THE ROLE OF STAKEHOLDERS AND EXOGENOUS VARIABLES AFFECTING THE OUTCOME OF SOCIAL FORESTRY POLICIES IN CENTRAL SULAWESI, INDONESIA

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THE ROLE OF STAKEHOLDERS AND EXOGENOUS VARIABLES AFFECTING THE OUTCOME OF SOCIAL FORESTRY POLICIES IN CENTRAL SULAWESI, INDONESIA. Social forestry (SF) is Indonesian policy that aims to provide legal access to the community in utilizing forest resources and seek sustainable forest management, contributing to the community's economic improvement. This study examines the action situation of implementing SF policies in Central Sulawesi Province and analyses the roles of stakeholders and exogenous variables determining SF policies' outcomes. The Institutional Analysis Development (IAD) framework was applied in the study by identifying and analyzing the action situation and its relation to the implementation of SF in Central Sulawesi. The research revealed that the implementation of social forestry in Central Sulawesi Province is not optimal. This is indicated by the fact that local institutions have not achieved self-governance, the sustainability of forest function has not been realized, and the social forestry programs have not significantly increased the income of the local community. Implementing the SF policy depends on the facilitator's capacity at the site level and stakeholders' support. The action for strengthening social forestry at site levels requires strong collaboration among stakeholders by considering their interests and capacities. These findings suggested the urgency of future research to examine strategies for governing the role of stakeholders in boosting local institutional capacity and the outcomes of SF policies.

Keywords: Community empowerment, local community, stakeholders' capacity, local institution

PERAN PEMANGKU KEPENTINGAN DAN VARIABEL EKSOGEN YANG MEMPENGARUHI HASIL KEBIJAKAN PERHUTANAN SOSIAL DI SULAWESI TENGAH, INDONESIA. Perhurtanan sosial (PS) merupakan kebijakan nasional yang bertujuan memberikan akses legal kepada masyarakat dalam memanfaatkan sumber daya hutan dan mewujudkan pengelolaan hutan lestari yang berkontribusi pada peningkatan ekonomi masyarakat. Studi ini mengkaji situasi aksi implementasi kebijakan PS di Provinsi Sulawesi Tengah dan menganalisis peran pemangku kepentingan dan variabel eksogen dalam menentukan kinerja kebijakan PS. Kerangka Institutional Analysis Development (IAD) digunakan dalam penelitian ini dengan mengidentifikasi dan menganalisis situasi aksi dan kaitannya dengan implementasi PS di Sulawesi Tengah. Hasil penelitian mengungkapkan bahwa situasi aksi pelaksanaan perhutanan sosial di Provinsi Sulawesi Tengah belum optimal yang ditunjukkan oleh kelembagaan lokal yang belum self-governing, kelestarian fungsi hutan belum terwujud, dan program perhutanan sosial belum memberikan kontribusi yang signifikan bagi peningkatan pendapatan masyarakat lokal. Implementasi kebijakan perhutanan sosial tergantung pada kapasitas fasilitator di tingkat lokasi dan dukungan pemangku kepentingan. Aksi penguatan perhutanan sosial pada tingkat lokal memerlukan strategi kolaboratif melalui penataan peran para pemangku kepentingan dengan mempertimbangkan kepentingan dan kapasitasnya. Penelitian ini menguatkan pentingnya penelitian lanjutan untuk mengkaji strategi penataan peran stakeholder dalam meningkatkan kapasitas kelembagaan lokal dan kinerja PS.

Kata kunci: Pemberdayaan masyarakat, masyarakat local, kapasitas para pihak, kelembagaan lokal

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I. INTRODUCTION

One of the priority programs of the Government of the Republic of Indonesia is to achieve economic independence by driving strategic sectors of the domestic economy, including the forestry sector. In this regard, the Government of the Republic of Indonesia is committed to allocating at least 12,7 million ha of forest area for the development of sharing schemes for Social Forestry (SF), including schemes for Community Plantation Forests (Hutan Tanaman Rakyat/HTR), Community Forests (Hutan Kemasyarakatan/HK), Village Forests (Hutan Desa/HD), Customary Forest (Hutan Adat/HA), and Forestry Partnership (Kemitraan Kehutanan/KK). Three pillars of social forestry policy objectives are 1) economic objectives, alleviating poverty of forest use by strengthening the community's livelihoods, 2) social objectives, conferring rights and authority and empowering the community to manage and control forest resources, 3) ecological objectives, improving ecological conditions and forest conservation (Charnley & Poe, 2007; Fisher et al., 2018; Maryudi et al., 2012).

