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Collaborative Approaches and Power Imbalances in Community-Based Forest Management: A Case Study from Rural Java, Indonesia

Rijal Ramdani[1]*, Bagaskoro Nur Abu Yogar[2], Muhammad Akbar Nugraha Sabarna[3], Kevin Arya Pranaja[4]

[1] Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia
[2] Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia
[3] Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia
[4] Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia
*Corresponding Author Email: rijalramdani@umy.ac.id

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Abstract

Sustainable Community-Based Forest Management (CBFM) relies on collaboration among diverse actors, including local communities, NGOs, universities, and government institutions. This study examines collaborative approaches and power relations in CBFM in rural Java, with a focus on Gunungkidul, Indonesia. Using a collaborative governance framework and a power dynamics lens, it analyses how authority, legitimacy, and resource control shape collaboration. Data were collected through participant observation, in-depth interviews, focus group discussions (FGDs), document analysis, and Social Network Analysis (SNA). The findings indicate that decision-making is framed as democratic, and that knowledge and resource sharing support sustainable CBFM. However, authority remains centralised at the national level, constraining inclusive governance. Local communities and NGOs, by contrast, play a prominent role in implementation due to their resources and legitimacy. These insights contribute to debates on collaborative governance in the Global South, showing that collaboration does not necessarily follow formal authority structures. The study also speaks to SDG 1, Target 1.4, by improving access to land and economic resources for vulnerable forest communities, and to SDG 17, Target 17.16, by strengthening multi-actor partnerships for sustainable forest governance. Future research should compare multiple CBFM cases to capture variation in collaborative practices and grassroots power dynamics.

Keywords: *Collaborative Governance; Community-Based Forest Management; Power Imbalances; Rural Java*

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Introduction

The management of natural resources such as forests requires collaboration among multiple actors with different interests, capacities, and degrees of authority to ensure equitable access and sustainable outcomes (Agustino et al., 2011; Marques et al., 2020; Ramdani & Mustalahti, 2023; Purnomo et al., 2018). Forests generate ecological, economic, and social benefits that underpin rural livelihoods, including timber, non-timber forest products, and ecosystem services such as hydrological regulation and climate moderation (Khan et al., 2022; Sackey et al., 2025; Gatiso, 2019). Yet these benefits are often unevenly distributed, particularly in developing countries where forest governance remains highly centralised (Andersson et al., 2018 ; Takahashi & Todo, 2012). For instance, central governments in countries such as Vietnam and Peru continue to dominate decision-making and control over forest resources, limiting the authority of local actors and subnational institutions (Brockhaus et al., 2021; Libert-Amico & Larson, 2020). Similarly, in Cameroon and Nepal, decentralisation efforts have been constrained by persistent central government control and weak local governance capacity (Kimengsi & Bhusal, 2021).

In Indonesia, particularly rural Java, forest governance has long been shaped by centralised control that restricts community rights and participation. Approximately 64 percent of Indonesia's land area is legally classified as forest land under state control, leaving rural communities with limited access (Roshetko et al., 2017; van der Muur, 2018; Ramdani, 2023). Ben White noted that nearly 80 percent of Javanese farmers are land-poor, a condition that perpetuates rural poverty and marginalisation (Grehenson, 2012). As a consequence, many communities have expanded agricultural activities into state forest areas, contributing to deforestation and land-use conflicts. Forest Watch Indonesia reports that, between 2000 and 2017, Java lost approximately 2 million hectares of forest, at a rate of 12,460 hectares per year (Ambarwati et al., 2025; Nilan & Maunati, 2025).

In response to civil society advocacy and international commitments to participatory governance, the Indonesian government introduced the Community-Based Forest Management (CBFM) policy in 2005 (Maring, 2022; Rumboko et al., 2013; Wibowo et al., 2013). The policy seeks to restructure state–community relations through collaborative forest management, involving partnerships among local communities, non-governmental organisations (NGOs), universities, and government agencies (Gupta et al., 2020; Indrajaya et al., 2022). Through decentralisation, management rights are partially transferred from the central government to communities (Lund et al., 2018; Nygren, 2005), enabling local participation in decision-making, production, and conservation. Decentralisation is also intended to enhance community welfare and environmental sustainability by expanding access to forest management while reducing deforestation and degradation (Christopher et al., 2006; Ribot et al., 2010; Tebkew & Atinkut, 2022).

We selected Gunungkidul District in Yogyakarta Province as the research site because of its long-standing experience in implementing CBFM and its established collaboration among local institutions. For example, the Sedyo Makmur Community Forest Group (CFG), one of the 35 CFGs in Gunungkidul, has worked with NGOs such as

Shorea and Javlec, Universitas Gadjah Mada (UGM), and local government agencies to obtain and implement CBFM permits since 1995. Over the past 25 years, this collaboration has managed 115 hectares of state-production forest, planting teak and intercropping cassava, peanuts, and corn to improve livelihoods and reduce deforestation (Das & Mallick, 2024).

This multi-actor collaboration provides an empirical context for examining how collaborative governance operates in practice and how power is distributed across actors with differing mandates, capacities, and interests. It aligns with the Sustainable Development Goals (SDGs), particularly SDG 1, No Poverty (Target 1.4), by expanding community access to land, livelihood opportunities, and essential resources that support rural wellbeing. In this setting, collaboration is not only a mechanism for coordinating forest restoration and management activities, but also a pathway through which communities may strengthen their institutional standing, gain recognition, and secure more stable access to productive assets. As such, the case enables closer scrutiny of whether collaborative arrangements translate into tangible improvements in equity and whether participation extends beyond procedural involvement to meaningful influence in decisions that shape forest use and benefit-sharing.

