



## ENHANCING PUBLIC SECTOR COMPETENCIES AND COLLABORATIVE GOVERNANCE FOR AGROTOURISM DEVELOPMENT IN RURAL INDONESIA: A CASE STUDY OF KANIGARA, WONOSOBO

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**Abstract.** This study addresses the critical challenge of developing public sector human resource competencies to support sustainable rural development, focusing on the Kanigara region in Wonosobo, Central Java, Indonesia. Although the area possesses significant agrotourism potential, its realization is hindered by a low human development index and the absence of effective inter-agency collaboration. The research objectives are to analyze the existing capacity of public sector human resources and to examine the dynamics of collaborative governance among various stakeholders. Using a qualitative approach, the study employs in-depth interviews with government and village officials, complemented by a focus group discussion for data triangulation. The findings reveal that despite a strong bottom-up initiative from the community, a lack of targeted skills (such as digital marketing and post-harvest management) and inadequate coordination among local government agencies are major obstacles. The study concludes that fostering a culture of collaborative governance and implementing tailored competency development programs are essential to unlock Kanigara's agrotourism potential. This research provides a practical framework for policymakers to improve public sector capacity, serving as a valuable reference for similar rural development initiatives in Indonesia.

**Keywords:** Human resource competency, collaborative governance, agrotourism, rural development, Wonosobo

### 1. Introduction

Agrotourism, defined as the strategic integration of agricultural practices with the tourism sector, has globally emerged as a critical tool for achieving sustainable rural development (SRD) and bolstering economic resilience, particularly across agrarian developing nations (1). This hybrid economic model offers multifaceted benefits that directly align with the United Nations Sustainable Development Goals (SDGs), including diversifying income streams for farming communities, fostering job creation, conserving cultural heritage, and increasing environmental awareness (3). For regions highly susceptible to volatile agricultural markets, farm diversification through agrotourism is increasingly recognized as a mechanism crucial for improving economic resilience and stability for local livelihoods (5).

Contemporary agrotourism scholarship highlights a crucial evolution in the field, moving beyond traditional rural visitation concepts toward addressing complex, systemic challenges. Research focus is shifting dramatically to incorporate advanced paradigms such as the **circular economy, social innovation, and adaptive policy frameworks (1)**. This shift mandates that successful agrotourism initiatives must function as sophisticated value-addition chains, requiring communities to move beyond the production of raw agricultural output to incorporate resource efficiency, processing, and community-driven entrepreneurship (1). The



implementation of these modern principles requires specific operational competencies, such as expertise in post-harvest management, which transforms perishable goods into marketable, high-value products and optimizes economic gains for farmers (6). Failure to develop these technical capabilities represents a structural impediment, preventing regions from capitalizing on the high-value, contemporary SRD goals defined in the literature. Given its vast agricultural diversity, Indonesia holds immense, yet often unrealized, potential for leveraging agrotourism as a primary strategy for rural revitalization; however, realizing this potential requires sophisticated institutional support, as many destinations, despite their inherent advantages, remain underdeveloped and underexposed due to persistent systemic challenges (2).

The institutional landscape governing rural development in Indonesia is characterized by the nation's ambitious decentralization program, which commenced in 1998. This process rapidly devolved extensive administrative, financial, and service responsibilities to sub-national authorities, including primary responsibility for regional economic development (9). While intended to empower local governments, the speed of this devolution often outpaced the growth of requisite administrative, technical capacities, and robust oversight mechanisms at the district level (9). This disparity between mandated responsibility and actual local capacity manifests as an enormous variance in development outcomes across Indonesian regions, underscoring the pivotal role of local government competence (9).

