR "Dana Desa" OR "Fiscal decentralization") AND ("Indonesia" OR "Thailand") AND "Comparative analysis"	To retrieve benchmarking studies that contrast Malaysia's model with regional decentralized approaches.	21
Q5	Methodological & Impact	("Impact evaluation" OR "Sustainability" OR "Livelihood outcomes") AND ("Community-driven development") AND "Malaysia"	To find empirical assessments (quantitative or qualitative) of project outcomes and long-term viability.	14
Total			Initial Pool (Pre-deduplication)	144

Following the execution of the search strings and the application of these filters, an automated deduplication and a preliminary manual title/abstract scan were performed. This process yielded a **primary corpus of 144 papers**.

These papers served as the "Seed" documents for the subsequent citation chaining phase. The relatively high number of initial hits for such a specific topic demonstrates the effectiveness of including local terms like Gotong-Royong and specific state names (Sabah/Sarawak) in the query transformation phase.

Data Extraction Fields and Matrix Structure

Each of the 50 papers was processed to extract specific data points into a structured matrix. The extraction fields were designed to answer the core research question regarding the efficacy of community-led approaches.

Table 3: Data Extraction Matrix

Data Field	Description	Purpose
Bibliographic Meta-data	Author, Year, Journal	Trend analysis (is interest in community-led infrastructure growing?)
Geographic Focus	State (e.g., Sabah, Sarawak, Pahang)	Identify regional disparities in research coverage and infrastructure needs. ¹²
Type of Infrastructure	Water, Road, Solar, Internet	Categorize which sectors are most amenable to community leadership.
Governance Model	Top-down, Bottom-up, Hybrid	Classify the intervention type based on the Comparative Governance Framework. ⁸
Community Role	Planning, Construction, Maintenance	Assess the depth of "participation" (Tokenism vs. Empowerment). ⁸
Key Outcomes	Sustainability, Cost-effectiveness, Social cohesion	Measure the success of the intervention using tangible metrics.

Paper Selection and Screening Process

The selection process followed the PRISMA 2020 flow, moving from identification to screening, eligibility, and final inclusion. This rigorous filtering ensures that the final analysis is based only on evidence that meets strict quality and relevance standards.

In total, **313** candidate papers were pooled for screening. A relevance ranking algorithm based on vector similarity was then applied to prioritize the most pertinent studies. After a rigorous screening process to remove duplicates and studies outside the scope, 15 papers were excluded. The final dataset consisted of **298** relevant papers. From this pool, the top **50 highly relevant papers** were selected for in-depth full-text extraction and synthesis, forming the empirical basis for this comparative analysis.

Table 4: PRISMA 2020 Flow Diagram of the Selection Process

Schematic Chart of Literature Selection Process

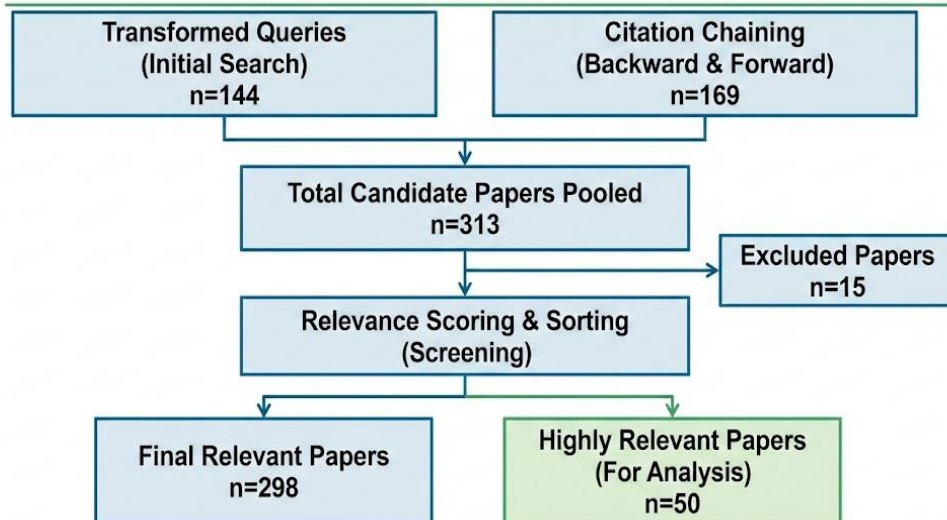


Table 4: PRISMA 2020 Flow Diagram of the Selection Process

Review Stage	Action Taken	Outcome (n)
Identification	Total Records Identified: - From Database Queries (Table 1) - From Citation Chaining (Backward/Forward)	313 (144) (169)
Screening	Deduplication: Removal of duplicate records across databases. Title/Abstract Screening: Records screened for relevance to the core topic. Excluded purely urban studies, technical engineering papers without social analysis, and unrelated fields.	298 (Remaining after duplicates and initial irrelevant removal)
Eligibility	Full-Text Review: Detailed assessment of 298 papers against inclusion criteria: 1. Focus: Rural infrastructure/development in Malaysia or ASEAN. 2. Method: Empirical data or strong theoretical framework. 3. Topic: Discusses community participation/governance. Exclusion Reasons: Lack of rigorous data, purely descriptive (no analysis), outdated policy context (pre-1990 without historical relevance).	248 Excluded (Retained as background reading but not core evidence)
Inclusion	Final Core Dataset: Highly relevant studies selected for deep synthesis and critical appraisal.	50

Analytical Approach: Thematic and Comparative Synthesis

The analysis utilized a Thematic Synthesis approach. This involved coding the findings of included studies to identify recurrent patterns ("bureaucratic delays," "local ownership"). These codes were aggregated into descriptive themes and then elevated into analytical themes ("The Paradox of Centralized Decentralization").

