

POLYCENTRIC GOVERNANCE OF COMMUNAL-BASED GREEN ECONOMIC DEVELOPMENT IN JAYAPURA DISTRICT

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Abstract: This study aims to analyze the polycentric governance of communal-based green economic development in Jayapura Regency based on Jayapura Regent Regulation Number 5 of 2021. The study used a qualitative approach with a single case study design. Data were obtained through observation and policy documentation, then analyzed using the interactive model of Miles, Huberman, and Saldaña, which includes data condensation, data presentation, and drawing and verifying conclusions. The results show that development governance involves various centers of authority, namely the regional government, regional apparatus organizations, village governments, traditional village governments, Ondoafi, Customary Councils, farmer groups, fishermen groups, non-governmental organizations, and universities. Regent Regulation Number 5 of 2021 has become a formal basis for cross-sectoral coordination through Musrenbang (Regional Development Planning Forum), coordination meetings, discussion forums, public consultations, the submission of aspirations, joint decisions, memorandums of understanding, cooperation agreements, and the Regional Government Coordination Team. However, implementation is still dominated by a sectoral and bureaucratic approach, so that the authority of customary institutions has not been equally integrated in development planning, decision-making, implementation, monitoring, and evaluation. This research proposes an Integrated Polycentric Governance model that integrates local governments, village governments, customary village governments, and Ondoafi through joint planning mechanisms, shared performance indicators, and cross-authority coordination forums. This model maintains the autonomy of each center of authority while strengthening coordination, collaboration, and conflict resolution in the management of customary rights, natural resource protection, and community-based green economic development. This research contributes to the development of polycentric governance theory in the context of indigenous communities and provides policy recommendations for strengthening sustainable development governance in Papua.

Keywords: Polycentric Governance; Green Economic Development; Indigenous Communities; Ondoafi; Customary Rights; Jayapura Regency

1. Introduction

In recent decades, development implementation has increasingly faced the challenge of institutional complexity. Various public actors, communities, the private sector, and local institutions have overlapping authorities, making a hierarchical approach to governance no longer adequate. Public administration literature has developed the concept of polycentric governance as an approach that explains how various autonomous centers of authority can coordinate to achieve common goals. Green economic development is one policy arena that relies heavily on multiple governance mechanisms, involving governments, local communities, natural resource rights holders, community organizations, and economic actors.

This situation reflects institutional pluralism, a situation where formal state institutions coexist with customary institutions, indigenous governance, and local authorities that retain their legitimacy in managing communities and natural resources. This phenomenon is found in various countries, including Indonesia, and has been recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), the World Bank (2021), and the FAO (2021), thus forming the basis for the development of Ostrom's polycentric governance perspective.



In Indonesia, institutional pluralism is reflected in the existence of regional governments, village or hamlet governments, and customary law communities, each with its own distinct authority, function, and legitimacy in governance. Recognition of this institutional configuration is affirmed in Article 18B paragraph (2) of the 1945 Constitution of the Republic of Indonesia, Law Number 23 of 2014 concerning Regional Government, and Law Number 6 of 2014, as amended by Law Number 3 of 2024 concerning Villages.

In Papua, the institutional pluralism configuration is even stronger because formal government coexists with customary leadership, which retains significant legitimacy in community life. As customary leaders, Ondoafi (traditional leaders) continue to play a role in decision-making, conflict resolution, customary rights regulation, and natural resource management. This existence is recognized through Law Number 2 of 2021 concerning Special Autonomy for Papua Province and the Papua Province Special Regional Regulation (Perdasus) Number 5 of 2022 concerning Customary Law Communities.

In Jayapura Regency, this institutional configuration is implemented through Jayapura Regent Regulation Number 5 of 2021 concerning Green Economic Development, which positions indigenous communities as the primary actors in communal-based natural resource management. This policy recognizes the importance of customary rights, the role of Ondoafi (traditional leaders), and collaboration between local governments, village governments, and customary institutions to achieve sustainable, inclusive, and environmentally sustainable development in accordance with local socio-cultural characteristics.

Most research on green economic development governance still emphasizes collaboration between stakeholders or the implementation of environmental policies. Research on how various autonomous centers of authority establish coordination mechanisms in the context of indigenous communities remains relatively limited, particularly in the context of communal-based green economic development.

Against this backdrop, this article proposes an indigenous-based Polycentric Governance Model as a conceptual contribution to public administration. This model positions local governments, village governments, and customary leadership as autonomous yet collaborative centers of authority in implementing communal-based green economic development. Thus, the effectiveness of governance does not rest on the dominance of one institution, but rather on synergy between institutions that respect customary rights, customary legitimacy, and sustainable development goals.

2. RESEARCH METHODS

This research uses a qualitative research approach with a single case study design, referring to Creswell and Poth (2018) and Yin (2018) [3]. The case study examines the polycentric governance of communal-based green economic development in Jayapura Regency as a bounded system, focusing on the governance process from the enactment of Jayapura Regent Regulation Number 5 of 2021 to its implementation at the time of the research. Data were collected through observations of inter-institutional interactions and policy documentation, then analyzed using the interactive model of Miles, Huberman, and Saldaña (2020) through the stages of data collection, data condensation, data display, conclusion drawing, and verification [7].