The collaboration also supports SDG 17, Partnerships for the Goals (Target 17.16), by fostering sustained cross-sectoral cooperation and knowledge-sharing in forest governance, including coordination between community institutions, NGOs, universities, and government agencies (Colfer et al., 2020; Empig et al., 2023; Ma et al., 2022; Nath et al., 2020). These partnerships can facilitate flows of resources, expertise, and legitimacy across governance levels, potentially strengthening local capacity for planning, monitoring, and implementation while improving alignment between conservation objectives and livelihood priorities. However, the extent to which such collaborations genuinely empower local communities and redistribute decision-making authority remains unclear, particularly where key regulatory and permitting powers continue to reside with higher-level institutions. This ambiguity underscores the need for closer examination of how partnership arrangements are enacted, whose knowledge and preferences shape outcomes, and whether collaborative governance delivers substantive power-sharing rather than symbolic inclusion.

Prior research emphasises the importance of multi-actor engagement for sustainable forest management. For example, Tando and Haryanti (2022) highlight social learning as a mechanism for reducing deforestation, while Roengtam and Agustiyara (2022) identify collaborative governance as critical for mitigating land-clearing fires. Friedman et al. (2020) emphasise NGOs' facilitative roles in connecting communities with external actors and supporting forest licensing and coordination. Wardana et al. (2023) and Henriksen et al. (2023) show that cross-sectoral partnerships can help address resource limitations and advance conservation goals. Nevertheless, Reyes et al. (2024) caution that collaboration often remains unequal, as community voices are marginalised in decision-making despite formal inclusion. These findings indicate a persistent research gap regarding how collaboration unfolds in practice and how power asymmetries shape outcomes in CBFM.

Despite this growing body of work, few studies examine how diverse actors operationalise collaborative approaches and how power imbalances shape outcomes, particularly within Indonesia's CBFM context. This study addresses this gap by investigating collaborative approaches and power structures in CBFM in Gunungkidul. In doing so, it clarifies how formal collaboration arrangements may translate into uneven influence over agenda-setting, decision-making, and benefit allocation. It identifies the types and characteristics of collaboration among local communities, NGOs, universities, and government agencies; analyses how these interactions are shaped by power dynamics, particularly authority, resources, and legitimacy; and assesses how these relationships influence the inclusiveness, equity, and sustainability of CBFM governance. Drawing on the collaborative governance framework of Emerson and Gerlak (2014) and the theory of power dynamics proposed by Purdy (2012), this study connects collaboration and power to contribute to governance studies and to the practical advancement of equitable forest management in Indonesia.

Theoretical Framework

Collaborative Governance and Collaborative Approaches

Collaborative governance refers to a process and set of institutional arrangements in which governmental and non-governmental actors jointly engage in consensus-oriented decision-making to achieve shared public objectives (Emerson et al., 2012). In environmental management, such collaboration is critical because ecological challenges are often cross-sectoral and complex, requiring the integration of knowledge and resources across scales (Armitage et al., 2012; Bodin, 2017). This study adopts the collaborative approaches framework developed by Emerson and Gerlak (2014), which comprises four dimensions: (1) leadership, (2) structural arrangements, (3) knowledge and learning, and (4) resource sharing. These dimensions are treated as collaborative approaches that multiple actors can undertake within collaborative processes (see Emerson and Gerlak, 2014). However, given the study's limited attention to leadership, the analysis focuses on three dimensions, structural arrangements, knowledge and learning, and resource sharing, to assess how collaboration unfolds among actors involved in Community-Based Forest Management (CBFM).

In this study, structural arrangements refer to formal and informal institutional mechanisms that enable inclusive and deliberative decision-making processes involving multiple actors (Emerson et al., 2012). According to Choi and Robertson (2014), collaborative structures enhance institutional adaptability by integrating diverse perspectives and interests. In the context of CBFM, structural arrangements shape how decision-making authority is distributed, who participates, and how communication operates across governance levels. Emerson and Gerlak (2014) argue that voluntary participation and inclusiveness foster knowledge diversity and strengthen social learning, both of which are vital for sustaining long-term collaboration. Previous research also indicates that inclusive forest governance structures can reduce deforestation and

enhance adaptive capacity (Brink & Wamsler, 2018; Jenke, 2024; Leys & Vanclay, 2011; Ota et al., 2023).

Knowledge sharing and social learning involve reciprocal interactions among stakeholders with varied expertise and experience, enabling them to exchange knowledge and build mutual understanding (Emerson et al., 2012; Tran et al., 2020). Collaborative governance is strengthened when learning mechanisms are institutionalised through joint training, participatory planning, and iterative evaluation (Buuren, 2009). In CBFM, social learning is particularly important because it enables communities and government officials to co-produce solutions, harmonise interests, and build trust (Marques et al., 2020). The knowledge dimension therefore functions both as a process of empowerment and as a means of moderating asymmetrical relationships among actors.

Resource sharing refers to the mobilisation and distribution of material, technical, and symbolic resources across collaborating institutions (Emerson et al., 2012; Zachrisson & Lindahl, 2013). Meaningful collaboration depends on each actor's willingness and capacity to contribute resources such as funding, knowledge, or legitimacy. As Emerson and Gerlak (2014) note, no single actor can address complex environmental issues independently; collaboration depends on mutual interdependence. In the context of CBFM, however, resource sharing often remains inequitable, as elite capture and institutional hierarchies enable dominant actors to retain greater benefits (Mahanty et al., 2009; Raitio & Saarikoski, 2012). This imbalance underscores the need to link collaborative governance theory with power analysis to understand whose interests prevail and why.