Furthermore, a Comparative Analysis was conducted to benchmark Malaysian governance models against international best practices, specifically contrasting the centralized RTP model with the decentralized Dana Desa model. This comparative lens helps to isolate the specific institutional variables that determine the success or failure of community-led initiatives

The Promise of Community-Led Development: A Review Of Benefits

The decision to prioritize community-led development stems from considerable literature indicating its effectiveness, equity, and sustainability if effectively execute and planning well with the communities fully involvements. This approach anchors the community to the heart of the development planning and implementation process. This would extend to the development of more comprehensive interventions beyond attending to the community's physical infrastructure. This type of development more deeply reinforces community economic development, promotes social cohesion, and builds substantive community resilience. This section reviews the most important literature from the region, especially from Sabah & Sarawak, Malaysia and discusses the various benefits of community participation in the development of rural infrastructure. It discusses improvements in the socio-economic conditions of the community, the local and sustained ownership of the infrastructure, and the generation of culturally relevant and locally available solutions. The communities involvement will be lead for a better future development and sustainable.

Enhancing Socio-Economic Outcomes and Livelihoods

Community-led infrastructure development has consistently been shown to promote the socio-economic development of rural areas. When communities are able to assess, address, and prioritize their needs and objectives, the provided services are more relevant and able to produce positive changes in rural livelihoods, income, and quality of life (Tuah, Tedong, & Dali, 2024). Access to the necessary resources to promote changes in livelihoods and income has been documented in numerous studies across Malaysia. Researcher's (Tuah, Tedong, & Dali, 2023) demonstrates this in Sarawak, where infrastructure planning and development integration encourages transformational changes to local livelihoods. When rural communities are able to plan and develop the interventions required, the changes promoted are aligned to address the needs of the population and are able to generate value. These benefits are not restricted to large interventions. Community-driven development of modest projects, like rural community internet centres, promotes changes to civil and economic life (Halim & Noor, 2023). Community internet centres close the digital gap, and provide local residents and entrepreneurs new economic information and access to resilient markets.

The strengthening of local institutions and cooperative processes is one way to stimulate an economy. Research shows that cooperative-led governance structures for rural markets in Sabah trigger local economic development by making systems for trade more open and fairer (Syamsudin, Raffae, Ngatmin, & Lily, 2025). Collaborative, multi-stakeholder approaches to poverty alleviation have also been resourceful by streamlining and coordinating development efforts around a community's specific deprivations (Fikri, Ismail, & Sari, 2025). These benefits are not purely cash-based. The scope of impact of long-term land development initiatives in Sabah and Terengganu that involved community resettlement to agricultural land and housing has shown a positive transformation in community living standards over a period of several decades.

Some formerly poor households have become owners of houses and vehicles and have expanded their income

opportunities through off-farm activities, demonstrating the transformative capacity of development that, while still based on top-down frameworks, is structured, and which provides communities with assets that can be productive (Rashid, Kamarudin, Rashid, & Zulkifli, 2024). In the tourism industry, Sarawak's community-based ecotourism (CBE) initiatives have made deep economic improvements while creating elaun for board member, operation officers of a homestay and as a craftsperson with a fulltime hired guide, thus enhancing their quality of life and encouraging the sustainable use of the very same natural assets that their livelihoods are located (Ghasemi, 2015).

Fostering Local Ownership and Long-Term Sustainability

One major limitation of classic top-down development approaches is the failure of long-term maintenance and sustainability. When external entities design and build an infrastructure project without any real community involvement, the lack of community ownership is likely to result in infrastructure projects being neglected. When

infrastructure development is at an advanced stage and the project is handed over, the community may perceive it as a government provisioned asset. This perception may result in quick neglect and deterioration of the new project. This neglect can be countered when community approaches are planned from the start, encouraging participation at every stage. When community members contribute to planning, design, implementation, and even monitoring and evaluation, they are far more likely to sustain their interest in a project's long-term sustainability. This is probably the most compelling argument for the need to look at ownership from the community's perspective as a positive driver for sustainability. In other words, it is a positive motivator. When a community has ownership of an asset, they will sustain it, maintenance will be done consistently over long periods, and it can be reworked as the community's needs change (Fung, 2023) (Ahmad, 2016).

This principle applies to different kinds of infrastructure projects. In remote areas, the sustainability of community tele centres tends to be better when maintenance is community driven, as the local users get to handle the everyday operational tasks (Tan, Poline, Lau, & Wong, 2020). Participation itself is an opportunity to develop the social and institutional capital needed for stewardship. In the infrastructure project operational phase, communities need organizational capacity to manage the available resources, manging with complex disputes, and handle conflicts that may arise and occur (Kwok, Samah, Hashim, Redzuan, & Jaafar, 2017). This type of local institutional adaptive governance, which supports flexibility in responding to different situations, is crucial for resilience (Abid, Sulaiman, Al-Wathinani, & Goniewicz, 2024).

Asset-Based Community Development (ABCD) is another example of a community framework. Rather than determining a community's deficits, needs, and problem areas, ABCD starts by identifying and mapping a community's existing assets, which include skills, knowledge, social capital, and even natural resources. This helps to empower communities by reminding them of their strengths and helps to inform the design of interventions that will be appropriate, socially acceptable, and contextual (economically, environmentally) (Fung, 2023). Rural Sabah community-managed water systems demonstrate this principle well. While external NGOs provide technical support and design pipe and tank systems, community members and their contributions of labor volunteer for system construction and maintenance. This work is performed within the community as gotong royong. Communities form water committees for system oversight, and they are empowered through training to perform and manage routine system maintenance and repairs. This results in not only a significant cost savings, but also a community system that is self-sufficient to foster a deep sense ownership and control (Tan, Poline, Lau, & Wong, 2020). The permanent infrastructure is a community asset, it is built and maintained to serve the needs of the community as a whole.