The successful translation of broad governmental policies, particularly those involving complex, multi-sector domains like agrotourism, fundamentally hinges on the **capacity and competence of the implementing apparatus (11)**. When local officials lack essential competencies, they face difficulties in translating policies into concrete, efficient, and transparent public services. This capacity deficit is particularly severe and sector-specific within rural tourism. Empirical studies reveal a critical skills chasm, particularly concerning **digital literacy**, where current workforce proficiency (estimated at 25%) is profoundly inadequate compared to the high industry demand (estimated at 80%) (13). This severe geographical digital divide, often exacerbated by inadequate internet infrastructure, limits the adoption of necessary technologies for modern promotion and booking, thereby posing a significant threat to the competitiveness of the rural tourism sector (13). This institutional fragility is further confirmed by macro-level indicators. The study location, Wonosobo Regency, exhibits a Human Development Index (HDI) of 70.63 in 2024 (14), a figure indicative of a poor baseline in education and skills (15). This low HDI confirms that the challenge is deeply structural, linking macro-level underdevelopment to micro-level operational incompetence, which ultimately restricts the effectiveness of local policy implementation (9).

The Kanigara region in Wonosobo presents a compelling empirical setting where significant agrotourism potential is severely inhibited by two interconnected institutional failures: acute public sector competency deficits and a subsequent breakdown in collaborative governance (15). First, the study identifies a specific lack of targeted operational skills—namely **digital marketing** and **post-harvest management**—among local public sector human resources and community stakeholders (15). These skills are essential for the modern agrotourism sector, where digital marketing capabilities are required to enhance market reach and consumer engagement (13), and post-harvest skills are necessary to create high-value products and ensure farm diversification (7).

Crucially, this operational skill deficit is compounded by the second failure: the **absence of effective inter-agency collaboration** and inadequate coordination among local government entities (15). The literature unequivocally supports Collaborative Governance (CG) and multi-stakeholder synergy (Penta-helix models) as essential frameworks for integrating diverse actors, sharing resources, and empowering communities in tourism development (17). The coordination failure in Kanigara, however, represents a fundamental breakdown of this vital institutional mechanism. These two deficits are observed to be mutually reinforcing; effective



collaboration requires shared knowledge and capability. If participating agencies lack competence in strategic operational areas, their attempts at 'coordination' in those domains will be superficial and ineffective.

The net effect of this dual institutional bottleneck is that a strong bottom-up initiative from the local community (15) is institutionally paralyzed. The public sector's inability to coordinate efforts (CG deficit) and execute necessary technical functions (Competency deficit) starves this grassroots momentum, preventing the translation of community enthusiasm into sustained regional development. This situation aligns with recognized challenges in decentralized Indonesia, where a low commitment from the government to genuine community participation often undermines the sustainability and local wisdom of development programs (19). Kanigara thus serves as a critical test case for understanding why decentralized polycentric governance—essential for adaptive policy and sustainability—fails specifically at the operational implementation level, hindering integrated planning across the entire agrotourism value chain.

Existing research confirms the theoretical importance of both capacity building and multi-stakeholder collaboration in tourism development. However, a significant empirical and conceptual lacuna persists, as few studies rigorously connect **specific, targeted operational skill deficits** in the public sector to the resulting **coordination failures** that ultimately paralyze development efforts in low-HDI, decentralized rural regions. This study is designed to fill this critical gap by providing an empirical assessment focused on the complex interdependencies within the Kanigara institutional environment.

Based on the institutional problems identified, this study pursues two primary objectives:

1. To analyze the existing capacity and identify specific competency gaps (such as digital marketing and post-harvest management) of public sector human resources essential for sustainable agrotourism development in Kanigara, Wonosobo.
2. To examine the dynamics and effectiveness of collaborative governance, focusing specifically on inter-agency coordination among various government entities and local stakeholders in the Kanigara agrotourism region.