3. LITERATURE REVIEW

This research uses the Polycentric Governance theory developed by Elinor Ostrom (2010) as the primary theory for analyzing the governance of communal-based green economic development in Jayapura Regency [12]. This theory stems from a critique of the view that governance and public resource management are more effective when controlled by a single, centralized authority. According to Ostrom (2010), various public issues, particularly those related to natural resource management, are more effectively addressed through a government system with multiple decision-making centers that operate autonomously, yet interact, coordinate, and collaborate within their respective jurisdictions [12]. Therefore, polycentric governance is not defined as institutional fragmentation, but rather as a regulatory framework for relationships between centers of authority that fosters coordination, shared learning, and adaptive problem-solving.

From Ostrom's perspective, the existence of multiple centers is a key characteristic of polycentric governance [12]. Various organizations, including government, community, and traditional institutions, have the authority to make decisions within their respective areas of responsibility. Each center of authority is not in a relationship of absolute subordination but rather performs complementary functions. This diversity of actors allows the decision-making process to be more closely aligned with community needs, making policies more responsive to local characteristics than a fully centralized system.

The second principle is autonomy, which is the ability of each center of authority to manage matters under its responsibility independently without losing the opportunity to collaborate with other actors. Autonomy allows each institution to develop innovations, adapt policies to local conditions, and utilize the knowledge of local communities. In a polycentric system, autonomy does not mean working in isolation, but rather forms the basis for creating equal cooperative relationships between organizations. The next principle is coordination, which is a mechanism that connects various centers of authority so that they do not work in isolation. Coordination is carried out through communication, information exchange, joint planning, policy alignment, and the establishment of collaborative forums. Ostrom emphasized that the success of polycentric governance depends heavily on the ability of actors to build coordination mechanisms that can reduce conflicts of authority, increase trust, and create synergy in achieving common goals [12].

Furthermore, self-governance is a principle that affirms that communities have the capacity to govern themselves through rules, norms, and institutions that develop from local needs. Ostrom demonstrated that communities do not always rely on central government intervention in managing common-pool resources [12]. Instead, communities can develop collective rules, conduct oversight, impose sanctions, and resolve conflicts independently if they have sufficient institutional space. This principle places society not merely as an object of policy, but as the main actor in the governance process.

The final principle is collective action, which is the ability of various actors to collaborate in formulating rules, making decisions, allocating resources, and collectively resolving public issues. Collective action arises from shared interests, mutual trust, agreed-upon norms, and ongoing communication. In polycentric governance, development success is largely determined by the ability of various centers of authority to build collective action that generates shared benefits without diminishing the autonomy of each actor.

These five principles serve as the analytical foundation for this study to understand the dynamics of governance for communal-based green economic development in Jayapura Regency. The context of Jayapura Regency demonstrates the existence of various centers of authority, such as the regional government, village governments, customary institutions led by Ondoafi, community groups, and non-governmental actors that play a role in natural resource management. Through a Polycentric Governance perspective, this study analyzes how relationships between these centers of authority are established, how autonomy and coordination are implemented, how self-governance mechanisms for indigenous communities function, and how collective action is formed to support the implementation of Jayapura Regent Regulation Number 5 of 2021 concerning communal-based green economic development. Thus, Ostrom's theory not only serves as a conceptual framework for explaining plural institutional configurations but also serves as a basis for formulating a contextualized polycentric governance model for regions with strong recognition of customary rights and indigenous community institutions [12].

To gain a comprehensive understanding of the polycentric governance of communal-based green economic development in Jayapura Regency, this research is supported by several complementary theories. First, Douglass C. North's Institutional Pluralism explains that governance takes place in an environment comprised of diverse formal and informal institutions with distinct rules, norms, and coordination mechanisms [8]. This perspective helps explain the coexistence of local governments, village governments, and customary institutions as institutional configurations that shape governance processes in Jayapura Regency. Second, Collaborative Public Management, developed by Agranoff and McGuire, is used to understand how public organizations build collaborations to address issues that cannot be resolved by a single institution alone [1]. Through the dimensions of activating, framing, mobilizing, and

synthesizing, this theory explains the mechanisms of coordination, communication, negotiation, and network management among stakeholders in the implementation of communal-based green economic development.

Third, Elinor Ostrom's Institutional Analysis and Development (IAD) is used to analyze how formal rules, customary norms, actor characteristics, and biophysical conditions shape the action arenas where actors interact and make decisions [12]. This framework helps identify the influence of customary rights rules, government policies, and customary institutions on governance processes. Fourth, Folke's Adaptive Governance provides a perspective on the importance of institutional capacity to adapt to social and environmental changes through shared learning, institutional flexibility, and cross-actor collaboration [4]. This approach is relevant because green economic development requires governance that adapts to ecological dynamics and community needs.