Integrating Indigenous Knowledge and Tailoring Local Solutions

One of the most significant advantages of community-led development is its capacity for creating solutions that are contextually, honour and culturally relevant. In contrast, centralized, traditional planning frequently employs standardized blueprints and universal models that consider one size can fit for all always overlook the specific social, cultural, and ecological dimensions of a site, surrounding and communities. That can result in the implementation of what widely call as a white elephant projects, initiatives that may be technically admirable, completed on site but are socially unacceptable, underutilize or environmentally harmful. Because community-led development prioritizes local and indigenous culture and knowledge systems, infrastructure development becomes not an imposition, but an organic extension of a community's values and practices (Loh, Zaman, & Ab-Hamid, 2022). Consequently, such frameworks produce innovative and effective solutions with remarkable precision.

Integrating indigenous knowledge remains crucial for Sabah and Sarawak. These regions and their local communities have built and perfected resource management systems for centuries. The Tagal system of watershed management, for instance, contributes to the success of community-based micro-hydro projects in Sabah (Loh, Zaman, & Ab-Hamid, 2022). Under the Tagal system, communities govern and manage the resources in their river basins, and for that, they enforce a 'hands-off' approach to destructive fishing, pollution, and other activities that may harm the resource. The health of the river sufficiently meets the community's needs for the continuous running of micro-hydro systems and electricity generation. The Tagal system, and other

similar systems of traditional ecological knowledge, paired with modern technology, meets culturally sustainable goals (Loh, Zaman, & Ab-Hamid, 2022).

This approach is different than the usual top-down methods of diffusing technology which often neglect local contexts and therefore, fail (Fung, 2023). The conjoined designing of technology with the Iban communities in Sarawak is another compelling instance of this approach. Researchers engaged with the community designing process to develop functional and culturally responsive ICT tools that complemented the Iban social structures, which heightened their adoption and utility (Loh, Zaman, & Ab-Hamid, 2022). Such co-creation processes encourage communities to participate in innovation rather than passively receive technology. It guarantees that the proposed solutions are not only technically possible, but also meaningful and useful in the everyday lives of the intended users, thus maximizing the positive effects of infrastructure development. The development of such knowledge systems and tools is empowering as it validates local knowledge and helps to reinforce one's cultural identity, which is often challenged by outside development initiatives.

Persistent Hurdles and Implementation Gaps: A Critical Examination Of Challenges

While community-led development has the potential to benefit a lot for the community, it also has a lot of challenges. The challenges that arise to make community development fully participatory come from within the systems that are in place, weakening community empowerment. The challenges are neither technical nor operational, they are political in the governance, power, and state-citizen relations. An inquiry into these challenges is necessary and requires the formulation of realistic and implementable reform strategies rather than the idealistic ones that are almost characteristic of the literature. The present chapter analyzes the main barriers to community-led rural infrastructure development in Malaysia, within the context of institutions, governance, and the literature on resource, capacity, and participation.

Navigating Institutional and Governance Complexities

Ineffective community-led development can be attributed to the complexities and fragmentation of the institutional landscape. In Malaysia, the rural development of a specific area involves various government agencies at the federal and state levels, each with its own mandate, direction, budget, and priorities. This leads to a lack of coordination, overlapping authority, unclear roles, and a baffling chaotic system for frontline officers and community members alike (Kadir, Imang, & Atang, 2018). For example, the case studies conducted from Sarawak demonstrate how the fragmentation of institutions can delay and impede the delivery of community-serviced infrastructure (Tuah, Tedong, & Dali, 2024). When community members are motivated to start a development project, they face an illogical, expensive maze of cruel bureaucratic controls. This makes it difficult for them to identify a government agency to approach for their project approval. It is equally hard for them to trace a government alignment or development program that gives approval for the proposal to be initiated.

This problem is made worse by the centralized structure of the Malaysian federal system. The Malaysian federal system is primarily a franchise; however, political and fiscal power is centralized, concentrating the local governments and especially the state governments with little control and power (Manaf, Zan, & Ananthan, 2017) (Wahab & Zakaria, 2010). Local governments should be the most natural and sensitive partners in community-led initiatives; however, they are primarily the operational and appendage branches of the state and federal governments (Singh & Rahman, 2017). The local government system was further weakened by the historically-justified absence of local government elections, which transformed local accountability and citizen streams into political accountability and streams controlled by the state and federal government (Manaf, Zan, & Ananthan, 2017) (Singh & Rahman, 2017). This structure creates a fundamental problem concerning the lack of genuinely bottom-up governance. It curtails the local authorities' power to control and determine the terms of engagement with their constituents and produces a governance system that serves poorly the virtually unmet socio-cultural plurality and power inequities in and among rural communities (Sokoy, Aneta, & Nani, 2025). A centralized system is prone to applying standardized and uniform solutions, which do not respond to the rural Malaysian disparity.

Overcoming Resource Constraints and Capacity Deficits

In addition to the challenges posed to governance at the structural level, community-led initiatives also deal with practical issues related to the governance of resources and community capacity. The most important and recurring issues are the absence of enduring financing. Community-led initiatives are often funded through government grants and varied support from NGOs, which is often temporary and tied to specific initiatives (Masriadi, Bachmid, & Supardi, 2024). This creates a funding trap with a high likelihood of jeopardizing the long-term infrastructures as it goes unmanaged once the financing cycle concludes. The exhausting budgets allocated to operations and maintenance result in closure and abandonment of initiatives, as in the case of neglectful road maintenance provisions, or in the case of community-owned and operated centers (Muda, Dumin, & Nahak, 2019). The unresolved financial challenges, without a doubt, place a lid on the prospects of the initiative becoming operationally self-sufficient.

The unresolved financial issues are compounded by deficits in technical and managerial resources in and within many rural communities (Rahman, Rofik, Yani, & Eryani, 2025). While the necessary local knowledge is there, it does not suffice in addressing complex systems of infrastructure planning, implementation, and maintenance of systems and facilities such as renewable energy or water treatment (Fung, 2023). This is not indicative of a community in failure but rather the absence of investment in rural areas and the development of its human capital.