The findings of this research offer both scholarly and practical contributions. **Theoretically**, this research provides robust empirical evidence demonstrating that operational Human Resource (HR) competency is a necessary *precursor* to achieving effective collaborative governance outcomes in decentralized contexts. It contributes significantly to the discourse on destination governance by analyzing how internal institutional fragilities dictate the success of external synergy models (20). **Practically**, the results deliver a highly targeted framework for local policymakers to design immediate, context-specific interventions. This involves prioritizing tailored competency development programs and structural reforms required to transform institutional bottlenecks—the twin failures of low capacity and inadequate coordination—into effective, adaptive mechanisms for unlocking Kanigara's agrotourism potential and fostering sustainable rural development

## 2. Methods

This study adopted a **descriptive qualitative research** approach designed to provide an in-depth understanding of the complex institutional phenomena, dynamics, and social processes occurring within the local government and community structures. The descriptive qualitative design was chosen for its utility in exploring non-linear policy implementation and governance practices, allowing researchers to remain close to the empirical data and context-specific events. The research was conducted in the Kanigara agrotourism area, Wonosobo Regency, Central Java, Indonesia. This site was specifically selected using *purposive sampling* as an empirical case study demonstrating high potential for agrotourism development that remains severely constrained by specific public sector capacity deficits and inter-agency coordination failures.<sup>1</sup>



Data collection employed a combination of qualitative techniques to ensure depth and triangulation of findings. The primary technique utilized was **in-depth interviews** (*in-depth interviews*) with key informants selected through purposive sampling. These informants included public sector Human Resource (HR) apparatus within the Wonosobo Local Government, Kanigara village officials, and influential local community stakeholders directly engaged in the agrotourism initiatives.<sup>1</sup> To enhance data credibility and achieve triangulation, these interviews were complemented by **Focus Group Discussions (FGDs)** involving multi-stakeholder representatives.<sup>1</sup> Secondary data—including official government documents, policy reports, and statistical publications pertaining to Wonosobo Regency—were also collected to provide essential contextual and quantitative support for the primary data.

The variables observed were structured around the two core research objectives: **Public Sector HR Competency** and **Collaborative Governance Dynamics**. Within the competency construct, the study focused on mapping specific operational skill deficiencies among local government personnel and community actors, particularly in **digital marketing** and **post-harvest management**.<sup>1</sup> Conversely, the observation of collaborative governance focused on analyzing the existing interaction patterns, coordination mechanisms, and the level of synergy among local government agencies and other vital local stakeholders in the Kanigara agrotourism region.

The qualitative data analysis was systematically performed using the interactive model developed by **Miles, Huberman, and Saldaña**. This procedure began with **data reduction**, involving the selective focusing and simplification of the extensive interview and FGD transcripts. Subsequently, **data display** was conducted through the use of matrices and charts to organize the information in a structured and accessible manner. The final phase involved **conclusion drawing and verification**, where emerging patterns and core findings regarding capacity deficits and coordination failures were rigorously cross-evaluated against the theoretical framework and triangulated data to establish robust and verifiable conclusions.

### 3. Results And Discussion

#### 3.1. Empirical Findings: The Dual Deficit in Human Capital and Institutional Coordination

The comprehensive analysis conducted in Kanigara, Wonosobo, revealed a critical paradox in rural development: the presence of significant agrotourism potential alongside profound systemic barriers inhibiting its realization. The study confirms that the challenge to sustainable development stems not from a lack of inherent natural or cultural resources, nor from community motivation, but rather from a dual deficit concerning targeted public sector competencies and effective institutional coordination (21).

##### 3.1.1. Latent Potential Versus Institutional Inertia: The Bottom-Up Initiative

Initial empirical findings established that the Kanigara region possesses strong foundational elements for successful agrotourism, crucially supported by a "strong bottom-up initiative from the community" (21). This grassroots engagement signifies an intrinsic, decentralized capacity and willingness among local actors to participate in and drive the development process. This finding is essential, as it shifts the locus of failure away from community enthusiasm or resource scarcity and toward institutional failings. The primary obstacle is identified as institutional inertia, reflected in the low Human Development Index and the structural inability to translate this community momentum into scaled, sustainable development outcomes.<sup>1</sup> The vitality of local, decentralized energy is a necessary condition for rural transformation, yet it remains underutilized because the formal governance structure is insufficiently adaptive to absorb and amplify this capacity (22) The challenge, therefore, is systemic: how to transition from fragmented, localized efforts to a consolidated, government-supported developmental framework.