Power Imbalances in Collaborative Governance

Scholars have raised concerns about the potential dominance of certain actors in collaborative governance processes due to disparities in sources of power (Choi & Robertson, 2014; Purdy, 2012). In collaborative governance, power is rarely distributed evenly among participating actors and may fluctuate with their goals, resources, positions, and opportunities (Choi & Robertson, 2014). Robertson and Choi (2012) argue that each party, through its distinct potential sources of power, can share resources, knowledge, and incentives that it may not possess independently. Ansell and Gash (2008) also explain that when actors enter a collaborative process with unequal resources, authority, or access to information, those with greater institutional power or legitimacy can dominate agenda-setting, decision-making, and outcomes. Such imbalances can undermine trust, discourage participation among weaker stakeholders such as local communities or NGOs, and weaken the deliberative character of collaboration.

To examine how power imbalances arise within CBFM collaborative activities, this study draws on the theory of power in collaborative governance introduced by Purdy (2012). According to Purdy (2012), power imbalances emerge because actors engaged in collaboration have unequal access to key sources of power, namely authority, resources, and legitimacy, which shape their capacity to influence collective decisions.

Authority refers to formal power granted through official roles, positions, or institutional offices (Purdy, 2012). It encompasses formal rights, institutional roles, and decision-making powers that allow certain actors to shape agendas, establish norms, and enforce compliance (Brisbois & de Loë, 2015). In this context, actors holding authoritative positions, such as government officials or organisational leaders, possess the legal or institutional capacity to make decisions. This type of power is often embedded in laws, policies, or governance structures, enabling certain actors to enforce regulations, allocate resources, and set strategic agendas. In environmental management, authority is exercised through mechanisms such as regulatory control, land-use permissions, and the validation or rejection of non-state actors' participation, often favouring those with legal or institutional mandates over marginalised groups (Choi & Robertson, 2014). Such hierarchical control shapes both the dynamics and outcomes of collaboration and can constrain the ability of less powerful actors to engage meaningfully in decision-making (Ansell and Gash, 2008).

Resources represent another fundamental source of power in collaborative governance (Purdy, 2012). Resources can be tangible, such as financial support, land, and technology, or intangible, including expertise, information, and access to networks (Bodin and Crona, 2009). Differences in resource availability shape actors' capacity to influence decision-making, generate support, and implement agreements effectively. Actors with greater resources are often able to dominate discussions, control information flows, and frame environmental issues and policy directions to their advantage (Brisbois and de Loë, 2015). In natural resource governance, such imbalances frequently result in uneven participation and the exclusion of less-resourced communities, ultimately weakening the principles of collaboration and threatening the long-term sustainability of collective environmental efforts (Vincent et al., 2020).

Legitimacy represents the third key source of power contributing to imbalances in collaborative environmental governance (Purdy, 2012). It encompasses the capacity to shape narratives and frame discussions within collaborative settings by influencing how issues are defined and understood (Purdy, 2012). This form of power rests on the ability to set the terms of debate, determine which perspectives are prioritised, and persuade others towards a particular viewpoint. Legitimacy involves the social and normative acceptance that an actor's authority, actions, or knowledge are appropriate and credible in a given context (Beetham, 1993). It operates through both formal recognition and perceptions grounded in trust, credibility, and procedural fairness. Actors perceived as more legitimate may exert greater influence over deliberations and policy outcomes, potentially marginalising those whose perspectives or knowledge systems are regarded as less credible or authoritative (Dolan et al., 2024).

Research Methods

We employed a qualitative research design, combined with Social Network Analysis (SNA), to examine collaboration among actors and power dynamics within Community-Based Forest Management (CBFM). Qualitative research offers a

comprehensive, in-depth approach to understanding human behaviour and the reasons behind it (Aspers and Corte 2019), particularly in diverse social and ecological contexts (Busetto et al. 2020). In this study, the phenomenon under investigation is the collaborative governance processes and power relations among multiple actors involved in implementing CBFM within the Sedyo Makmur community forest group in Gunungkidul, Yogyakarta. The geographical context of the study site is presented in Figure 1.

Gunungkidul was purposively selected because of its long-standing history of CBFM implementation since the 1990s, characterised by the active participation of civil society organisations (e.g., Shorea and Javlek) that have facilitated community empowerment and policy advocacy. The site also reflects a complex interplay among local actors, NGOs, and government agencies, making it analytically rich for examining collaborative governance and power asymmetries. The Sedyo Makmur forest group, one of the oldest community-based forest institutions in the district, represents a mature example of local forest governance that has obtained formal management rights under the CBFM policy, enabling exploration of long-term collaboration and institutional evolution. These attributes justify Gunungkidul as a theoretically and contextually relevant case for investigating collaborative governance and power distribution in Indonesia's rural forestry sector (Arupa, 2009).