Community-led development effectively requires an equal and ongoing investment in growth-building, with an emphasis on training in project management, financial management, and technical maintenance (Kayupa, Guampe, Hengkeng, & Balo, 2025). Without this, the burden of managing the necessary infrastructure may become an unsustainable expectation of the community, with the responsibility falling solely on them.

Currently, the capacity deficits described above are compounded by the digital divide. Although digital tools can improve participation and governance and integrate rural economies into the broader marketplace, their applications are limited and constrained to areas with reliable governance and market access. In remote areas of Sabah and Sarawak, for example, basic telecommunications and internet infrastructure are practically absent (Bolong, Shaffril, Omar, Alby, & Sahharon, 2016). This digital exclusion limits the community's participation in remote governance and market engagement, and it creates a governance deficit by marginalizing them even further. This situation is an infrastructure deficit, and it particularly deepens the isolation of outer-region populations (Bolong, Shaffril, Omar, Alby, & Sahharon, 2016).

The Spectrum of Participation: From Genuine Empowerment to Tokenism

One of the most difficult challenges to community-led development is the qualitative gap between the attendance of participation commitment and the reality on the ground. Having a participant process in place does not mean that there is real empowerment. Numerous studies show that the community is most frequently engaged at the bottom of the participation hierarchy and that the level of engagement is tokenism or passive consultation (Rom, 2022). In these scenarios, communities are engaged at the end of a decision-making process, through one-way briefings or surveys, and are authorities given the decision and its validation. The consultation is fundamentally one-sided, and the communities are consulted as objects, not as subjects, of their own development, which is the essence of disempowerment (Hashim & Abdullah, 2009).

The simple truth is that the lack of depth in participation is a systemic issue. One of the primary drivers of this issue is the lack of transparency in the decision-making process and the inequitable flow of information.

For communities to participate in engagements, there ought to be appropriate documentation on the projects and budgets, and the inclusion of the community in the decision processes in a timely, and user-friendly format (Hashim & Abdullah, 2009). Structural power imbalances whereby communities hold little real power in making the decision often accompanies information deficit (Hashim & Abdullah, 2009). Information asymmetry can also stem from elite capture, which is when local leaders or influential members of a community monopolize the participatory processes and take the benefits that exclude women, youth, and other vulnerable members of the community (Syarifuddin, 2025). The lack of participatory mechanisms within and genuine decentralization of

power is exemplified in the failure of national programs such as Local Agenda 21 (LA21) to meet its participatory objectives (Singh & Rahman, 2017).

Such observations reflect a more fundamental problem. Structural, centralized governance systems that regard communities as passive development recipients will always have built-in disincentives towards full community empowerment as there will always be the likelihood of an informed, empowered community exercising its right to challenge the unsustainable, central governance systems and their top-down systems.

As the centralized system justifies its continued dominance by stating regional communities lack the capacity to manage their own local strong local systems, it develops a self-perpetuating cycle. Breaking this cycle goes beyond the implementation of tokenistic participatory systems to challenging the core paternalistic attitude of the state with respect to rural communities and adopting a perspective of collaboration.

Governance Paradigms in Malaysian Rural Development: A Comparative Analysis

The community-led strategies depend on the effectiveness of the overall systems of governance. The organizational aspects of government, the allocation of financial resources, and the concentration of power in the decision-making process form the conditions for community participation to be meaningful or meaningless. In the case of Malaysia, there seems to be an almost purely centralized form of governance in rural development, although, there is more and more discussion toward governance decentralization and hybrid approaches. In this case, rural development in Malaysia is decentralized more in indirect than in operational terms. In this sense, this section aims to compare the different approaches in relation to the rural development government program, using the national case of the Rural Transformation Programme (RTP), which is analyzed as a case of centralized governance, to be adjoining with theories of decentralization, and to be finally, hybrid governance to be integrated as a more realistic alternative.

The Centralized Model: The Rural Transformation Programme (RTP)

The Rural Transformation Programme (RTP) is a prototype of centralised rural development in Malaysia (Ali, 2025). Top-level policies characterize this flagship federal initiative, in which ministries of the national level and agencies of the Ministry of Rural and Regional Development oversee rural development project funding, planning, and implementation across the nation (Ali, 2025). The system aims for uniformity and is constructed to ensure the effective and efficient delivery of standardised development packages.

The Rural Transformation Program primarily imports through the network of Rural Transformation Centres (RTCs) and their smaller counterparts Mini RTCs (Salleh, 2023). RTCs were conceived under the National Blue Ocean Strategy and serve as integrated, one-stop service hubs for rural (Salleh, 2023). These centres combine a multitude of services offered by disparate government agencies and private sector contacts and provide business licensing, financial and healthcare services, and skills training (Salleh, 2023). RTCs aim to advance the rural economy by linking local farmers and entrepreneurs to markets, training them on product development and packaging, and integrating them with agricultural supply chains (Salleh, 2023). RTC initiative aims to accomplish three objectives: raise the income of the rural population, lower the cost of living, and increase the availability of government services (Salleh, 2023).

The positive aspects of this centralized model stem from its structural reasoning. It fosters vertical accountability, wherein implementing agencies behave upwards to the federal tier, and maintains a semblance of planning discipline and nationwide policy uniformity (Ali, 2025). This is useful in the case of large-scale infrastructure projects and rolling out services at a baseline level. On the other hand, the RTP model, like the other centralized models, has to contend with its design trade-off. The top-down approach mostly lacks flexibility and the ability to responsively (Ali, 2025). The national plans and uniform programs are unlikely to cater to the situational, contextual needs of the diverse and disparate rural societies. This tendency treats the rural societies like passive

targets of development. This may discourage local creativity and, at the same time, lead to a diminished sense of ownership over the projects designed for their territories (Ali, 2025).

