



Communication Strategies for Sustainable Forest Farmers' Groups in the Special Region of Yogyakarta

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ABSTRACT

This study aims to formulate a communication strategy for sustainable forest farmer groups (FFG) in Jatimulyo Village, Special Region of Yogyakarta. The study employed a mixed-methods approach with an explanatory sequential design. Quantitative data were collected from 58 respondents who are members of the Wanapaksi FFG and analyzed using SEM-PLS based Importance Performance Map Analysis (IPMA), while qualitative data were gathered from 9 key informants to deepen the analysis results. The results indicate that the sustainability of the FFG is influenced by a participatory communication ecosystem. Based on the IPMA mapping, the indicators identified as top priorities for improvement (Quadrant IV) are the effectiveness of liberating pedagogy, participation (voice), and managerial capacity. All of which are highly important but currently underperforming. The communication strategy is framed within the "Wanapaksi Merekat: Listening to One Another, Managing Wisely, Growing Together Toward Sustainability" program, organized into five operational stages: research, planning, implementation, measurement, and reporting. This strategy focuses on creating safe spaces for dialogue, integrated governance training, and experiential learning to support the achievement of SDG 13 (Climate Action) and SDG 15 (Life on Land).

Contribution to Sustainable Development Goals (SDGs):

SDG 4: Quality Education

SDG 13: Climate Action

SDG 15: Life on Land

SDG 16: Peace, Justice and Strong Institutions

SDG 17: Partnerships for the Goals

1. INTRODUCTION

1.1. Research Background

The degradation of tropical forests in Indonesia poses a global ecological threat, accelerating climate change while undermining the well-being of communities living near them. Sustainable forest governance is key to achieving the global Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action) in mitigating greenhouse gas emissions and SDG 15 (Life on Land) [1] to halt biodiversity loss and restore terrestrial ecosystems. To ratify this commitment, the Indonesian

government has mainstreamed the Social Forestry policy through Presidential Regulation No. 28 of 2023 [2]. This policy reorients the paradigm toward community-based forest management, positioning Forest Farmers' Groups (FFGs) as the primary grassroots actors who channel ecological, economic, and social benefits to support the green economy.

However, empirical evidence reveals a wide gap in institutional quality. Data from the Directorate General of Social Forestry and Environmental Partnerships [3] shows that of the 27,044 FFGs in Indonesia, the overwhelming majority fall into the Beginner class (90.12%), while the Intermediate (8.56%) and Advanced (1.32%) classes are very few. This dominance of the



Beginner class indicates that the main issue in social forestry is no longer the legality of access, but rather weak internal capacity, vulnerable governance, and low group autonomy. These weaknesses often stem from the groups' failure to establish democratic communication, centralized leadership, and minimal participation by grassroots members. As a solution, development communication theory offers a participatory approach to communication. Participatory communication theory emphasizes the importance of active and dialogic engagement by all parties in the process of social change [4]. Through dialogic interaction and horizontal equality, participatory communication creates space for members to have their voices heard, fosters social learning, and builds a sense of ownership regarding forest conservation programs.

Empirically, FFG Wanapaksi in Kulon Progo, Special Region of Yogyakarta, is a successful best-practice example that won the 2024 Kalpataru Award for its achievements in agroforestry and bird-friendly forest conservation, which have tangibly contributed to SDG 13 and SDG 15 [1]. Despite its many achievements, FFG Wanapaksi still faces internal challenges such as central figure dependency, decision making dominance, administrative weaknesses, and barriers to horizontal communication that result in uneven member participation.

This dilemma underscores that the sustainability of FFG's climate action and terrestrial ecosystem protection is not automatically achieved by physical factors alone but is largely determined by its internal communication ecosystem. Therefore, research titled "Communication Strategies for Sustainable Forest Farmers' Groups" is essential to formulate a solution oriented communication model capable of transforming FFG in Indonesia into resilient, self-reliant institutions to support the achievement of the SDGs.

1.2. Literature Review

The literature review in this study establishes a solid theoretical and conceptual foundation for the variables under investigation and the logical relationships among them. Through a review of various literature, comparative studies, and relevant policy documents, this section will provide an in-depth elaboration of the communication paradigms that have emerged in the field of community-based forestry development, while also examining the sustainability indicators that serve as benchmarks for the resilience of local institutions. The development of this theoretical framework focuses on aligning an emancipatory dialogue-based approach to development communication with the pillars of sustainable development at the grassroots level. Specifically, the discussion below is divided into two main subsections: an examination of the concepts and dynamics of participatory communication, and a comprehensive review of the dimensions of sustainability within Forest Farmers' Groups (FFG).