### 3.1.2. Strategic Manifestation of Human Resource Competency Gaps

The realization of Kanigara's agrotourism potential is directly constrained by specific, strategic skill deficits within public sector human resources and related local stakeholders (21). These deficits are not general but are concentrated in areas vital for modern, sustainable value chain integration, namely "digital marketing and post-harvest management" (22).

The absence of digital marketing competency creates a severe technological isolation barrier, hindering market linkage and value capture. This digital gap is particularly detrimental in the context of Indonesia's agribusiness, where high-value downstream sectors, such as Hotels, Restaurants, and Catering (HORECA), exhibit "high digital capacity"(23). Consequently, producers in Kanigara are reliant on traditional, less efficient intermediaries, which suppress profit margins and limit direct engagement with the end market.

Furthermore, the lack of robust post-harvest management skills fundamentally compromises the viability of sustainable agrotourism (21). Post-harvest failure translates directly into preventable resource wastage, undermining the necessary transition toward principles of the circular economy (24). This failure contradicts the ethical foundations of agrotourism and results in environmental and economic losses, which parallels challenges found in other Indonesian agribusinesses grappling with significant volumes of waste that threaten environmental sustainability (23).

### 3.1.3. Evidence of Systemic Collaborative Governance Failure

The most significant structural impediment identified is the "absence of effective inter-agency collaboration" and "inadequate coordination among local government agencies" (21). This fragmentation confirms a pervasive failure of collaborative governance. Within the broader public policy context, the inadequacy of cross-boundary approaches often stems not merely from conflicting mandates, but from underlying organizational and procedural weaknesses (25).

In the case of decentralized Indonesia, previous studies have argued that governance failures resulting from decentralization demand "organizational solutions" specifically tailored to establish clarity in authority relations, distribution of responsibilities, implementation of procedures for coordination, and, critically, fostering climates of "mutual trust" (26). The findings in Kanigara demonstrate a clear institutional void where these organizational solutions should reside. The observed failure is a classic manifestation of siloed behavior where agencies, in the absence of clear procedural pathways or mutual trust, default to protecting their bureaucratic turf. This results in the formation of "ineffective coordination committees," which further exacerbate problems by focusing resources on internal benefits rather than collective developmental outcomes (21). Consequently, simple legislative mandates for collaboration remain insufficient without systemic changes to inter-agency workflows and trust mechanisms (26).

## 3.2. Discussion: Competency Gaps as Barriers to Green Transition and Digital Integration

The discussion now pivots to examine how the empirical deficits identified—human resource competency gaps and coordination failure—function symbiotically to impede strategic development objectives, specifically digital market integration and the pursuit of a sustainable circular economy.

### 3.2.1. The Digital Divide and Supply Chain Resilience

The deficiency in digital marketing skills 1 represents more than a technical limitation; it is a structural barrier to market equity and supply chain resilience. The modern agrotourism value chain requires effective integration between upstream producers (the farm) and downstream consumption (tourism sectors). As the Indonesian HORECA sector demonstrates high levels of digital advancement 3, rural producers lacking digital capacity are fundamentally decoupled



from the most efficient and high-value segments of the market. This digital isolation prevents Kanigara producers from benefiting from consumers who are increasingly seeking out environmentally friendly products and "green services" (24).

Effective digital competency development programs must, therefore, be viewed as a strategic intervention aimed at closing this divide, enabling direct market access. This linkage is crucial for maximizing the economic benefits of local, short-chain products, which are foundational to the sustainability claims of agrotourism (24). Without this targeted intervention, the economic returns of agrotourism will remain suppressed, jeopardizing its long-term viability as a strategy for lifting the Human Development Index (21).

### 3.2.2. Competency, Waste Management, and the Circular Econom

Agrotourism is recognized globally as a key vehicle for the "green transition" in agriculture, promoting sustainable lifestyles, responsible consumption, and the adoption of ethical choices (24). The long-term viability of Kanigara's development hinges on the effective incorporation of circular economy principles. This is where the post-harvest management skill deficit becomes acutely problematic (21).