The Decentralized Ideal vs. Malaysian Reality

A model of decentralization exists in contrast with the centralised paradigm. In principle, decentralization means the transfer of distributive politics, finances, and administration down from the Central Government to lower and, ultimately to Community Governments themselves (Wahab & Zakaria, 2010). Supporters of decentralization contend that this approach optimally and fairly achieves development goals. Because the decision-makers are local, decentralised governance is far more compatible with local governance (Wahab & Zakaria, 2010). It is also democratisation in the most basic sense, as it provides opportunities to local people for participation and local leaders are answerable, in the first place, to local people (Wahab, 2010). This approach bottom-up development, wherein communities are given the freedom to set local priorities and control local resources, which promotes a sense of ownership and sustainability (Ahmad, 2016).

Dana Desa (Village Funds) offers a model being used at a more local scale within a decentralised governance framework. While Dana Desa allows local governments to distribute source government funds to villages, it allows these villages discretionary independence to self determine the scope of their developmental projects. These projects can be developmental projects. In the case of Indonesia, they are primarily rural development projects at the periphery of town. Villages are empowered to self determine the scope project to be developed through village consensus meetings (musyawarah). This type of governance framework provides a flexible range of options within a defined scope of development. This ensures the people are self empowered to undertake their self defined development at their self determined choice.

Malaysia's adoption of a fully decentralized model continues to encounter extreme structural and political challenges. Although Malaysia is a constitutional federation, Malaysia's political history and administrative practices have led to a high level of centralization of the federation's political systems and bureaucracies, where power is predominantly concentrated at the federal level (Manaf, Zan, & Ananthan, 2017) (Wahab & Zakaria, 2010). As researchers (Manaf, Zan, & Ananthan, 2017) argued, state governments have weak fiscal federalism, and, to reiterate previous points, local governments are strongly, vertically, and bureaucratically controlled. The loss of local elections and with it direct democratic accountability of the citizenry to local governments radically shifted the citizen-local authority relationship and local accountability (Wahab & Zakaria, 2010). The current political and institutional frameworks of Malaysia are, consequently, poorly suited to the aggressive fiscal and political decentralization of the sort Indonesia has implemented. Placing a Dana Desa equivalent on Malaysia's political agenda would involve, at a minimum, a complete reordering of Malaysia's internal inter-governmental systems and major concessions of political power deemed necessary for an authentic decentralization of authority.

The Potential of Hybrid Governance

Considering the challenges posed by purely centralized and decentralized systems in the Malaysian context, hybrid governance presents itself as the most practical and positive solution. Hybrid governance extends the frameworks of top-down and bottom-up approaches, and aims to develop cooperative systems that integrate the advantages of both systems, as described by the researcher (Ali, 2025). This entails the creation of networks for cooperative developmental governance that include diverse actors such as state agencies, local authorities, market players, and civil society organizations (Ali, 2025). This approach underscores the innovative combinatorial techniques that can and need to be devised to tackle advanced or distant development challenges. Includes in the Malaysian rural development literature several hierarchical theoretical pieces on governance (Ali, 2025). One of the most impactful pieces is the Structured and Responsive Hybrid Governance (THBR) model. This model offers a flexible and scalable approach to reconciling the demands of coherence in national policy with local autonomy in which Ali defines and describes the concepts of structured and responsive components (Ali, 2025).

The model contains three core constituent parts, which are also interdependent and essential.

- The Strategic Core (Centralized Element):** This represent the governance centrals functions like setting national priorities, equitable allocation of financial resources and provision of high level technical assistance. Beyond developmental guidance, it helps ensure a minimum level of uniformity or quality oversight and developmental guidance to helps and ensure a minimum level of uniformity and quality oversight across the country.
- Local Autonomy (Decentralized Element):** The capacity of local communities and local authorities to plan, decide, and execute moves the goal of local development to achieving context sensitive and culture development and greater local ownership of the initiatives for local development.
- The Adaptive Interface:** This crucial third element connects the semi centralized core to surrounding actors. It involves formal and informal feedback loops, integrated co-joint monitoring, and other adaptive learning relations that boost and fostering interaction. It provides central plan makers and local people implementing development systems but critical learning insights that enable predictive flexibility in the development framework. This flexibility makes the whole development process more interactive and responsive.

The THBR model allows the country to re-shape its development framework. The balance of the centralized model doesn't requires fundamental reworking. Instead, it strategically re-shifts its functional focus to a more empowering position. In the THBR model, the central state takes a step back from direct implementation of policies to providing facilitative supports. This means the state provides essential enabling structures and limits direct-resource execution, empowering local communities to operate within the empowered framework.

By synergizing the effectiveness of centralized management and the flexibility of localized control, this hybrid model can help establish relevant, effective, inclusive, and responsive rural development framework compatible with Malaysia's governance context. Below is a difference between the 3 types of model.

Table 5: A difference between the 3 types of model

Feature	Centralized Model (e.g., RTP)	Decentralized Model (e.g., Dana Desa Ideal)	Hybrid Model (e.g., THBR)
Decision-Making Locus	Federal/Central Agencies	Village/Community Institutions	Collaborative (National-Local)
Funding Flow	Top-down allocation from federal budget	Direct fiscal transfers to villages	Co-financing/Blended models
Community Role	Passive Recipient/Consulted	Active Driver/Owner	Co-designer/Co-manager
Primary Mechanism	Standardized program delivery (e.g., RTCs)	Village-led planning (e.g., musyawarah)	Adaptive feedback loops & multi-stakeholder platforms
Key Strengths	Execution efficiency, policy uniformity	Local responsiveness, high ownership	Balances efficiency with responsiveness, scalable
Key Weaknesses	Lacks flexibility, risk of irrelevance	Capacity constraints, implementation inconsistency	High coordination costs, complexity
Malaysian Applicability	Current dominant model	Structurally challenging, requires major reform	Proposed as a viable future pathway