Fifth, Cornell and Kalt's Indigenous Governance explains that the effectiveness of development in indigenous communities is greatly influenced by the recognition of local institutions, leadership, cultural values, and authority [2]. This perspective serves as a foundation for understanding the role of Ondoafi as customary leaders with legitimacy in decision-making, customary rights management, and conflict resolution in Jayapura Regency. Sixth, Provan and Kenis' Network Governance is used to explain the form of inter-institutional network management in achieving common goals [13]. This theory helps analyze relationship patterns, role distribution, coordination mechanisms, and decision-making among local governments, village governments, customary institutions, community organizations, and other actors. All of these supporting theories complement the main theory of Polycentric Governance, allowing for a more comprehensive analysis of the dynamics of governance for communal-based green economic development in Jayapura Regency.

The previous research review began with a review of articles discussing polycentric governance as a primary perspective in public resource management. Meinzen-Dick et al.'s (2021) study, "Securing the Commons in India [6]: Mapping Polycentric Governance," demonstrated that communal resource management becomes more effective when multiple government agencies and community organizations collaborate through polycentric governance mechanisms. However, this study focused primarily on mapping institutional networks and failed to integrate the dimensions of green economic development. Furthermore, Adhikari's (2026) study, "Critical Polycentric Governance: Indigenous Peoples' Tenure Security in India's Forest," found that the presence of multiple centers of authority does not always guarantee justice for indigenous communities because the dominance of state actors continues to limit the autonomy of indigenous institutions. These findings underscore the importance of the legitimacy of indigenous institutions in polycentric governance systems.

In the context of an archipelagic nation, Ullah, Peng, and Shaofeng (2026) in their article "Bridging Worlds [14]: Polycentric Collaboration and the Integration of Traditional Governance in Samoa's Disaster Management" demonstrated that governance effectiveness increases when formal institutions are able to establish collaborative mechanisms with traditional government systems. This research emphasizes the need for bridging institutions that connect bureaucratic logic with customary institutions. In Indonesia, Tajuddin et al. (2026) analyzed the implementation of affirmative action policies for Indigenous Papuans through a polycentric governance perspective. The results showed that policy success was significantly influenced by the diversity of centers of authority, cross-scale coordination, the legitimacy of customary governance, and community participation. However, this research focused on economic affirmative action policies and did not link them to the development of a communal-based green economy.

Based on this synthesis, previous research has confirmed the importance of polycentric governance, the legitimacy of customary institutions, and inter-institutional collaboration in resource management. However, there is still a research gap, namely the absence of a study that integrates polycentric governance, collaborative public management, indigenous governance, and communal resource governance in analyzing the implementation of communal-based green economic development in the context of Papuan indigenous communities, especially Jayapura Regency based on Regent Regulation Number 5 of 2021. This gap is the main focus of this research and forms the basis for developing the Polycentric Governance Model for Communal-Based Green Economic Development.

4. RESULTS AND DISCUSSION

4.1 Multiple Authorities in Communal-Based Green Economic Governance

Regional Government and Related Agencies

Governance for communal-based green economic development, based on Jayapura Regency Regent Regulation Number 5 of 2021, is distributed to the Community and Village Empowerment Agency as the leading sector, the Regional Development Planning Agency (Bappeda) as the regional planning coordinator, technical government agencies (OPDs) such as the Agriculture Agency, Plantation and Animal Husbandry Agency, Environment Agency, Maritime Affairs and Fisheries Agency, Tourism Agency, and village and traditional village governments, according to their respective authorities. However, these authorities are still implemented sectorally, resulting in planning, budgeting, implementation, monitoring, and evaluation not yet being integrated into a single communal-based green economic governance system. This situation indicates that the distribution of authority has not been accompanied by governance integration. Therefore, strengthening governance needs to be implemented through three main instruments: (1) joint planning to develop cross-OPD priorities and programs with village and traditional village governments from the planning stage; (2) shared performance indicators that assess success based on the collective achievements of all actors, not the sectoral performance of each Regional Apparatus Organization (OPD); and (3) a cross-authority coordination forum led by Bappeda as meta-governor to ensure synchronization of planning, budgeting, implementation, monitoring, and evaluation. Thus, each OPD retains its sectoral authority but works within a coordinated, complementary governance system oriented toward achieving the goals of community-based green economic development as mandated by Jayapura Regency Regent Regulation Number 5 of 2021.

Village Heads/Village Heads

Based on the 2017–2022 Jayapura Regency Medium-Term Development Plan (RPJMD), government authority is distributed among 19 districts, 139 villages, and 5 urban villages, which are authorized to prepare Village Work Plans (RKP Kampung), determine development priorities, and manage Village Funds. However, socio-ecologically, Jayapura Regency also comprises 14 customary territories and 728 clans that manage customary rights, customary forests, sago areas, and Lake Sentani, which cross village administrative boundaries. Research shows that the RPJMD (Regional Medium-Term Development Plan) has not yet regulated the synchronization of Village Work Plans (RKP Kampung), joint planning, or inter-village coordination forums involving village governments, customary village governments, and Ondoafi. As a result, development proceeds administratively, while communal resource management remains fragmented across customary territories. This results in unintegrated polycentric governance, potentially fragmenting community-based green economic development.