1.2.1. Concepts and Dynamics of Participatory Communication

Contemporary development communication theory shifts away from a mechanistic, one-way (top-down) paradigm toward a participatory communication approach that emphasizes dialogue, emancipation, and horizontal equality. Unlike conventional transmission models, which treat the audience as passive recipients of messages, participatory communication asserts that

communities are sovereign agents of development. According to Tufte and Mefalopulos (2009) [5], the core essence of participatory communication lies in ensuring equal rights for every individual to have a voice and be heard, free from repression or structural domination by specific actors within the group. This approach holds that sustainable social change can only be accelerated if the communication process is shaped by inclusive interactions grounded in real grassroots needs. In its implementation at the community level, the quality of participatory communication is measured through four crucial and interrelated dimensions identified by Tufte and Mefalopulos (2009) [5]:

Quality of Group Dialogue: This dimension refers to the creation of a democratic and transparent space for discussion in which members can openly exchange information and foster mutual trust. Healthy dialogue serves as the foundation for strong internal cooperation within the group. **Level of Participation (voice):** Members' active involvement is reflected in their freedom to express their aspirations, offer suggestions, and influence the direction of the organization's strategic policies. The voices of the community including marginalized groups play a vital role in shaping an autonomous narrative and strengthening social empowerment. **Effectiveness of Liberating Pedagogy:** Drawing on the ideas of Ira Shor and Paulo Freire [6], this dimension emphasizes an equal group learning process, in which mentors or leaders act as co-learning facilitators rather than as instructors who dictate. This approach stimulates members' critical awareness of local potential and challenges.

The Action-Reflection-Action Cycle: Participatory communication requires a continuous cycle between concrete actions on the ground and periodic collective evaluation. Group members consistently learn from past experiences and obstacles to formulate subsequent, more adaptive corrective actions.

1.2.2. Sustainability of Forest Farmers' Groups (FFG)

Forest Farmers' Groups (FFG) are community-based organizations established as strategic platforms for organizing local residents to manage state or customary forest areas through the Social Forestry scheme. Pursuant to Regulation of the Minister of Environment and Forestry [7] the existence of FFG is not merely intended to fulfill formal legal requirements but is designed as an instrument for collective learning to achieve institutional governance autonomy, area management, and business management. The success of FFG is measured through a stratification of group capabilities, ranging from the Beginner class which is still relatively simple to the Intermediate class which is beginning to be well organized and finally the Advanced class, characterized by robust organizational management and financial independence.

The sustainability level of FFG constitutes an integrative system that brings together the three main pillars of sustainable development, aligned with the targets of the Sustainable Development Goals (SDGs): **Economic Sustainability:** This dimension focuses on the FFG's ability to collectively manage forest resources (both timber and non-timber) to establish stable, productive business units. A tangible increase in members' household incomes is a key driver of collective motivation to ensure the group's long-term survival. **Ecological Sustainability,** in line with global climate commitments under SDG 13 (Climate Action) and the Protection of Terrestrial Ecosystems under SDG 15 (Life on Land) [1], requires FFG to strictly implement

agroforestry practices and biodiversity conservation. A high level of ecological awareness drives the creation of sustainable forest management and mitigates the risk of environmental damage at the site level. Socio cultural sustainability, in this context, is closely linked to the strengthening of a group's social capital, characterized by strong participatory leadership, the fair application of local norms or sanctions, and a high sense of ownership among members toward the FFG program. Social sustainability ensures an equitable distribution of roles and a healthy process of institutional regeneration.

A synthesis of various empirical studies confirms that the sustainability of FFG programs does not automatically materialize solely through the availability of physical capital or unilateral financial assistance from external parties. Sustainability is a socio-ecological outcome strongly mediated by the quality of internal group interactions. A participatory communication ecosystem serves as a key variable (bridge variable) that transforms individual member characteristics, the effectiveness of field facilitators' roles, external capital support, and the group's managerial capacity into robust and sustainable collective action. Through institutionalized participatory communication, FFG groups possess high resilience to advance toward economic self reliance while consistently preserving forest sustainability.

1.3. Research Objective

This study aims to explain the communication strategies of sustainable forest farmer groups in Jatimulyo, Special Region of Yogyakarta.