Ground-Level Realities: Case Studies From Rural Malaysia

While the theoretical frameworks and national policies directed toward rural development are important, it is at the bottom, the villages, small towns, and isolated villages and farming communities that the impacts and primarily, the limitations become manifest. Malaysia, particularly Sabah and Sarawak, is an example of great geographic and socio-cultural diversity. It provides unique case studies that reflect the contradictory realities associated with development and the provision of infrastructure. There is case study development that ranges

from state-sponsored boom and bust megaprojects to the development of community-initiated and small-scale projects. To varying degrees, they all elaborate the concept of the state and the relation to the people, and community participation, and the outcomes—including the development. This part discusses the realities on the ground, drawing from the complicated outcomes of megaprojects, particularly the Pan Borneo Highway, and, through examples of community self-sufficiency, exposes the unique development challenges of East Malaysia.

Infrastructure Megaprojects and Community Impact: The Pan Borneo Highway

The constructing of the Pan Borneo Highway (PBH) is considered one of the most important milestones in Malaysian infrastructure development. It is the first federal project in Malaysia to design a modern road system for the whole Sabah and Sarawak region (Rashid et al., 2024). Building the highway aims to improve accessibility and spur economic development within the region, and serve remote populations to ease their access to important markets, schools, and health services (Rashid, Kamarudin, Rashid, & Zulkifli, 2024). From a top-down development perspective, the project has brought considerable benefits to the region, such as creating thousands of jobs for local contractors and workers, as well as reducing the time it takes to travel between major towns and cities (Rashid, Rashid, Azman, Ahmad, & Rejab, 2024).

The implementation of such large-scale, centrally planned infrastructure projects inevitably produce negative externalities for the surrounding rural communities. As one of the largest highways of the country, it entails social and economic disruptions of considerable magnitude. Some community members claim that the project caused a loss of income from the expropriated agricultural land, intensified local job market competition through the inflow of foreign employees, and, in some cases, caused relocation and loss of access to ancestral land (Rashid, Kamarudin, Rashid, & Zulkifli, 2024) (Rezayee, Ling, Ibrahimy, & Sadat, 2020). This expresses one of the fundamental tensions in the governance of megaprojects: the one-sided rationality of national and regional economic goals may overshadow the more immediate and the enduring needs of local, often poor, communities as they center planning and decision-making power on large contractors and investors (Rashid, Kamarudin, Rashid, & Zulkifli, 2024). In the case of the PBH, the governance style epitomizes the flaws of a top-down approach in which potential community engagement in high-level planning and integration remains limited (Wan Ahmad, 2025).

Concerns about the effectiveness of Social and Environmental Impact Assessments (SEIAs) in truly addressing community issues and negative impact mitigation highlight a need for more openness and community involvement in managing large-scale infrastructure projects (Rashid, Kamarudin, Rashid, & Zulkifli, 2024)

Empowering Remote Communities through Self-Sufficiency

These small-scale initiatives in Sabah and Sarawak differ from large-scale megaprojects and illustrate the importance of bottom-up community focused approaches. Many of these projects are community based and funded by civil society organizations using locally sourced materials and expertise. Such initiatives promote rural civil infrastructural development in a self-help or organize by their own setting that prioritizes sustainable development. This provides a model for empowering members of the community and fostering self-governed rural development for better sustainable.

Renewable Energy

In East Malaysia, notably in Sabah, rural electrification is a prominent challenge, with 72% of the entire nation's unmet need located in this region (Merdekawati, Suryadi, Pangestika, & Zafira, 2024). While the extension of power lines is typically unfeasible in remote and difficult, mountainous rural areas, community-based renewable energy projects emerging in these areas have been successful in addressing energy poverty. In fact, there are organizations, such as TONIBUNG (Friends for Village Development) in Sabah, that have developed and implemented numerous micro-hydro projects in community- and village-based settings during the past few years, such as in Kg. Terian and Kg. Buayan (Syarifuddin, 2025). The reason this model has been successful is due to the deeply participatory approach it embraces. This begins with feasibility study engagement with the community, and the formalization of a Community Energy Management Committee (Syarifuddin, 2025). This

Committee is trained to operate and maintain the system, and is empowered to set and collect household tariffs to cover the operational costs (Syarifuddin, 2025). Most importantly, these integrated-with-Resource Management projects incorporate local energy resource management practices, such as self-sustaining energy source management through traditional watershed area safeguarding (Loh et al., 2022). This approach, alongside the provision of electricity, has emphasized local governance, as it provided the community with a sense of control over their self-managed resource, as well as communal ownership over the system, which greatly enhances the system and governance functionality.

In the case of the Sarawak Alternative Rural Electrification Scheme (SARES), local community members assist in building and caring for solar plants within the neighborhoods as the organization trains and hires local teenagers for the job. This also enables locals to take charge of their own energy systems (Merdekawati, Suryadi, Pangestika, & Zafira, 2024).

Water Management

The provision of clean and safe water in rural regions also remains a considerable challenge. Community-led initiatives in this regard have also proven rather effective. The construction of gravity-fed water systems across rural areas in Sabah was facilitated by Hopes Malaysia and the Rotary Clubs (Abid, Sulaiman, Al-Wathinani, & Goniewicz, 2024). In this model of partnership, the donor community members provide the materials and the necessary technical knowledge while the local community members provide the land and the physical labor. The local community members, mutually organized under the principle of gotong royong, moved the materials, excavated trenches, and assembled the systems (Hoe, Samah, Hashim, Redzuan, & Jaafar, 2017). The establishment of a village water committee to manage the system represents a crucial step towards autonomy. This committee is tasked with maintenance, repairs, and overall system functioning for utmost sustainability and self-reliance long after any external assistance is provided (Hoe, Samah, Hashim, Redzuan, & Jaafar, 2017).