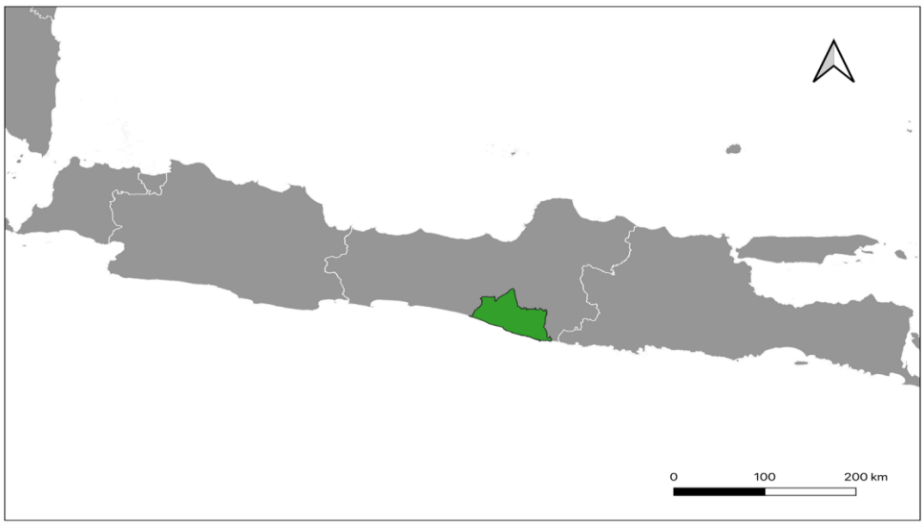


Figure 1. Research Site Location in Gunungkidul District, Yogyakarta
Source: Developed by the Authors Using Quantum GIS (QGIS) (2025)

We collected data using multiple qualitative techniques, namely in-depth interviews, participatory observation, and document analysis, complemented by SNA questionnaires (Aspers & Corte, 2019). This combination enabled methodological triangulation, strengthening credibility and analytical rigour. The in-depth interviews were designed to capture actors' perceptions, motivations, and interpretations of collaborative processes and power relations (Kvale, 1996; Jamshed, 2014). A total of 25 key informants were interviewed, representing diverse actor groups directly involved in

CBFM collaboration (see Table 1). Interviews were conducted between 2011 and 2025 to capture temporal dynamics and policy evolution. Each interview lasted 60–90 minutes and was audio-recorded with participants' consent.

Participatory observation was carried out through direct engagement in community routines, including nursery work (2011), tree planting (2012), peanut and corn harvesting (2018), and replanting (2024). This technique enabled identification of informal norms, actor interactions, and tacit knowledge that may not surface in interviews. In addition, document analysis was undertaken to complement field data and validate actor narratives (Bowen, 2009). The documents examined included Ministry of Forestry (MoF) regulations related to the CBFM policy, the Long-Term Forest Work Plan, and the Short-Term Forest Work Plan, which together provide a formal and historical record of policy implementation and local adaptation. Secondary materials, including government reports and NGO publications, were also reviewed to strengthen methodological rigour and provide longitudinal context.

Table 1. Number (N) of Key Informants in the Sedyo Makmur Community Group
Source: Processed by the Authors (2025)

Informants	**N 2011**	**N 2012**	**N 2017**	**N 2018**	**N 2024**	**N 2025**	**N Total**
Leaders of community forest group	1		1		1	1	4
Members of community forest group	3	2		3			8
Forest department of the province		1	1				2
Forest department of regency		1					1
Ministry of Forestry	1						1
Local legislative members		2					2
ENGOs activists			2				2
N Total							20

Focus group discussions (FGDs) were conducted to capture collective perspectives and validate findings emerging from interviews (Kitzinger, 1995; Lambert & Loiselle, 2008; Denzin & Lincoln, 2011). The FGDs took place in 2017 with the Sedyo Makmur forest group in Gunungkidul and involved the group leader, 25 members, and two representatives each from the Javlec and the village office. The discussions explored the historical development of Sedyo Makmur, patterns of collaboration among the community, NGOs, and government agencies, and decision-making processes in teak

reforestation initiatives. FGD findings were used to cross-check and triangulate data derived from interviews and documents, strengthening interpretive validity.

Data analysis followed a sequential and iterative approach, integrating qualitative interpretation and network analysis. According to Caudle (2004), qualitative data analysis involves interpreting information from multiple sources and systematically organising it for reporting. In this study, all interview and FGD recordings were transcribed verbatim and organised alongside observation notes and policy documents. These materials were imported into NVivo 14 Plus for thematic analysis. The coding framework was developed deductively based on the theoretical dimensions of collaborative governance, including (1) structural arrangements, (2) knowledge and learning, and (3) resource sharing, while also allowing emergent sub-codes through inductive refinement. This approach aligns with Emerson and Gerlak's (2014) framework of collaborative approaches and Purdy's (2012) framework on sources of power in collaborative governance, ensuring theoretical coherence and methodological transparency.

To complement qualitative insights, SNA was employed to quantify and visualise actor relationships. Data were collected through structured questionnaires distributed to all interview informants (see Table 1). The instrument comprised closed-ended questions asking whether respondents (a) interacted with a specific actor, (b) engaged in joint decision-making, (c) shared or received information, (d) exchanged resources such as funding, technology, or seeds, and (e) learned from that actor. Responses were coded as binary values: Yes (1) or No (0). Integrating SNA enabled the identification of power asymmetries and complemented qualitative themes on collaboration and influence. The compiled data were analysed using NodeXL software, generating visual maps of relational structures. Following Wasserman and Faust (1994), three metrics were applied: (1) density, the overall level of connectivity among actors; (2) network relationships, patterns and subgroups that describe the configuration of collaboration (Anderson et al., 1999); and (3) centrality, which indicates an actor's importance and influence in decision-making processes. Actors with high centrality values were interpreted as occupying stronger positions of power and coordination capacity within the CBFM network. The SNA visualisation (Figure 2) therefore highlights the structural distribution of power and collaboration, supporting the qualitative findings on local–NGO–government dynamics.