Failure in post-harvest handling directly results in resource degradation and waste, immediately undermining the environmental integrity of the agrotourism offering. Such wastage negates the potential for the sector to provide ecosystem services and quality food that visitors seek (24). To achieve genuine sustainability, policymakers must recognize the direct causal link between targeted public sector and community training in post-harvest techniques and the macro objective of minimizing waste and maximizing resource reuse, aligning the local development with global sustainability goals.

The following table summarizes the identified empirical deficits and their corresponding detrimental effects on macro-level development objectives:

Strategic Consequences of the Dual Deficit

Identified Deficit (Kanigara)	Impeded Function	Macro-Goal Hindered	Theoretical Context
Digital Marketing Skills	Market Integration and Value Capture	Supply Chain Resilience & Economic Return	Decoupling from High-Capacity Sectors (HORECA) (23)
Post-Harvest Management Skills	Resource Efficiency and Quality Control	Circular Economy & Green Transition	Sustainable Food Systems and Ethical Practices (24)
Inter-Agency Coordination Failure	Policy Implementation and Resource Pooling	Institutional Innovation & Adaptability	Failures in Decentralized Governance (25)

### 3.3. Discussion: Institutional Complexity, Decentralization, and Collaborative Failure as a 'Wicked Problem'



The governance challenges observed in Kanigara are not isolated administrative errors but are symptomatic of deeply embedded structural issues common in decentralized systems managing complex, multi-sectoral development problems.

### 3.3.1. The Structural Roots of Coordination Failure in Decentralized Indonesia

The "inadequate coordination" among local government agencies must be analyzed through the lens of institutional reform following decentralization in Indonesia. While decentralization aims to empower local decision-making, it simultaneously introduces organizational complexity. When this complexity is not managed by specific organizational solutions—such as clearly defined authority relations, transparent procedures for monitoring, and deliberate fostering of mutual trust—governance inevitably fails (26).

The coordination deficit found in Kanigara is a consequence of agencies maintaining siloed, top-down operational models, even when facing cross-boundary policy arenas (25). The decentralized framework is exploited not for adaptive collaboration, but for protecting departmental autonomy. This leads to friction, duplication of effort, and a failure to pool resources effectively, ultimately preventing the realization of community-led development initiatives (21). Resolving this requires not merely a call for better communication, but a comprehensive redesign of inter-agency procedures and authority structures to mandate and enforce cross-sectoral engagement, thereby establishing the necessary organizational pathways based on trust (21).

### 3.3.2. Framing Agrotourism Development as a Wicked Problem

The multifaceted nature of agrotourism development—encompassing sustainable resource management, economic viability, infrastructure provision, social equity, and cultural preservation—satisfies the criteria of a "wicked problem." Wicked problems are characterized by complexity, ambiguity, dynamic evolution, and multiple, interconnected root causes, making them resistant to traditional linear solutions (26).

Because agrotourism in Kanigara is a wicked problem, the reliance on a "top-down, siloed approach" observed through the coordination failure 1 is predictably "inadequate" (26). Traditional policy mechanisms built on rigid, centralized decision-making cannot generate effective or equitable outcomes when faced with complexity. Such solutions often create unintended consequences because they fail to integrate the wide range of expertise and local knowledge necessary for balancing hard regulations with the on-the-ground realities of a Complex Adaptive System (CAS).

Therefore, the study concludes that effective policy-making for Kanigara's agrotourism is structurally reliant on shifting toward a model that fosters transparency, inclusivity, and adaptability by integrating local community input (the strong bottom-up initiative) with governmental planning (21). Collaborative governance is not an optional add-on but a fundamental structural necessity for resolving this type of wicked problem.

## 3.4. Discussion: Toward Institutional Innovation via Polycentric Governance

To overcome the dual deficits of competency and coordination in the face of a wicked problem, the analysis necessitates a theoretical shift toward institutional innovation, specifically adopting the framework of polycentric governance.