Community-Based Ecotourism (CBE) serves as an economic driver and a tool for empowering locals in Sabah and Sarawak (Ghasemi, 2015). Rural areas are rich with natural and cultural resources become an opportunity for communities to earn income through operating homestays, guiding tours of the local wilderness, and selling craftwork. In Sabah, variations of the traditional Tagal system have been adapted in support of the burgeoning ecotourism industry. Tagal system developers now maintain ecotourism fishing zones along protected river stretches that are popular with tourists for recreational fishing. Communities also participate in profit-sharing for ecotourism fishing (Ghasemi, 2015). These economic incentives offered for local environmental preservation empower communities making them environmental stewards. Establishing fair and transparent systems for the rapid distribution of potential profit remains a concern. Ongoing training in hospitality and business is required to ensure the necessary service delivery quality is sustained.

The Unique Context of Sarawak and Sabah

Sabah and Sarawak's rural infrastructure development challenges and opportunities are particularly pronounced. These states possess large regions of rainforests and mountainous topographies. Settlements tend to be remote and widely dispersed, with a few being isolated. Such features make infrastructure development a complex and costly undertaking. Furthermore, dispersed low populations make the economic case for investing heavily in roads, electric grids, and piped water inefficient. Such an assessment would be from a purely economic, cost, and benefits perspective (Tuah, Tedong, & Dali, 2023).

This region has also hosted large scale resource-extraction activities, leaving a legacy of adverse impacts on indigenous people. For example, the building of the Bakun Dam in Sarawak required displacing roughly 10,000 indigenous peoples from their homes, flooding over 10,000 hectares of forest, and significantly altering their subsistence livelihoods (Fadzil et al. 2017). The social justice, food security, and cultural identity issues involved in the challenges surrounding the resettlement have been extremely unsettling (Fadzil et al. 2017). In the same manner, the remaining plans for extensions of the power plant hydropower system have created major disruption

for indigenous peoples because of the continued lack of substantial engagement from the legally recognized representatives and the expected additional biophysical and societal disorder (Fadzil, Ibrahim, Awang, Zainol, & Edo, 2017). Such issues have created unnecessary and unbonafide primary skepticism towards legally sanctioned massive vertical and horizontal developments. This has proven the need for developments that, as a minimum, respect the community.

Table 6: Success Community led Projects in Sabah and Sarawak

Project Type	Case Study Location	Key Success Factors (Community-Led Aspects)	Key Challenges	Lessons for Policy
Micro-Hydro Energy	Kg. Terian, Sabah	Community watershed management (Tagal), local committee (CEMC), tariff system for maintenance fund.	Rising energy demand outstripping initial capacity, need for ongoing technical support.	Link energy provision directly to conservation incentives; formalize and support local governance structures (CEMCs).
Gravity-Fed Water	Ranau villages, Sabah	Gotong royong (communal labor), strong NGO-community partnership, community ownership of maintenance.	High initial capital cost for materials, difficult terrain for installation, reliance on external partners for initial setup.	Promote and fund partnership models; invest in training local maintenance teams to ensure long-term self-sufficiency.
Community-Based Ecotourism	Padawan, Sarawak	Direct income generation, cultural preservation, local empowerment through enterprise.	Risk of unfair benefit distribution, shortage of skilled manpower (hospitality, marketing), human-wildlife conflicts.	Mandate equitable benefit-sharing mechanisms; invest in targeted vocational training for rural tourism.

Synthesis And Future Directions: A Framework For Inclusive And Effective Rural Development

Synthesizing the Evidence: The Promise and the Pitfalls

The literature and case studies on rural infrastructure development in Malaysia are clear and complex. The literature points to a clear development process. On the one hand, there is strong evidence value community-building approaches with multiple benefits well beyond the infrastructure itself. They foster remarkable socio-economic outcomes by developing structurally relevant projects, catalyzing local enterprises, and improving livelihoods. Sustainability is long-term through community ownership and the local harnessing of adaptive, culturally appropriate problem-solving. Most significantly, these approaches empower rural populations, potentially transforming them from passive aid recipients to active development agents. This promotes development that is inclusive, equitable, and resilient.

On the other hand, numerous, persistent, and systematic approaches characterized by operational potential paradox deficiencies are undermining the development approach. Most importantly, a deeply centralized and fragmented governance structure constrains community development through bureaucratic impediments and the marginalization of local actors.

Chronic under investment within communities creates resource constraints and capacity gaps. Described as empowerment, shallow forms of participation are little more than tokenism. Consultation structures exist to hollow participation. This leads to cycles of dependency and recurrent suboptimal outcomes, which community-led development intends to address. The key contradiction is between the participatory development vision and the centralized governance system, which, by its very architecture, blocks the shift of genuine power necessary for community-led development.

Policy and Practice Recommendations

To address the differences between promise and reality, we need to address policy reform and the way it is put into practice. What follows is a set of stakeholder-focused recommendations aimed to foster a more positive environment for community-driven rural infrastructure development in Malaysia.