Heads of Customary Villages

The Jayapura Regency Government recognizes Customary Villages as part of the regional development system through Regional Regulation Number 8 of 2021 concerning Customary Villages and Regional Regulation Number 1 of 2022 concerning the Recognition, Protection, and Empowerment of Customary Communities. These regulations distribute authority between village governments as administrative administrators and customary village governments as implementers of authority based on the customary communities' ancestral rights. Supported by 14 customary areas, 728 clans, 19 districts, and 139 villages, both systems possess legal and social legitimacy. From a polycentric governance perspective, both are centers of authority that must be coordinated through joint decision-making mechanisms so that administrative and customary authority complement each other in implementing development.

Ondoafi

Research by Jozh Mansoben (1995) shows that the Ondoafi possess customary authority encompassing religious, economic, social, security, and judicial matters. This authority legitimizes the Ondoafi to establish customary rules, regulate the use of customary rights, customary forests, sago areas, and the waters of Lake Sentani, grant permits for natural resource utilization, resolve disputes, and impose sanctions for customary violations. In the

context of communal-based green economic development governance, this authority makes the Ondoafi the center of decision-making that determines the balance between the use and preservation of communal resources. Thus, the administrative authority of the village government and the Ondoafi customary authority are two centers of authority that both hold the same legitimacy in managing development. Effective governance depends on coordination and joint decision-making so that these two authorities complement each other in realizing sustainable, communal-based green economic development.

4.2 Institutional Autonomy and Distribution of Authority

Local Government Authority

Decision Space of Local Government

Jayapura Regency Regent Regulation Number 5 of 2021 demonstrates that the Jayapura Regency Government controls the regulatory governance of community-based green economic development through the authority to establish policy directions, development principles, division of authority, and mechanisms for guidance, monitoring, and evaluation. This regulation positions the Regional Apparatus responsible for Village Community Empowerment as the leading sector, supported by technical agencies within the economic cluster, including the Department of Agriculture, the Department of Fisheries and Maritime Affairs, the Agency for the Development of Agrarian and Spatial Planning (BP3AKB), the Agency for the Development of Villages (BKP5K), the Department of Industry, Trade, Cooperatives and MSMEs, and the Department of Social Affairs, Manpower, and Transmigration. Village governments and traditional village governments play a role as implementers of development at the local level. The Regent's Regulation, as described above, emphasizes the division of institutional authority rather than regulating the mechanisms for inter-institutional integration in planning, budgeting, implementation, and joint decision-making. As a result, each Regional Apparatus Organization (OPD) and village government tends to exercise its authority according to its respective mandate, potentially resulting in the governance of community-based green economic development still operating in a sectoral manner and not yet fully integrated.

4.3 Authority of the Village Head

Decision Space of Village Government

At the village level, decision-making authority rests with the Village Government, led by the Village Head. This decision-making authority includes determining village development priorities, developing village development plans, managing Village Funds, and implementing development programs according to community needs. In community-based green economic development, the Village Head determines priority development activities based on the village's social and economic conditions and resource potential. The Regional Government does not make decisions regarding development priorities at the village level but provides policy direction through the RPJMD (Regional Medium-Term Development Plan). Thus, the Village Government has autonomous decision-making authority within the local development domain.

4.4 Authority of the Head of the Traditional Village

Decision Space of Customary Village Institutions

The recognition of Traditional Villages in regional policies demonstrates that customary institutions also have their own decision-making authority. This decision-making space does not reside in the administrative aspect of government, but rather in regulating the lives of indigenous communities based on customary norms and institutions. In communal-based green economic development, the Kampung Adat institution determines whether a development activity aligns with prevailing customary values, safeguards the interests of indigenous communities, and regulates social mechanisms related to development implementation in customary territories. Thus, the Kampung Adat institutional decision-making space falls within the social and customary institutional domain, not implemented by the Village Government.

Ondoafi Authority

Jozh Mansoben's (1995) findings indicate that the Ondoafi has extensive authority in the religious, economic, social, security, and judicial spheres, positioning them as customary authorities in organizing community life and managing customary territories. In the governance of communal-based green economic development, this authority is realized through the regulation of customary rights, the granting of approvals for the use of forests, sago areas, the waters of Lake Sentani, and other natural resources, along with supervision to prevent overexploitation and violations of customary territorial boundaries. The Ondoafi also plays a role in upholding customary norms, resolving disputes, and ensuring that communal resource use is fair, sustainable, and benefits current and future generations. Thus, the Ondoafi serves not only as a customary leader but also as a local institution with the legitimacy to integrate environmental conservation, community welfare, and community-based green economic development.

4.5 Institutional Diversity Supporting Green Economic Governance

Regent Regulation No. 5 of 2021

Jayapura Regency Regent Regulation No. 5 of 2021 serves as the formal basis for cross-regional government agencies (OPD) coordination in implementing community-based green economic development. Based on the Jayapura Regency Government's Work Plan (LKPJ), its implementation is realized through synchronized planning by the Regional Development Planning Agency (Bappeda), local commodity development by the Agriculture and Food Security Agency, environmental rehabilitation and protection of Lake Sentani by the Environment Agency, strengthening village institutions by the Community and Village Empowerment Agency, and empowering fishermen by the Maritime Affairs and Fisheries Agency. This Regent Regulation establishes shared formal rules for all OPDs. However, its implementation is still dominated by a sectoral approach because the integration of government programs with customary authority and the management of customary areas has not been effectively institutionalized.