2. MATERIALS AND METHODS

This study employed a quantitative approach supported by qualitative data using a mixed-methods approach with an explanatory sequential design at the Wanapaksi Forest Farmers' Group (FFG) in Kulon Progo, Yogyakarta. Data collection took place from December 2025 to January 2026. The study population consisted of all members of the Wanapaksi FFG, with a sample of 58 respondents selected using survey techniques and 9 informants selected using other techniques. Primary data were collected through structured questionnaires, in-depth interviews, and field observations. The research variables included individual characteristics, the effectiveness of facilitators, the level of institutional support, the level of organizational capacity, participatory communication, and the level of sustainability. Quantitative data were analyzed using Structural Equation Modeling Partial Least Squares (SEM-PLS) to test the structural relationships among variables, while qualitative data were analyzed using simple descriptive methods, such as summarizing interview results, grouping interview themes, and presenting them in narrative form to reinforce the quantitative data.

3. RESULT AND DISCUSSION

3.1. Analysis of FFG's Sustainable Communication Strategy

A sustainable communication strategy for the Jatimulyo community within the Wanapaksi Forest Farmers' Group (FFG) was formulated based on the results of an Importance-Performance Map Analysis (IPMA). IPMA is an importance-

performance matrix that expands upon the results of path coefficient estimates from Partial Least Squares Structural Equation Modeling (PLS-SEM). IPMA is reported using an analytical dimension that considers the average scores of latent variables. This analysis aims to compare the total effect of the structural model on the target construct (endogenous latent variables) with the average scores of latent variables representing performance [8]. Additionally, IPMA serves to identify the more important elements within the construct.

3.2. Analysis of the Sustainability FFG Importance-Performance Map

Specifically, IPMA verifies the total effect, which highlights the importance of constructing a construct based on the average scores of latent variables according to their performance [9]. The results of the IPMA data analysis at the indicator level are presented in Table 1.

Table 1 Importance Performance Map Analysis (IPMA) Based on Indicators in the Research Model at FFG Wanapaksi, Jatimulyo Village, in 2026

Indicators	Importance	Performance
Age	0.042	50.00
Level of Formal Education	0.036	53.448
Level of Motivation to Join FFG	0.065	70.690
Mentoring Skills	0.014	28.851
Effectiveness of Information Providers	0.021	34.350
Facilitation Skills	0.019	46.667
Level of Facility Availability	0.015	62.931
Level of Infrastructure Availability	0.027	38.424
Participatory Leadership	0.177	64.039
Organizational Capacity	0.138	51.509
Managerial Capabilities	0.152	42.816
Level of Participation (voice)	0.219	43.448
Quality of Group Discussions	0.180	59.195
The Effectiveness of Liberating Pedagogy	0.138	42.241
The Reflection-action Process	0.201	53.736
Mean	0.096	49.490

An analysis of the IPMA test results for the Wanapaksi Community Forestry Group (FFG) in Jatimulyo Village was used to formulate a participatory communication strategy to ensure the group's sustainability. Furthermore, to examine the distribution of the IPMA test results for the Wanapaksi FFG in Jatimulyo Village, a Cartesian diagram was created to visualize the distribution of indicators across each quadrant, as shown in Figure 1, in order to develop a sustainable communication strategy for the FFG.

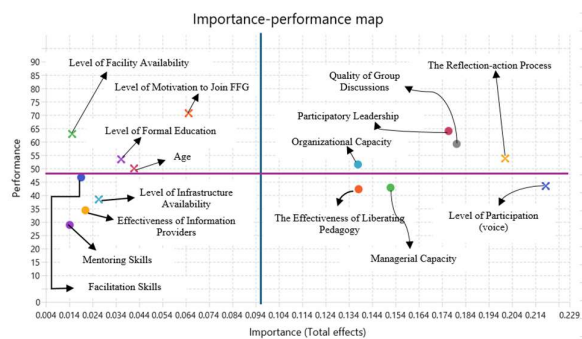


Fig. 1. IPMA Results Based on Research Indicators at FFG Wanapaksi

Based on Figure 1 in the Cartesian importance performance map analysis (IPMA) diagram, the distribution of indicator values is divided into four quadrants [10], as explained below:

3.2.1. Quadrant I

The IPMA test results show that several indicators fall into Quadrant I, namely those with high levels of both importance and performance. These indicators include participatory leadership, organizational capacity, the quality of group dialogue, and the action reflection process. These four indicators are considered important by members of the Wanapaksi forest farmer group and demonstrate relatively good performance, making them a priority to maintain. In conclusion, these indicators not only need to be maintained consistently but also enhanced to strengthen the sustainability of the Wanapaksi forest farmers' group in Jatimulyo, Yogyakarta. By strengthening participatory leadership, organizational capacity, the quality of dialogue, and the action-reflection process, the group will become more resilient in facing challenges and ensuring the continuity of its activities.