For National and State Policymakers:

1. **Embrace and Pilot Hybrid Governance:** The greatest opportunity for Malaysia rests with the adoption and implementation hybrid model of governance. For Malaysia's policymakers, the conversations need to move beyond the theory of the design and implementation to the empirical testing of frameworks like the Structured and Responsive Hybrid Governance (THBR) model in Malaysia's rural areas of the diverse (Ali, 2025). This means the architecting of institutional designs that will purposefully blend the governance and resource allocation at the centre with the local knowledge and agency of the rural folk. These types of pilots will furnish the empirical evidence that is sorely required to scale a singularly collaborative model of governance in Malaysia.
2. **Undertake Institutional Reform to Address Fragmentation:** The first and most crucial step is to resolve the longstanding instances of institutional fragmentation. This involves building a high-level inter-agency task force to strategize and subsequently map the functions, powers, and activities of all rural development ministries and agencies which will facilitate the institutional streamlining. The focus should be the reduction of overlaps, design and implement the single-window approach of rural constituents to the government in all bureaucratic layers (Kadir, Imang, & Atang, 2018).
3. **Initiate Phased Fiscal Decentralization:** True local autonomy will never be achieved until they control fiscal resources. The federal and state administrations should consider modes of incremental fiscal decentralization. For instance, the federal government could run small-scale pilot projects that provide unrestricted, or lightly restricted, development grants to district offices or even accountable and well-governed village development JKKK (Jawatankuasa Kemajuan dan Keselamatan Kampung) committees. This would give communities the capacity to pay for some of the projects that they consider priorities and is, therefore, a necessary step toward breaking the cycle of dependency on centrally managed funding.
4. **Strengthen the Legal and Policy Frameworks for Participation:** In order to make progress beyond tokenism, one step that can be taken is to legalize and institutionalize community participation. The National Rural Physical Policy and relevant planning acts need to be revised and amended to include legally stipulates provisions for genuine community participation in all key stages of the project cycle it is planning, design, approval, and monitoring (Zanudin, Ngah, Misnan, & Bidin, 2022). These should include provisions that emphasize participation, empower communities, and include them in the decision-making processes.

For Implementing Agencies and Practitioners:

1. **Invest in Sustained, Holistic Capacity-Building:** Capacity-building requires a shift from a one-off project based training approach to a long-term, holistic investment in rural human capital. Implementing agencies are expected to design and funding in full programs that prepare community and leaders with an array of training skills, knowledge from the technical (an example would be solar grid maintenance) to the financial, governance, and advocacy dimensions (Rahman, Rofik, Yani, & Eryani, 2025). Such an investment is not an additional expense but rather a central component of socially just sustainable development.
2. **Mandate Asset-Based and Culturally Sensitive Approaches:** Standard practice must incorporate strategies that are respectful of, and built upon, local community assets. Agencies ought to require that Asset-Based Community Development (ABCD) principles be integrated in project identification and design (Fung, 2023). This guarantees that development strategies are neither dictated to the community. Rather, they are designed in partnership with the community, driven by the assets, capabilities, and cultural paradigms they possess, especially the rich indigenous knowledge systems unique to Sabah and Sarawak.

3. **Transition from Implementer to Facilitator:** The functions of government agencies need to change. They should no longer be the key implementers of projects but take on the roles of facilitators and enablers. This means actively constructing and nurturing multi-stakeholder collaborative arrangements that link communities to the assets and skills of NGOs, the business world, and the academy (Fikri, Ismail, & Sari, 2025). By becoming a conduit, agencies enable communities to engage an expanded ecosystem of assistance that promotes creativity and robust problem solving.

For Community Leaders, Private Sector and Community-Based Organizations (CBOs):

1. **Strengthen and Formalize Local Governance:** Communities must take steps to advance their own governance systems. This involves the need to more clearly define the functions and accountabilities of local committees, particularly the Community Energy Management Committees (CEMCs) in micro-hydro projects, to advance the ideals of accountability, transparency, and the continuing stewardship of communal valuables.
2. **Mobilize Collective Action and Resources:** Local community leaders should strengthen local community resource mobilization. Traditional systems, such as gotong royong, aided in collection and modern cooperative systems can enhance community resource mobilization in establishing community corporations. This increases bargaining, regarding community resource mobilization, with external agencies and the private sector.
3. **Engage in Proactive Advocacy:** Local communities and Community Based Organizations (CBOs) should see themselves as active political entities. This involves local and state officials' proactive engagement with well-framed community needs. These entities are necessary in communities and are the active advocates of a seat in the formal decision-making circle. They form cohesive political groups, and voice the needed accountability, thus engaging the bottom of the political system in a participatory governance culture.

Most importantly, developing effective community-led rural development in Malaysia is not only a matter of the technical or administrative dimensions, it is also a political and philosophical issue. The social contract between the state and the rural citizens needs to be reconfigured, and it needs to be done at a fundamental level. The current paradigm of the state being the paternalistic principal provider of development is unsustainable, and it needs to be replaced. The new paradigm should be a redefined set of relationships in which the state is the enabler, a partner who trusts, empowers, and lends resources to the community, allowing them to control, and lead, the development process. Lessons from the development of rural regions elsewhere demonstrate the value of embracing bottom-up participatory processes, and the control them state is used to exercising will be the most difficult for leaders to let go of. However, it is only by undertaking the needed changes that Malaysia will attain its rural development objectives and build a rural future that is truly equitable and sustainable for its citizens.

CONCLUSION

The hybrid governance model is the essential bridge between participatory rhetoric and reality in Sabah and Sarawak. The engagement and empowerment of communities are shaped and influenced by social, economic, and institutional factors. The enablers are trust and confidence, local leadership, collective action, and local cultural values, while economic constraints, power inequities, and administrative bottlenecks are barriers. Technology, community telecentres, and other tech integration, helps close information gaps, improves empowerment, and facilitates other positive structural changes, provided there is relevant contextual integration and behavioural adoption. The evidence underscores the potential of community-driven frameworks to achieve positive change on rural infrastructure developments in Malaysia by promoting and enhancing community inclusiveness, sustainability, and socio-economic progress. This potential can be realized by responsive governance through the promotion of transparency, cohesion, and targeted governance frameworks on coordinated and integrated capacity building. Future action needs to focus on hybrid governance approaches and meaningful engagement of diverse stakeholders to guarantee equitable outcomes and sustained rural infrastructure in Malaysia and similar settings. The success of national rural development goals is to the adoption of the proposed community-led framework in national agenda and integrated with hybrid governance model.

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