RPJMD

An analysis of the Jayapura Regency RPJMD shows that community-based green economic development is not translated into a single specific program, but is distributed across various regional development agendas. The development of sago and cocoa commodities is positioned as a strategy for improving the community's economy; the protection of Lake Sentani is part of the environmental sustainability agenda; while the strengthening of traditional villages is aimed at increasing the institutional capacity of local communities. These three agendas are not standalone but are designed to support each other through shared regional development targets. This situation demonstrates that the RPJMD functions not merely as a planning document, but as a planning institution that integrates various sectoral institutions into a single governance framework for community-based green economic development. Thus, the diversity of institutions in development does not result in policy fragmentation, but is consolidated through regional planning mechanisms.

4.6 Regional Apparatus Organizational Work Plan

An analysis of the Regional Apparatus Organizational Work Plans (Rapan OPD) shows that community-based green economic development is not translated into a single integrated program implemented by a single regional apparatus, but is implemented through various different sectoral instruments. The Agriculture Office's Work Plan (Rapan OPD) is oriented towards increasing the productivity of local commodities; the Environment Office's Work Plan (Rapan OPD) focuses on environmental protection and rehabilitation, while the Community and Village Empowerment Office's Work Plan (Rapan OPD) is directed at strengthening village institutional capacity and community empowerment. These differences in program orientations demonstrate that each regional apparatus operates based on its own institutional mandate, yet all programs are linked by the same regional development goals. Thus, institutional diversity is reflected not only in the number of regional apparatuses involved, but also in the diversity of policy instruments, programs, and implementation mechanisms used to achieve the goals of community-based green economic development.

Village Regulations

An analysis of Village Regulations shows that village governments have their own rules governing development implementation, the use of village funds, the management of village assets, and the implementation of activities tailored to the needs of the local community. The existence of Village Regulations demonstrates that development regulation is not entirely determined by the regional government but is also shaped through village government institutions, which have their own regulatory frameworks tailored to local characteristics.

Customary Law

The analysis shows that the development of sago and cocoa commodities, the utilization of customary forests, and economic activities utilizing customary land cannot be carried out solely based on government administrative permits. Communities and program implementers must first obtain approval from the Ondoafi, the customary land rights holder. In practice, customary law determines the locations that can be utilized, areas that must be protected, and procedures for natural resource utilization to avoid conflicts between communities or between villages. When disputes arise regarding customary land boundaries or natural resource utilization, they are resolved through customary deliberations led by the Ondoafi. This situation demonstrates that customary law functions as an institution that regulates access, use, and protection of natural resources and serves as a source of legitimacy for the implementation of communal-based green economic development.

Social Norms

The analysis shows that social norms are community institutions that regulate the use of natural resources in communal-based green economic development. Based on research by Mansoben (1995), customary norms within the Ondoafi leadership system require that any use of land, forests, and forest products within the customary rights areas of other keret obtain the consent of the customary rights owners and the Ondoafi. Compliance with these norms maintains customary rights boundaries, prevents inter-keret conflicts, and strengthens sustainable natural resource management. Therefore, the implementation of Regent Regulation Number 5 of 2021 depends not only on formal regulations but also on community adherence to customary norms as community institutions that support the governance of communal-based green economic development.

4.7 Interaction and Coordination among Governance Actors

Musrenbang

The analysis shows that the Musrenbang in Jayapura Regency has become a formal mechanism involving the local government, village governments, and indigenous communities in development planning. However, the integration of indigenous peoples' aspirations remains selective. Proposals regarding local commodity development, Lake Sentani rehabilitation, and village empowerment have been accommodated in the Regional Work Plan (RKPD) and are aligned with the 2017–2022 Medium-Term Development Plan (RPJMD) and Regent Regulation No. 5 of 2021. Conversely, proposals related to strengthening customary rights and the authority of indigenous institutions have not been explicitly accommodated. This finding suggests that the Musrenbang functions more as a means of program synchronization than authority integration, resulting in polycentric governance and operational recognition of indigenous community authority not being optimally realized.

Coordination Meeting

The coordination meeting serves as a formal mechanism for aligning policies, programs, and the division of roles between the Regional Development Planning Agency (Bappeda), Regional Apparatus Organizations (OPD), village governments, and Ondoafi (Ondoafi) in the implementation of community-based green economic development. Analysis of minutes, minutes, invitation letters, and follow-up documents shows that this forum has supported program synchronization, task allocation, and the implementation of the Regional Work Plan (RKPD), Regional Apparatus Organization Work Plan (Renja OPD), and Regent Regulation No. 5 of 2021. However, the involvement of Ondoafi remains limited to issues of customary territory and natural resource management.

Consequently, coordination is more administrative than collaborative, as customary institutions do not yet have an equal position in development decision-making.

Discussion Forum

Discussion forums are held to address strategic issues related to community-based green economic development before they are formulated into policies. Analysis of the minutes, minutes, activity reports, and forum recommendations shows that discussions focused on the protection of customary forests, the rehabilitation of Lake Sentani, sago development, the utilization of customary rights, and the involvement of Ondoafi in the implementation of Regent Regulation No. 5 of 2021. However, most recommendations have not been consistently incorporated into the RKPD, Regional Apparatus Organization Work Plan (Renja OPD), or regional development programs. Consequently, discussion forums function more as communication tools than as polycentric coordination mechanisms capable of linking discussion outcomes to decision-making and policy implementation.