3.2.2. Quadrant II

Quadrant II of the IPMA test results shows indicators that are low in importance but high in performance. The indicators included here are age, education level, motivation level, and availability of facilities. Although their importance scores are relatively low, all four indicators perform well; in fact, motivation and availability of facilities show fairly high performance scores. This indicates that these indicators serve as supporting factors in the sustainability strategy of the Wanapaksi forest farmers' group. Since their performance is already effective, these indicators do not need to be targeted for quantitative improvement but should instead be optimally utilized as channels for implementing the strategy. By maintaining member motivation, utilizing available resources, and ensuring consistency regarding age and education, the Wanapaksi forest farmers' group in Jatimulyo, Yogyakarta, can continue to strengthen the sustainability and resilience of its organization.

3.2.3. Quadrant III

Quadrant III of the IPMA assessment results shows indicators with both low importance and low performance. The indicators included here are facilitation capacity, mentoring capacity, effectiveness of information providers, and availability of infrastructure. These four indicators have relatively low importance scores and average performance levels, so they are not top priorities for improvement. However, these indicators

cannot be completely ignored. Although they fall in the low-priority quadrant, efforts to improve them are still necessary once the indicators in the high-priority quadrant have been addressed. This is important to ensure that engagement indicators do not negatively affect other variables. In other words, these indicators can be the next priority in the communication strategy for the Wanapaksi forest farmers' group. A participatory approach involving facilitators and institutions will help create more effective communication both in field guidance and infrastructure provision, thereby ensuring the group's sustainability.

3.2.4. Quadrant IV

Quadrant IV of the IPMA assessment results shows indicators with high importance but low performance. The indicators included here are the effectiveness of liberating pedagogy, the level of participation (voice), and managerial capacity. All three are highly important, but their performance remains suboptimal, making them top priorities for improvement. These findings confirm that the sustainability of the Wanapaksi forest farmers' group is highly dependent on strengthening managerial capacity and participatory communication. Field observations indicate that group members still need to improve their information literacy and technology use to develop their managerial capacity. Furthermore, although participatory communication is already at a high level, the indicators for liberating pedagogy and member participation still need improvement. By improving these indicators, the forest farmers' group's communication strategy will become stronger and better able to support the sustainability of the Wanapaksi Forest Farmers' Group (FFG) in the Special Region of Yogyakarta.

3.3. Directions and Priorities of the Sustainable FFG Communication Strategy

The direction of FFG's sustainable communication strategy is determined through two stages. The first stage uses the positions of variables and indicators on the IPMA map to assess their level of importance and performance. The second stage involves selecting indicators based on their likelihood of change through communication, as shown in Table 2. Indicators that can be directly changed are made into strategic targets, while those that can only be influenced indirectly are designated as supporting factors and coordination tools. Indicators that cannot be changed through participatory communication serve as the basis for target segmentation and adjustments to approaches.

Sustainability is focused on indicators that can be achieved through communication interventions. The primary priorities are the effectiveness of liberating pedagogy and the level of participation (voice), both of which are highly important and can be enhanced through intensive communication. In addition, the quality of group dialogue and the reflection-action process serve as important channels for strengthening interactions. Other indicators, such as mentoring skills, the effectiveness of information providers, and facilitation skills, serve as reinforcing factors within secondary priorities. Meanwhile, indicators such as managerial capacity, participatory leadership, organizational capacity, motivation, and the availability of facilities and infrastructure require indirect intervention through coaching and facilitation. Innate factors such as age and educational level are not targeted for change but remain relevant as a basis for differentiating communication approaches. Thus, the

communication strategy remains realistic, focused, and supportive of the group's sustainability.