Results and Discussion

Collaborative Approaches in CBFM in Rural Gunungkidul

Before 1985, production forests in Ngeposari Village (Blocks 161 and 162, Karangmojo) remained densely vegetated, but later experienced degradation due to overexploitation by surrounding communities for charcoal and furniture production. Declining forest cover intensified water scarcity, prompting local residents to rely more heavily on forest resources for daily survival. This historical context provides the basis for the emergence of collaborative community initiatives aimed at restoring degraded

land while securing livelihoods. In 1995, a community of 100 members took a step towards conservation by forming a community forest group called Sedyo Makmur. The group worked collectively to plant teak and restore degraded forest areas. The establishment of the community forest group was closely linked to a government policy introduced in 1995 under the Minister of Forestry. In that year, the government launched a CBFM policy that granted local communities the right to manage forest areas. However, obtaining official permission was difficult, as the requirements exceeded the community's financial and administrative capacity (Purnomo et al., 2018).

Following the Minister of Forestry Decree No. 31/KPTS-II/2001, the Sedyo Makmur community group formally pursued legal rights to access the forests in 2003, with a total membership of 254. After the fall of the Suharto authoritarian regime, Indonesia's political system shifted from a centralised to a decentralised structure, accompanied by a transfer of authority over forestry from the Ministry of Forestry to district governments (Christopher et al., 2006). During this period, the Shorea played a crucial role in supporting the Sedyo Makmur community group through financial assistance and training. Recognising a broader movement advocating CBFM, Shorea sought to strengthen local communities' rights to state production forests. The NGO also secured funding from international donor agencies to support these initiatives. Through this funding, Shorea helped build the Sedyo Makmur community group's administrative and management capacity.

In 2007, the Sedyo Makmur community group was required to reapply for a Community-Based Forest Utilisation Permit following the issuance of Minister of Forestry Regulation No. 37/2007. This policy established a legal framework enabling communities to participate in forest management (Smith, 2019). By obtaining the permit, the community would gain the right to manage 115 hectares of state production forest for 35 years. Under this regulation, however, authority to grant CBFM permits was recentralised under the Minister of Forestry, while the roles of the Regent and Governor were limited to facilitating submission of applications. During this period, CBFM activities within the Sedyo Makmur community group expanded through the involvement of multiple actors, including the community group, the Javlec (a consortium of NGOs, of which Shorea also became a member), the Forestry Department of Gunungkidul Regency, and the Forestry Department of Yogyakarta Province.

The Javlec played a key role in preparing the documentation required for the CBFM permit, a task that proved challenging for the Sedyo Makmur community group. The NGO also supported mapping, institutional development, and planning by deploying volunteers in Gunungkidul. Meanwhile, the Forestry Department of Yogyakarta Province worked closely with the community and Javlec volunteers by providing guidance and assisting with permit documentation. The provincial forestry department also facilitated the community's receipt of the CBFM permit by verifying applications with the district forestry department. When the permit remained pending, the department sent letters and undertook direct lobbying with the Ministry of Forestry. As part of document preparation, they initiated a profit-sharing scheme for CBFM, allocating 60% to CBFM

groups, 10% to the district government, and 30% to the province, with a 6% tax allocated to the central government.

Table 2. Collaborative Approaches Among Multiple Actors in CBFM Activities
Source: Processed by the Authors (2025)

Period	Activities	Structural Arrangements	Knowledge and Learning	Resource Sharing
Before 1985	Deforestation to meet daily subsistence needs	–	–	–
1985–1995	Access to forest areas	Determined by the MoF	–	Temporary permits for horticultural cultivation
1995–2002	Formation of the community forest group	Permitting remained under the MoF, and 100 villagers initiated the community forest group	Information from the provincial forestry department and learning about the need for a community forest group	NGOs advocated for local community rights
2001–2006	Forestry decentralisation under the regency	The community obtained permits from the regency, and membership expanded (from 100 to 254)	Knowledge support from NGOs and the university to strengthen the CFG institution	Resource support from NGOs
2007	Recentralisation of forestry under the MoF	Authority was recentralised under the MoF, requiring the community to obtain a CBFM permit	Information and knowledge from NGOs (Shorea/Javlec) and local government institutions (province)	Resource support from NGOs
2009	Collaborative activities among community groups, NGOs, and local government institutions	Democratic decision-making within the community through organisational strengthening	The community learned nursery and cattle management from local government institutions (regency)	Incentives through livestock and horticultural support from local government

After obtaining the CBFM permit, the Sedyo Makmur community group received substantial support, including teak and cashew seeds, urea fertiliser tablets, stakes, and funding from the Forestry Departments of Gunungkidul and Yogyakarta Province, as well as from the Ministry of Forestry. The provincial forestry department also allocated IDR 70 million per year for CBFM activities in the province. In addition, it distributed IDR 250 million in 2010 and IDR 750 million for livestock aid. The community also received livestock support, including cattle and goats, from the Gunungkidul Livestock and Agriculture Agency, and business capital assistance from the Cooperative Agency. The Gunungkidul government allocated IDR 350,000 per month to each CBFM community group. Moreover, the district government supported Sedyo Makmur by facilitating biannual veterinary check-ups to maintain livestock health and providing training on animal feed and farming practices. Table 2 summarises the evolution of collaborative approaches in CBFM in Gunungkidul across key periods, highlighting changes in structural arrangements, knowledge and learning, and resource sharing.