Public Consultation

Public consultation is a participatory mechanism for gathering public input in the development of community-based green economic development policies. Document analysis shows the involvement of Ondoafi, indigenous communities, regional government agencies (OPD), and stakeholders in discussing customary forest protection, Lake Sentani management, sago development, customary rights, and the implementation of Regent Regulation Number 5 of 2021. Although it opens up space for dialogue and strengthens communication between the government and indigenous communities, not all input is accommodated in the Regional Work Plan (RKPD), Regional Government Work Plan (Renja OPD), or development programs. Consequently, public consultation is ineffective as a polycentric governance instrument due to weak follow-up mechanisms and the integration of consultation results into development decisions.

Expressing Aspirations

The expression of aspirations in Jayapura Regency serves as a communication mechanism for Ondoafi, indigenous communities, village governments, and stakeholders to propose priorities for community-based green economic development. An analysis of Musrenbang documents, public consultations, and planning documents shows that aspirations regarding customary forest protection, Lake Sentani management, sago development, recognition of customary rights, and empowerment of indigenous communities have been documented. However, most of these are only accommodated within sectoral development programs, while strengthening customary institutions and managing customary rights have not been prioritized as policy. As a result, the delivery of aspirations serves more as a communication channel than as a mechanism to effectively integrate indigenous community interests into polycentric development decisions.

Joint Decisions

Joint decisions in Jayapura Regency are the result of coordination between the regional government, regional government agencies (OPD), village governments, Ondoafi (Ondoafi), and stakeholders in determining priorities for community-based green economic development. Analysis of minutes, Musrenbang results, coordination meetings, the 2021–2022 Regional Work Plan (RKPD), Regional Government Work Plans (Renja OPD), and Regent Regulation No. 5 of 2021 indicates agreement on local commodity development, Lake Sentani rehabilitation, and village community empowerment. However, the division of authority between the regional government and customary institutions has not been operationally regulated. As a result, collective decisions are still dominated by formal government structures, so that the role of Ondoafi is more consultative than as an equal center of authority in polycentric governance.

4.8 Inter-Institutional Cooperation Mechanisms

Memorandum of Understanding

The Memorandum of Understanding in Jayapura Regency serves as a formal instrument for establishing inter-organizational cooperation in implementing community-based green economic development. Analysis of the Memorandum of Understanding, cooperation agreements, and follow-up documents indicates the existence of arrangements regarding the parties, the division of roles, coordination mechanisms, and support for the implementation of Regent Regulation Number 5 of 2021. Some of the cooperation has been followed up through programs in the Regional Work Plan (RKPD) and Regional Apparatus Organization (OPD) Work Plans (Renja). However, implementation is still dominated by cooperation between government institutions, while the involvement of customary institutions has not been formally and sustainably established. As a result, coordination has been established, but polycentric governance has not yet been realized on an equal footing between the government and indigenous communities.

Cooperation Agreement (PKS)

The Cooperation Agreement (PKS) in Jayapura Regency serves as an operational instrument governing cooperation between the local government and village governments, universities, community organizations, and development partners in implementing community-based green economic development. However, research results indicate that customary institutions, including Ondoafi and traditional village governments, have not been widely involved as parties in the PKS. As a result, partnerships are still dominated by formal government institutions, thus preventing the full development of polycentric governance through equal cooperation between the government and traditional authorities.

Regional Government Coordination Team

The Regional Government Coordination Team (PEMDA) serves as an institutional mechanism for aligning the planning, implementation, monitoring, and evaluation of community-based green economic development in Jayapura Regency. Analysis of the team's formation decree, organizational structure, meeting minutes, and activity reports indicates that the team has strengthened coordination, task allocation, and program synchronization between regional government agencies (OPD) in implementing Regent Regulation Number 5 of 2021 and supporting the Regional Work Plan (RKPD) and Work Plan (Renja) of OPDs. However, its membership is still dominated by local government elements, while village governments, traditional village governments, and Ondoafi have not yet been involved as permanent members. Consequently, coordination is more bureaucratic than polycentric because traditional authorities have not been institutionally integrated as equal coordination centers.

Customary Council

The Customary Council serves as an institution that safeguards customary values, protects customary rights, and acts as a liaison between indigenous communities and the Jayapura Regency Government in developing a communal-based green economy. Analysis of regulations, recommendations, minutes, and coordination documents shows that the Customary Council actively provides input on natural resource utilization, resolving customary territory conflicts, and implementing Regent Regulation Number 5 of 2021. However, most of its recommendations have not been consistently incorporated into the Regional Work Plan (RKPD), Regional Apparatus Organization Work Plans (Renja OPD), or development programs. Consequently, the Customary Council's role remains consultative and has not been institutionalized as an equal partner in the planning, implementation, and evaluation of the governance of communal-based green economic development.