Table 2. Selection of IPMA indicators based on the feasibility of communication interventions

No	Indicators	IPMA Positions	Accessibility of Communication Interventions
1	The Effectiveness of Liberating Pedagogy	Primer priority	Direct intervention
2	Managerial capacity	Primer priority	Indirect intervention
3	Level of participation (voice)	Primer priority	Direct intervention
4	Participatory Leadership	Maintain	Indirect intervention
5	Organizational Capacity	Maintain	Indirect intervention
6	Quality of Group Discussions	Maintain	Direct intervention
7	The reflection-action process	Maintain	Direct intervention
8	Age	Supporting Factors	Cannot be intervened in
9	Level of Formal Education	Supporting Factors	Cannot be intervened in
10	Level of motivation to join FFG	Supporting Factors	Indirect intervention
11	Level of facility availability	Supporting Factors	Indirect intervention
12	Mentoring skills	Secondary Priorities	Direct intervention
13	Effectiveness of Information Providers	Secondary Priorities	Direct intervention
14	Facilitation skills	Secondary Priorities	Direct intervention
15	Level of infrastructure availability	Secondary Priorities	Indirect intervention

3.4. Operational Design and Evaluation of the Sustainable FFG Communication Strategy

The communication strategy is designed based on the indicators' positions within the four IPMA quadrants. Each quadrant is treated differently according to the combination of importance and performance. Primer priority indicators are targeted for immediate improvement; "maintain" indicators are used as leverage; "supporting" indicators serve as channels of support; and secondary-priority indicators are addressed selectively through facilitation. This categorization prevents the strategy from fragmenting into numerous separate activities. All activities remain integrated into a single, cohesive

communication cycle to strengthen the sustainability of the forest farmer groups.

3.4.1. Primer priority

Indicators in the primer priority quadrant include the effectiveness of liberating pedagogy, the level of participation (voice), and managerial capacity. Liberating pedagogy needs to be enhanced through reflective dialogue, simulations, and experience based practices so that members can better understand the concept of sustainability. The level of participation is key because it demonstrates members' courage to express their opinions; therefore, strategies are directed toward creating safe spaces for communication through discussion forums and open feedback mechanisms. Meanwhile, managerial capacity cannot be improved instantly through communication alone but is strengthened through leadership training and administrative mentoring. The success of this strategy is marked by increased active member engagement, a rise in the number of proposed ideas, and improvements in participation and liberating pedagogy scores compared to the baseline.

3.4.2. Maintain

The "Maintain" quadrant encompasses participatory leadership, organizational capacity, the quality of group dialogue, and the reflection-action process. These indicators already demonstrate high importance and performance, so the strategy focuses on maintaining consistency and leveraging them as catalysts. Participatory leadership is maintained through the roles of local leaders and senior members; organizational capacity is preserved to ensure the structure remains functional; while the quality of dialogue and reflection-action is utilized to disseminate results, discuss issues, and formulate follow-up actions. The success of this quadrant is demonstrated by high member engagement, documented reflection records, and consistent leadership in guiding activities.

3.4.3. Supporting Factors

The supporting factors quadrant comprises age, educational level, motivation level, and resource availability. These indicators have relatively high performance but low importance, so they are not targeted for quantitative improvement. Age and educational level cannot be directly influenced, but they are used as the basis for segmenting communication approaches. For example, younger members are encouraged to utilize technology, while older members are focused on reflecting on values and experiences. Motivation levels are maintained through activities that involve sharing success stories and collective recognition. The availability of resources is utilized as a supporting channel, ensuring that existing resources are used optimally in group activities. The success of this quadrant is measured by cross-age engagement in activities, increased utilization of resources, and the consistency of members' motivation in participating in the program.

3.4.4. Secondary Priorities

The secondary priority quadrant covers mentoring skills, the effectiveness of information providers, facilitation skills, and the availability of infrastructure. These indicators have low importance and performance, so they are not made the primary focus but are still addressed selectively. Mentoring, information

provision, and facilitation skills are improved through short training sessions, communication simulations, and technical assistance. The availability of infrastructure cannot be directly changed through communication, but it can be advocated for with relevant agencies by presenting evidence of real needs in the field. Success in this quadrant is demonstrated by an increase in local facilitators' ability to convey information, greater clarity in communication materials, and follow-up on infrastructure proposals submitted by the group.