As Emerson et al. (2012) note, collaborative governance refers to the processes and structures of public policymaking and governance that involve communities, the private sector, and NGOs across institutions and levels of government to pursue shared goals. In rural Java, particularly Gunungkidul, collaborative governance is evident in interactions among forest community groups, Shorea and Javlec, Universitas Gadjah Mada (UGM), local governments (Gunungkidul Regency and Yogyakarta Province), and the Ministry of Forestry (MoF). This collaboration is driven by a shared need to restore degraded forest areas while improving community welfare. Its origins can be traced to the establishment of the Sedyo Makmur community group in 1995, which subsequently worked with NGOs, universities, and local government institutions. The findings suggest that CBFM collaboration can help mitigate deforestation, while knowledge and resource sharing have enabled the community to manage the forest more sustainably (Brink & Wamsler, 2018; Emerson & Gerlak, 2014).

However, the findings indicate that decision-making in CBFM remains highly centralised under the Ministry of Forestry (MoF), creating significant institutional barriers for local actors. Although early decentralisation enabled the district government to provide access permits in 2003, Ministerial Regulation No. 37/2007 reasserted central authority, requiring the community to undergo a lengthy and bureaucratic reapplication process to secure a CBFM permit. This centralised structure is misaligned with diverse local interests, knowledge systems, and governance needs. Central authorities typically prioritise regulatory compliance, forest protection, and macroeconomic agendas, whereas local communities emphasise livelihood security and adaptive practices grounded in socio-ecological knowledge. As a result, rigid top-down permitting procedures and limited delegated decision-making authority constrain inclusive participation and weaken collaborative deliberation among actors (Emerson et al., 2012). Consistent with Choi and Robertson (2014), when authority remains concentrated within the state, collaboration can become procedural rather than substantive, with communities and district institutions holding symbolic involvement but limited influence over strategic decisions. This governance configuration reproduces structural power

imbalances and threatens the long-term sustainability of collaborative forest management in rural Java.

Comparable patterns have been observed in other developing countries, where central governments continue to exert dominant control over forest governance despite decentralisation reforms. In Vietnam and Peru, for instance, forest management remains highly centralised, restricting local actors' authority and limiting the capacity of subnational institutions to make context-sensitive decisions (Brockhaus et al., 2021; Libert-Amico & Larson, 2020). Likewise, in Cameroon and Nepal, attempts to devolve forest management responsibilities have been undermined by persistent central oversight and limited local governance capacity (Kimengsi & Bhusal, 2021). These cross-national cases suggest that persistent central authority in forest governance is not unique to Indonesia, but reflects a broader structural challenge in reconciling decentralisation with collaborative forest management. Such comparative insights reinforce the contribution of this study by situating the Indonesian experience within a wider context of uneven power redistribution in forest governance.

Collaborative knowledge and social learning were central to CBFM implementation in Gunungkidul. During the early stages (1985–1995), community members relied primarily on peer-to-peer learning through weekly meetings to share agricultural techniques and collectively agree on teak-based reforestation. As partnerships expanded, NGOs such as Shorea and Javlec played a transformative role in strengthening the community's administrative, managerial, and technical capacities. They supported mapping, institutional development, and permit documentation, tasks that were otherwise inaccessible to local farmers. The Yogyakarta Provincial Forestry Department and Universitas Gadjah Mada (UGM) further supported these efforts through training and mentoring, promoting mutual learning among bureaucrats, academics, and villagers. This reflects Buuren's (2009) view that collaborative governance requires platforms through which actors can co-produce knowledge and adapt through iterative learning. Through these cross-sectoral learning exchanges, Sedyo Makmur evolved from a loosely organised farming collective into a formally recognised forest management institution. Knowledge circulation not only improved technical competence but also strengthened social trust and institutional resilience, which are key outcomes of collaborative learning in environmental governance (Emerson & Gerlak, 2014; Tran et al., 2020).

Resource sharing among multiple actors has been a defining feature of CBFM collaboration in Gunungkidul. The Sedyo Makmur community group obtained a 35-year management permit, granting legitimacy to manage 115 hectares of production forest. This legal access enabled the group to attract diverse resource flows from NGOs and government agencies. Shorea and Javlec provided financial assistance and technical materials, while provincial and regency forestry departments supplied seeds, fertiliser, stakes, and periodic funding. In 2010, for example, the community received IDR 250–750 million in livestock aid, IDR 70 million annually for CBFM activities, and regular veterinary support and farming training from local agencies. These exchanges illustrate the multi-directional support that sustains collaborative governance. However, they also reveal an asymmetrical dependency, as the community's operational capacity remains

reliant on higher-level institutions. In line with Emerson and Gerlak (2014), this interdependence underscores that no single actor possesses sufficient resources to address complex forest governance challenges independently. Effective collaboration therefore depends on ongoing negotiation and balanced reciprocity in resource distribution.