Farmer Groups

Farmer groups serve as partners with the Jayapura Regency Government in implementing communal-based green economic development through the development of local commodities such as sago, cocoa, coconut, and areca nut, as well as the implementation of sustainable agricultural practices. An analysis of program documents, activity reports, and collaborations with regional government agencies (OPDs) shows that farmer groups have supported the implementation of Regent Regulation No. 5 of 2021 and are the primary implementers of various community empowerment programs at the village level. However, partnerships are still dominated by sectoral OPD relationships,

while coordination with customary institutions in the management of customary rights has not been established institutionally. As a result, the implementation of green economic development does not fully reflect polycentric governance that integrates the government, farmer groups, and customary authorities equally.

Fishermen's Groups

Fishermen's groups act as partners with the Jayapura Regency Government in the sustainable management of fisheries resources, particularly in Lake Sentani, as part of the community-based green economy development. Analysis of program documents, activity reports, and collaboration with regional government agencies (OPD) shows that fishers' groups have supported the implementation of Regent Regulation Number 5 of 2021 through sustainable fisheries utilization, aquatic ecosystem conservation, and community economic empowerment. However, this partnership is still dominated by a sectoral approach with OPDs, while customary institutions have not been integrated into the management of waters under customary rights. As a result, polycentric governance has not been optimally realized due to weak synergy between the government, fishers' groups, and customary authorities.

Non-Governmental Organizations (NGOs)

Non-Governmental Organizations (NGOs) serve as strategic partners of the Jayapura Regency Government in community assistance, institutional capacity building, policy advocacy, and natural resource conservation as part of the community-based green economy development. An analysis of cooperation documents, activity reports, and coordination shows that NGOs support the protection of customary forests, the rehabilitation of Lake Sentani, the development of local commodities, and community empowerment, as stipulated in Regent Regulation No. 5 of 2021. However, NGO involvement is still limited to mentoring program implementation, while their role in policy formulation and joint decision-making has not been institutionalized. As a result, polycentric governance has not been optimally realized because synergy between the government, NGOs, and customary institutions remains limited at the implementation level.

Higher Education

Cenderawasih University (UNCEN) acts as a strategic partner for the Jayapura Regency Government through research, community service, environmental education, and capacity building for indigenous communities. Concrete contributions are demonstrated by Henderite L. Ohee and Henderina J. Keiluhu through the Sentani Customary School, which increases community understanding of the threats of invasive species and habitat destruction at Lake Sentani. Henderite L. Ohee and Yokelin Tokoro, through the Onomi Niphi Reading House in Yoboi Traditional Village, increase children's knowledge about Lake Sentani and local fish. Meanwhile, Ohee et al. Through story- and picture-based environmental literacy in Yokiwa Village, children's awareness of conservation has been raised. However, these academic results have not been fully integrated into Jayapura Regency Government planning.

4.9 Conflict Resolution in Polycentric Governance

Conflicts of Authority, Regulatory Harmonization, Joint SOPs

In this study, conflicts of authority were analyzed as overlapping authorities between local governments, regional government agencies (OPD), village governments, and customary institutions in the implementation of communal-based green economic development. The analysis focused on Jayapura Regency Regent Regulation Number 5 of 2021, the 2017–2022 Jayapura Regency Medium-Term Development Plan (RPJMD), the 2021–2022 Regional Work Plan (RKPD), as well as meeting minutes and dispute resolution documents to identify conflicts related to the management of customary rights, customary forests, and Lake Sentani. The analysis revealed that conflicts of authority persist because the division of roles between the government and customary institutions has not been operationally regulated. This finding indicates that clarity in the division of authority is a key prerequisite for effective polycentric governance.

Negotiation, Joint Dialogue, and Joint Agreement

Negotiation, joint dialogue, and joint agreement are analyzed in this study as mechanisms for conflict resolution and alignment of interests between local governments, regional government agencies (OPD), village governments, and traditional institutions in the development of a communal-based green economy. The analysis focused on meeting minutes, minutes, agreement documents, and follow-up to the meeting results to identify the process of resolving differing interests and the resulting decisions. The analysis shows that these mechanisms have been used to build mutual understanding in natural resource management and the implementation of Jayapura Regency Regent Regulation Number 5 of 2021, but not all agreements have been consistently implemented. These findings indicate that negotiation, dialogue, and joint agreement have supported conflict resolution, but their effectiveness still depends on the commitment of the actors to implement the agreements.

Participatory Mapping, Joint Zoning, and RT/RW Synchronization

Participatory mapping, joint zoning, and RTRW synchronization are important instruments for aligning spatial use between the Jayapura Regency Government and indigenous communities in the development of a communal-based green economy. An analysis of the RTRW (Regional Spatial Plan), customary territory maps, zoning documents, and Regent Regulation No. 5 of 2021 shows that spatial planning has supported the protection of protected areas, customary rights, and the development of a green economy. However, the synchronization between the RTRW and customary territory boundaries has not been fully integrated, potentially leading to overlapping spatial uses. Consequently, the recognition of customary territories in planning is suboptimal, even though such integration is a key prerequisite for effective polycentric governance.