3.5. Strategies for Sustainable FFG Communication

FFG's sustainable communication strategy focuses on key priority indicators: liberating pedagogy, member participation (voice), and managerial capacity. Liberating pedagogy is enhanced through reflective dialogue and field practice; participation is directed toward safe spaces for communication; and managerial capacity is strengthened through leadership training and administrative mentoring. All strategies are implemented within a continuous communication cycle involving research, planning, implementation, measurement, and reporting, ensuring that resources are focused on critical areas that remain weak. The implementation of this strategy aligns with Ministry of Environment and Forestry Regulation [7], which affirms the role of FFG as a medium for learning, human resource capacity building, problem-solving, collaboration, and the development of productive enterprises. In accordance with Chapter V, Articles 19-22, FFG development aims to create productive, self-reliant, prosperous, and sustainable groups. Therefore, enhancing liberating pedagogy, active participation, and managerial capacity are integral parts of the Wanapaksi FFG communication strategy. The communication program is packaged under a single strategic umbrella themed "Wanapaksi Merekat: Listening to One Another, Managing Wisely, Growing Together Toward Sustainability." This theme encompasses three main intervention activities related to the IPMA's Quadrant IV indicators. The implementation of this plan adopts [11] five-stage strategic framework:

3.5.1. Research

Research is the initial stage in understanding the challenges faced by forest farmer groups. As emphasized by [11], communication research serves to precisely identify the characteristics of the target audience and the root causes of problems. The analysis was conducted by mapping the actual conditions related to barriers to participation, information literacy, and the managerial capacity of members of the Wanapaksi Forest Farmer Group (FFG). Quantitative IPMA data were combined with qualitative exploration through focus group discussions (FGDs) and in-depth interviews, as suggested by [12] and [13]. This approach aligns with Tufte and Mefalopulos [5], who emphasize the importance of participatory communication based on self-assessment, so that the community becomes the subject of its own problem analysis. Thus, the research is not judgmental; rather, it aims to build critical awareness among members and serves as a strategic foundation for designing sustainable communication programs for FFG Wanapaksi.

3.5.2. Planning

As a follow-up to the communication research conducted at FFG Wanapaksi, the planning phase focused on translating the analysis

results into an operational plan themed "Wanapaksi Merekat: Listening to One Another, Managing Wisely, Growing Together Toward Sustainability." This planning emphasizes an integrated communication strategy to ensure messages are effectively absorbed through an adult education approach. The strategic framework was then formulated into four main components: messages, media, communicators, and audience, which serve as the foundation for implementing participatory communication to support the sustainability of the forest farmers' group.

1. Messages

Communication messages are designed to be persuasive, educational, and inclusive. For example, "Pangkringan Aspirasi" with the slogan "Your Voice Matters, Wanapaksi Grows Together" to encourage people to speak up; "Klinik Tata Kelola" with the message "Orderly Administration, Stable and Transparent Group Enterprises" to instill the importance of cash record-keeping; and "Griya Belajar" with the message "Experience Is the Teacher, Learning Together to Protect the Forest," which reinforces the principles of andragogy. This approach aligns with Servaes [4], who emphasizes local empowerment.

2. Media

The program employs a hybrid approach: in-person sessions via saung/pangkringan and visual boards, as well as digital channels through WhatsApp and a simple record-keeping app. [14] demonstrate that integrating local and digital media effectively strengthens the flow of information. To address the managerial capacity gap within FFG Wanapaksi through indirect interventions, this dialogic coaching program is operationalized using tactical communication tools that combine visual print and digital platforms. At the daily operational level, executive officers and members are provided with administrative Visual Checklists and an SOP Pocket Guide that govern operational activities and group financial management, and are displayed at the secretariat to foster autonomous governance and reduce heavy reliance on central figures. Furthermore, participatory group discussions are complemented by dedicated WhatsApp channels and simple digital recording applications serving as primary coaching platforms. These channels facilitate real time feedback, interactive consultations, and action-reflection evaluations between forestry extension officers or facilitators from non-governmental organizations with FFG Wanapaksi leader to continuously track managerial progress and member participation (voice).

3. Communicators

Communicators are peer facilitators, senior members, or local leaders who, when necessary, use the local language and are supported by forestry extension workers as catalysts. This approach aligns with Ministry of Environment and Forestry Regulation [7] which emphasizes participatory learning, as well as Rogers' [15] theory of innovation diffusion regarding the effectiveness of homophily-based communication.

4. Audience

The audience consists of all 58 members of the Wanapaksi Community Forestry Group (FFG). Activities are divided into three sessions: the Learning Center for liberating pedagogy, the Governance Clinic for managerial capacity building, and the Aspiration Forum for participation. Reflective discussions, hands-on practice, and participatory meetings are used to ensure optimal absorption of the messages.