The collaborative governance practices observed in Gunungkidul contribute to the Sustainable Development Goals (SDGs), particularly SDG 1, No Poverty (Target 1.4) and SDG 17, Partnerships for the Goals (Target 17.16). Within CBFM, coordinated efforts among local communities, NGOs, universities, and government agencies have facilitated income diversification, capacity enhancement, and improved access to livelihood resources, aligning with Target 1.4, which emphasises equal rights to economic resources and strengthened access to productive assets and basic services for vulnerable populations. Moreover, multi-actor collaboration enhances the economic resilience of forest-dependent communities through integrated financial, technical, and institutional support, while the cross-sectoral linkages evident in this case reflect the intent of Target 17.16 by demonstrating how partnerships can combine local knowledge and external expertise to pursue shared sustainability objectives. At the same time, the extent to which these benefits are distributed equitably across community members depends on how decision-making authority and resources are shared within the collaboration. Without mechanisms that ensure meaningful participation and accountability, SDG-oriented collaborations risk reinforcing existing inequalities rather than reducing them. Collectively, the Gunungkidul experience illustrates that structured and inclusive collaborative governance can strengthen forest management while contributing to global commitments on poverty reduction and effective partnerships for sustainable development.

Power Relations Among Collaborating Actors in CBFM in Rural Gunungkidul

The research identified 20 actors involved in CBFM collaboration, representing four main sectors: government agencies (central, provincial, and district), NGOs, universities, and forest community groups (Table 3). At the central level, the MoF and the Watershed Management Centre provided policy direction and seedlings. The provincial governor issued recommendations, while the Provincial Forestry Department facilitated programme activities. At the district level, local government institutions, including Forestry, Cooperatives, Animal Husbandry, Plantations and Agriculture, and Tourism, provided facilitation and funding, while the District Legislative Assembly played advocacy roles. NGOs such as Shorea and Javlec, together with the Faculty of Forestry at Universitas Gadjah Mada, contributed through advocacy, facilitation, and mentoring. At the grassroots level, the Sedyo Makmur community group acted as the primary actor. This multi-level structure reflects a collaborative network in which actors contribute through varying forms of authority, facilitation, advocacy, and resource sharing. Importantly, these contributions are not equivalent, as actors differ in the mandates and capacities that shape their influence over key decisions and implementation priorities. The network therefore provides a basis for assessing how authority, resources, and legitimacy are

distributed across governance levels and how these distributions affect collaboration in practice. To further examine roles and influence, we conducted a Social Network Analysis (SNA).

Table 3. Collaborating Actors and Their Roles in CBFM in Gunungkidul
Source: Processed by the Authors (2025)

Level	Institution	Roles in Collaboration
Central government	Ministry of Forestry	Policymaking
	Watershed Management Centre	Providing seedlings
Province	Governor	Recommending permits
	Forestry Department	Facilitation
Regency	Regent	Recommending permits
	Forestry Department	Facilitation and mentoring
	Department of Cooperatives	Mentoring
	Department of Animal Husbandry	Supporting additional programmes
	Department of Plantations and Agriculture	Supporting additional programmes
	Tourism Office	Supporting additional programmes
	Legislative Assembly	Advocacy
	District Office	Legitimacy support
	Village head	Legitimacy support
NGOs	Shorea	Advocacy, facilitation, and mentoring
	Javlec	Advocacy, facilitation, and mentoring
University	Faculty of Forestry, Universitas Gadjah Mada	Facilitation and mentoring
Community	Sedyo Makmur (community forest group)	Association and local implementation

The SNA results (Figure 2) indicate that the Sedyo Makmur community group (shown in red) occupies the most central position in the CBFM network, supported primarily by resource power and legitimacy (Purdy, 2012). This finding is consistent with Purdy's conceptualisation that actors who control critical resources and command social legitimacy may exert substantial influence within collaborative governance arrangements. In Gunungkidul, the community's resource power derives from its ability

to mobilise networks and partnerships with NGOs, universities, and government institutions. These partnerships enabled flows of financial, technical, and institutional support, strengthening the community's operational capacity and influence beyond the local level. The findings are consistent with Bodin and Crona (2009), who show that access to diverse resources and information networks enhances central actor in environmental governance. Similarly, Brisbois and de Loë (2015) argue that actors combining resources with relational networks can shape decision-making and steer collaborative outcomes.

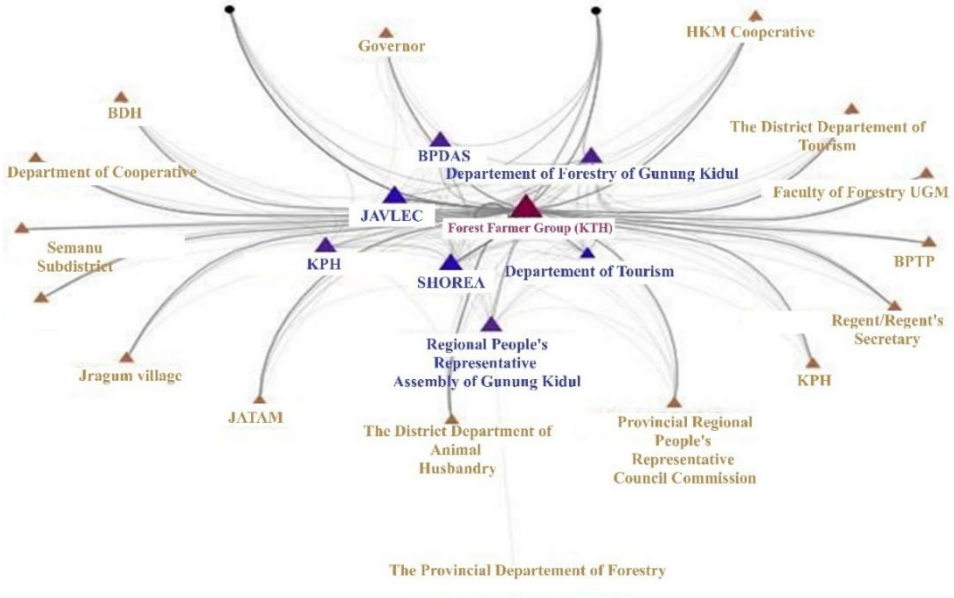


Figure 2. Social Network Structure Analysis (SNA) Among Actors Involved in CBFM
Source: Processed by the Authors Using NodeXL (2025)