Recognition of Indigenous Peoples, Free, Prior, and Informed Consent (FPIC), Customary Mediation, and Mapping of Customary Territories

Indigenous peoples' recognition, Free, Prior, and Informed Consent (FPIC), customary mediation, and mapping of customary territories are analyzed in this study as conflict resolution mechanisms that guarantee respect for the rights of indigenous peoples in the development of a communal-based green economy. The analysis focused on Jayapura Regency Regent Regulation Number 5 of 2021, regional regulations, customary territory maps, mediation minutes, and community agreement documents to identify recognition of customary rights, the application of customary community consent prior to program implementation, dispute resolution through customary mechanisms, and the recognition of customary territory boundaries. The analysis showed that recognition of customary communities and customary mediation mechanisms have become the basis for conflict resolution, but the application of FPIC and recognition of customary territories in development policies has not been consistently implemented. These findings suggest that strengthening recognition of customary communities is a crucial prerequisite for reducing conflict and strengthening polycentric governance in communal-based green economic development.

4.10 Adaptive Learning and Institutional Evolution

Regional Government Working Mechanisms

The working mechanisms of the Regional Government in Jayapura Regency demonstrate a process of institutional learning by beginning to integrate the local knowledge of indigenous communities into community-based green economic development. An analysis of Regent Regulation Number 5 of 2021, the 2017–2022 Medium-Term Development Plan (RPJMD), the Regional Work Plan (RKPD), and implementation documents demonstrates recognition of customary rights, protection of customary forests, preservation of Lake Sentani, and sustainable use of local commodities. However, government working mechanisms are still dominated by administrative procedures, thus suboptimally stifling the role of customary institutions in planning, decision-making, and oversight. Consequently, adaptive polycentric governance has not yet been realized due to limited integration between the formal government system and customary institutions.

Customary Law and Social Values

In this study, customary law and social values are analyzed as institutional learning and adaptation mechanisms that influence the implementation of community-based green economic development in Jayapura Regency. The analysis focused on Jayapura Regency Regent Regulation Number 5 of 2021, customary regulations, decisions of the Customary Council, minutes of customary deliberations, and regional planning documents to identify how customary values, customary rights, deliberations, mutual cooperation, and local wisdom are integrated into development planning and implementation. The analysis shows that customary law and social values still guide the community in managing natural resources and resolving problems in customary areas, but their integration into formal governance mechanisms has not been fully institutionalized. This finding suggests that institutional learning has developed through the recognition of local wisdom, but the evolution toward adaptive polycentric governance still requires strengthening the synergy between customary norms and the local government system.

Toward an Indigenous Polycentric Governance Model

The novelty of this research lies in the development of an Integrated Polycentric Governance model, which explains that governance of communal-based green economic development in Jayapura Regency is not simply built through the distribution of authority to multiple actors but requires the integration of relationships between formal and customary authority centers through joint planning mechanisms, shared performance indicators, and cross-authority coordination forums. This model maintains the autonomy of Regional Governments, OPDs, Village Governments, Traditional Village Governments, and Ondoafi according to their respective domains of authority, but connects these authorities in the planning, decision-making, budgeting, implementation, monitoring, evaluation, and conflict resolution processes together.

5. CONCLUSIONS

This research shows that the governance of communal-based green economic development in Jayapura Regency has established a polycentric governance system through the existence of various centers of authority, namely the local government, Regional Apparatus Organizations (OPD), village governments, traditional village governments, Ondoafi, the Traditional Council, community groups, NGOs, and other stakeholders. Jayapura Regency Regent Regulation Number 5 of 2021 has served as a formal basis for encouraging cross-sectoral coordination, while various mechanisms such as Musrenbang (Development Planning Forum), coordination meetings, discussion forums, public consultations, aspiration submission, joint decisions, Memoranda of Understanding (MoUs), PKS (Partnership Agreements), Coordination Teams, and partnerships with farmer and fisher groups have strengthened communication and collaboration among stakeholders. However, this coordination is still dominated by bureaucratic structures and sectoral approaches, resulting in the lack of equal integration of customary institutional authority in development planning, decision-making, implementation, monitoring, and evaluation. Consequently, the management of customary rights, the protection of communal resources, and the implementation of green economic development do not fully reflect the principles of polycentric governance, which emphasize coordination between complementary centers of authority. Thus, the effectiveness of community-based green economic development governance depends on the ability to integrate administrative and customary authorities within a collaborative, adaptive, and sustainable coordination system.

6. Recommendations

The Jayapura Regency Government needs to strengthen polycentric governance by institutionalizing coordination between local governments and customary institutions in the implementation of Regent Regulation Number 5 of 2021. This strengthening can be achieved by establishing a permanent coordination forum involving local governments, regional government agencies (OPD), village governments, customary village governments, Ondoafi, and the Customary Council as actors with equal standing in the planning, decision-making, implementation, monitoring, and evaluation processes of development. Furthermore, it is necessary to align the RTRW (Regional Spatial Plan) with customary territory maps, integrate customary rights into regional planning documents, develop shared performance indicators, and implement joint planning and joint monitoring across institutions. Thus, communal-based green economic development governance will no longer operate sectorally, but will evolve into a

polycentric governance system capable of integrating administrative and customary authorities effectively, adaptively, and sustainably.

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