### 3.4.1. Polycentricity as the Solution to Coordination Complexity

Polycentric governance, defined by the existence of "multiple decision-making centers at different scales" (22), offers the institutional architecture required to manage the complexity and coordination failures found in decentralized settings (26). Instead of attempting to force collaboration through top-down mandates that inevitably fail, polycentricity legitimizes and coordinates autonomous action.



This approach provides essential flexibility, enabling "experimentation and context-specific action", which is crucial for managing the local specificities of Kanigara's development, including the unique cultural and environmental demands of agrotourism (26). By adopting polycentric principles, the existing strong bottom-up initiative 1 can be formalized, utilizing local knowledge and decentralization to manage resources responsibly. The role of the regional government thereby shifts from one of rigid control to one of strategic "orchestration," facilitating coordination among diverse, flexible decision centers (22). This institutional design directly fosters the mutual trust and specialized coordination procedures that are currently missing in the decentralized framework (26).

#### 3.4.2. Developing Transformative Governance Capacities

The transition to a polycentric system is predicated on developing specific capacities that enhance institutional resilience and responsiveness to changing circumstances. In the context of Kanigara, this transformation involves four critical capacities:

##### 3.4.2.1. Stewarding Capacity

The government must formalize and support the existing bottom-up community initiative (21). Stewarding capacity involves creating institutions, such as autonomous village tourism boards or multi-stakeholder forums, responsible for the long-term protection and sustainable use of resources. This formalization integrates local actors into the governance structure, ensuring that resource decisions are informed by those closest to the context, fostering ethical, responsible, and sustainable tourism (24).

##### 3.4.2.2. Unlocking Capacity

This capacity involves institutional flexibility to address identified deficits through targeted interventions. Specifically, the observed gaps in digital marketing and post-harvest management 1 require the "unlocking" of resources and authority to implement specialized, context-specific competency programs. This capability ensures that skills training is aligned precisely with the demands of sustainable, digitally integrated value chains (23).

##### 3.4.2.3. Transformative Capacity

This is the ability to create new structures and modify existing ones to manage emerging pressures. In Kanigara, transformative capacity requires replacing the "ineffective coordination committees" 5 with adaptive, cross-sectoral coordination forums that possess clear authority and procedural clarity, overcoming the silo effect (25). These new structures must be designed to handle the complexity inherent in the agrotourism wicked problem, allowing for flexibility and institutional innovation (26).

##### 3.4.2.4. Orchestrating Capacity

The regional government must strategically coordinate the diverse decision centers to ensure collective action achieves transformative outcomes aligned with regional and national sustainability objectives. By increasing diversity and autonomy in decision-making centers, polycentricity enables more flexibility and innovation. This orchestration capacity is crucial for ensuring that local efforts effectively contribute to addressing the underlying constraint of the low Human Development Index in Kanigara 1 by enhancing the system's overall governance capacity to utilize resources efficiently and equitably.

## 4. Conclusion

The study unequivocally demonstrates that unlocking Kanigara's agrotourism potential requires addressing a symbiotic structural and capacity challenge. The realization of this potential is conditional upon resolving the dual deficit of specific human capital shortages (digital marketing and post-harvest management) amplified by a pervasive failure in inter-agency coordination.



The observed coordination failure is a predictable outcome when decentralized governance structures attempt to solve a highly complex, multi-sectoral "wicked problem" like sustainable agrotourism using linear, siloed administrative models. These traditional approaches lack the requisite organizational clarity, procedural coordination, and mutual trust necessary for effective cross-boundary action.

Therefore, the pragmatic framework essential for policymakers involves two concurrent, integrated pathways: institutional innovation and targeted competency development. The institutional path must establish a polycentric governance system that allows for decentralized experimentation and formalizes the utilization of the strong bottom-up community initiative. The competency development path must prioritize skills that directly enable digital market integration and circular economy practices. By integrating tailored expertise within a resilient, adaptive polycentric structure, the Kanigara region can transition its latent potential into sustained, equitable, and transformative rural development, serving as a valuable reference for similar initiatives in the Global South.

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