3.5.3. Implementation

The implementation of FFG Wanapaksi's communication strategy is the execution phase following the planning stage. Its primary focus is on optimally conveying messages through a homophily-based adult education approach, centered on the theme "Wanapaksi Merekat: Listening to One Another, Managing Wisely, Growing Together Toward Sustainability." The three main programs of Quadrant IV are carried out simultaneously and continuously: the Pangkringan Aspirasi Discussion Forum to increase member participation using the Round Robin method; the FFG Governance and Digitalization Clinic to strengthen managerial capacity through training in cash record keeping and access to market information; and the Wanapaksi Learning Center, which emphasizes reflective, experience-based learning. This dialogic approach aligns with the framework proposed by [16], which asserts that participatory communication based on action reflection can strengthen internal cooperation and support the sustainability of forest farmer groups.

3.5.4. Measurement

Measurement is a step taken to determine the final outcomes of activities carried out. The purpose of measurement is to determine whether the target audience understands the activities implemented. Measurement is conducted to assess the effectiveness of the intervention and the extent to which improvements in the performance of the three Quadrant IV indicators have been achieved. Measurement employs two approaches: quantitative measurement, which involves evaluating post-intervention performance scores on the indicators of liberating pedagogy, voice, and managerial capacity through the IPMA re-evaluation questionnaire; and recording attendance rates and the frequency with which members voice their opinions during meetings (targeting an increase in participation to >85%). Qualitative measurement was conducted by assessing the regularity of cash administration documents and FFG adoption, the ease of using digital media, and the creation of group reflection-action records. This measurement process adopted participatory communication evaluation indicators from the Food and Agriculture Organization [17] and [18] within the IPMA evaluation matrix to track the shift in indicator positions from Quadrant IV to Quadrant I (Maintain). This measurement aligns with the mandate of the Ministry of Environment and Forestry Regulation [7], which emphasizes the need for continuous evaluation of the effectiveness of FFG as a learning institution.

3.5.5. Reporting

The reporting phase is the final step in the FFG Wanapaksi communication strategy cycle. The report is prepared in writing by management as a basis for evaluation; it includes the results of activities, obstacles encountered, and recommendations for improvement. This document records progress in members' knowledge, motivation, and participation, as well as the utilization of resources, and is submitted to the Jatimulyo Village Government and the DIY DLHK as a form of accountability in accordance with Ministerial Regulation [7]. Additionally, reports are compiled in the form of infographics and SOP pocket guides to document best practices. Systematically documented reports serve as the basis for monitoring and evaluation to identify achievements, obstacles, and opportunities for improvement in the next activity cycle. This approach aligns with the concept of

continuous improvement based on the PDCA cycle, which uses evaluation results as the foundation for decision-making and the continuous refinement of programs [19].

4. CONCLUSION

Based on the Importance-Performance Map Analysis (IPMA), the communication strategy of FFG Wanapaksi Berkelanjutan focuses on addressing Quadrant IV indicators (Primer Priorities), namely the effectiveness of liberating pedagogy, the level of participation (voice), and managerial capacity. These indicators are of the utmost importance for the group's sustainability, yet their performance in the field remains suboptimal. Meanwhile, the indicators in Quadrant I (participatory leadership, organizational capacity, quality of dialogue, and reflection-action processes) serve as levers whose performance must be maintained. To address these gaps, a participatory communication strategy was formulated under the theme "Wanapaksi Merekat: Listening to One Another, Managing Wisely, Growing Together Toward Sustainability." This strategy is executed through a structured five-stage cycle (research, plan, execute, measure, and report) that encompasses three main intervention actions: the Pangkringan Aspirasi Discussion Forum (strengthening participation), FFG Governance and Digitalization Clinic (strengthening managerial capacity), and the Wanapaksi Learning Center (implementation of liberation pedagogy based on andragogy). Strategically, this transformation of the internal communication ecosystem makes a tangible contribution to the achievement of the Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action) and SDG 15 (Life on Land) [1]. Through the strengthening of FFG members' managerial capacity and emancipatory communication, the sustainability of forest ecosystems and the socio-economic resilience of communities at the grassroots level can be achieved in a sustainable manner in accordance with the mandate of the Ministry of Environment and Forestry Regulation [7].

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