The Sedyo Makmur group's legitimacy also proved crucial in sustaining its central role in the network. This legitimacy was grounded in the group's historical connection to the forest, its local ecological knowledge, and community dependence on forest-based livelihoods. These attributes established trust and social recognition among other actors, reinforcing the community's credibility as a legitimate forest manager. Purdy (2012) and Beetham (1993) emphasise that legitimacy functions as a form of power that enables actors to frame discussions and gain acceptance of authority within governance processes. Similar findings have been reported in Nepal and the Philippines, where community legitimacy and traditions of local stewardship were vital for gaining recognition and sustaining collaborative forest initiatives (Ojha et al., 2016; Cronkleton et al., 2017). These parallels suggest that local legitimacy can serve as a cornerstone of effective and durable collaboration, particularly in decentralised forest governance contexts.

The SNA also shows that NGOs such as Shorea and Javlec (shown in blue) are other influential actors in the network (Figure 2). Their centrality supports Purdy's (2012) framework by illustrating how resource power can be redistributed through cross-sector

partnerships. NGOs acted as intermediaries that compensated for weak state presence, using access to international funding and academic expertise to facilitate communication, advocacy, and capacity-building. This aligns with Brisbois and de Loë's (2015) observation that non-state actors often leverage external resources and technical knowledge to enhance collaborative effectiveness and rebalance power asymmetries. Comparable trends have been documented in Tanzania, where NGOs have played bridging roles in forest co-management by connecting local actors with government agencies and international donors (Lund et al., 2017). Collectively, these findings demonstrate that the interaction between resource power and legitimacy is central to understanding how communities and NGOs maintain influence within collaborative environmental governance networks.

Although the Sedyo Makmur community group and NGOs played central roles in facilitating collaboration and sustaining resource flows, authority in the CBFM scheme remained largely concentrated in the central government, particularly the MoF. Forest management permits were processed through the MoF, located far from rural Gunungkidul, limiting local actors' autonomy and access to decision-making. This illustrates the notion of authority articulated by Purdy (2012), understood as formal institutional power that determines who can make and enforce decisions within collaborative governance settings. The imbalance between centralised authority and local resource or legitimacy power reflects a structural asymmetry, in which national institutions retain control despite decentralisation rhetoric. This finding resonates with Mahanty et al. (2009), who observe that the benefits of forest-sector reforms in Asia often remain confined to elites or higher-level authorities, as powerful actors capture decision-making and resource allocation processes. Similarly, Choi and Robertson (2014) and Ansell and Gash (2008) argue that when authority is monopolised by state actors, collaboration becomes procedural rather than substantive, with limited opportunities for genuine power-sharing.

To address these constraints, the decentralisation of authority over CBFM permits should be revisited to enable local governments to issue and manage forest access more effectively. Comparative studies in Nepal and Tanzania suggest that meaningful devolution of authority can enhance community participation, equity, and accountability in forest management (Lund et al., 2017; Ojha et al., 2016). In this regard, re-decentralising CBFM governance in Java could strengthen alignment between authority, resources, and legitimacy, the three dimensions identified by Purdy (2012), and support more balanced collaborative governance.

Conclusion

This study provides important insights into how collaborative governance and power dynamics shape Community-Based Forest Management (CBFM) in Indonesia. The findings show that, while multi-actor collaboration among communities, NGOs, universities, and government agencies has strengthened resource access, social learning, and local legitimacy, persistent centralised authority continues to constrain meaningful

power-sharing. The analysis demonstrates that collaborative governance in Gunungkidul operates within an uneven power structure, in which the Ministry of Forestry (MoF) retains control over critical decisions, creating institutional barriers that limit local actors' autonomy. By situating these findings within broader regional experiences, the study highlights that such central–local tensions are not unique to Indonesia but represent a common challenge across developing countries seeking inclusive and effective forest governance.

The study also shows that CBFM collaboration contributes to the Sustainable Development Goals (SDGs), particularly SDG 1, No Poverty (Target 1.4), by improving community access to economic and livelihood resources, and SDG 17, Partnerships for the Goals (Target 17.16), by strengthening multi-stakeholder partnerships in forest governance. Integrating local knowledge with external expertise has expanded livelihood opportunities and demonstrates the value of multi-stakeholder partnerships in advancing rural development. However, future work could strengthen the theoretical grounding through more critical engagement with power theories, clarify the methodological approach, and more explicitly connect empirical findings to global debates on participatory development and the SDGs. These enhancements would strengthen the study's contribution to the international literature on natural resource governance and collaborative policy implementation.

This study is limited by its focus on a single CBFM case and by not examining the leadership dimension, which may play an important role in shaping collaborative outcomes and balancing power relations among actors. Future research should therefore examine multiple CBFM sites across different regions to capture variation in governance performance and the influence of leadership styles. Longitudinal studies are also recommended to track how power dynamics and collaboration effectiveness evolve over time, offering deeper insight into the sustainability and adaptability of community-based forest governance.

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