The Republic of Indonesia's Government has issued many regulations to support the acceleration of social forestry in Indonesia. Recently, the government has just issued a regulation of the Minister of Environment and Forestry No. 9 of 2021, which explicitly regulates the management of social forestry. At the regional level, the Central Sulawesi provincial government has responded to the accelerating SF program's policy in the regional medium-term development plan, establishing a Working Group for SF acceleration, and facilitating activities for the institutional formation and licensing of forestry schemes.

In addition to the formal legal aspects of SF management approval, the SF policies require aspects of institutional capacity building that enable community groups around forests to enforce their rights and to gain benefit from forest resources for economic improvement while conserving forest resources (Suharjito & Purwawangsa, 2014). Without being supported by capacity building, providing access for the community to manage forests would threaten forest resource sustainability (Massiri et al., 2015). On the other side, local communities have no benefit from permit-based social forestry if their capacity is low (Ragandhi et al., 2021).

The SF policy is also a form of community empowerment in forest management (Asmin et al., 2019). The empowerment program's objective is to bring out a self-sufficient community having the capability to solve their problems and obtainbenefits from the forest resources. The effort to achieve local institutions' independence, particularly in the SF scheme is a challenge for the government (Massiri et al., 2020). Some government are challenging to transform local institutions into empowered entities (Anugrahsari et al., 2020).

Implementation of the SF policy involves multi-stakeholders (Fisher et al., 2018). The outcome of the SF policy is determined by many interrelated factors and is complex (Sahide, Fisher, Erbaugh, et al., 2020; Singh et al., 2011). Therefore it requires an approach to assessing its outcome. The role of stakeholders and their approach applied in the facilitation process affect the awareness, capacity, and responsibilities of forest farmers and individual targets in SF management (Sahide, Fisher, Supratman, et al., 2020). The boost of the local communities' capacity is highly dependent on the role of ground facilitators (Hastanti & Raharjo, 2021).

Studies on the implementation of SF policies have been conducted by many researchers, mainly in the western area of Indonesia. Research conducted by Rakatama & Pandit (2020) revealed that the implementation of SF policies varied but still has barriers on social and environmental aspects. Sahide, Fisher, Verheijen et al. (2020) emphasized that the actor's power is the central factor determining SF's outcome. Studies on the implementation of SF policies in Central Sulawesi Province have been less published, while the Local Government of

Central Sulawesi Province has programmed a target of achieving SF of 100,000 ha in five years.

The SF program is also one of the main concerns of the Regional Government of Central Sulawesi Province because it corresponds with the Governor of Central Sulawesi's vision and mission, namely the mission of realizing increased community welfare through empowering the people's economy and strengthening institutions, and the mission of maintaining harmony between humans and nature, as a form of sustainable development. This study examines the action situation of implementing SF policies in Central Sulawesi Province and analyzes the roles of stakeholders and exogenous variables determining SF policies' outcome, using the Institutional Analysis Development (IAD) framework (Ostrom, 2011).

II. THEORETICAL FRAMEWORK

Many interrelated factors determine SF's policy outcomes. In this study, complex factors are simplified by a systematic grouping approach in a framework to facilitate analysis, determine the relationship and influence, and find the key factors determining SF policy outcomes. The Institutional Analysis Development (IAD) Framework, formulated by Ostrom (2011), could be applied to examine the outcome of the policy. This framework provides a multi-level analysis and organizes the components that influence outcomes (McGinnis, 2011). This framework can also be applied to analyze institutions and policies in sustainable forest resource management (Araral & Amri, 2016; Carter et al., 2016).

The IAD framework components include a) exogenous variables, b) action situations, c) outcomes and evaluation criteria. Based on the IAD framework, two components determine the outcome: 1) the action situations and 2) exogenous variables. Ostrom (2011) emphasizes that the critical part of the IAD Framework is in action situations resulting in interaction and outcomes. The internal structure of an action situation consists of actors, positions, and actions. In this study, we use the term the roles of stakeholders to describe the internal structure of the action situations. The stakeholder approach focuses on the dimensions of power and interest, in contrast to actor analysis which explores in-depth, including examining networks, actor views, and interdependencies among actors (Enserink

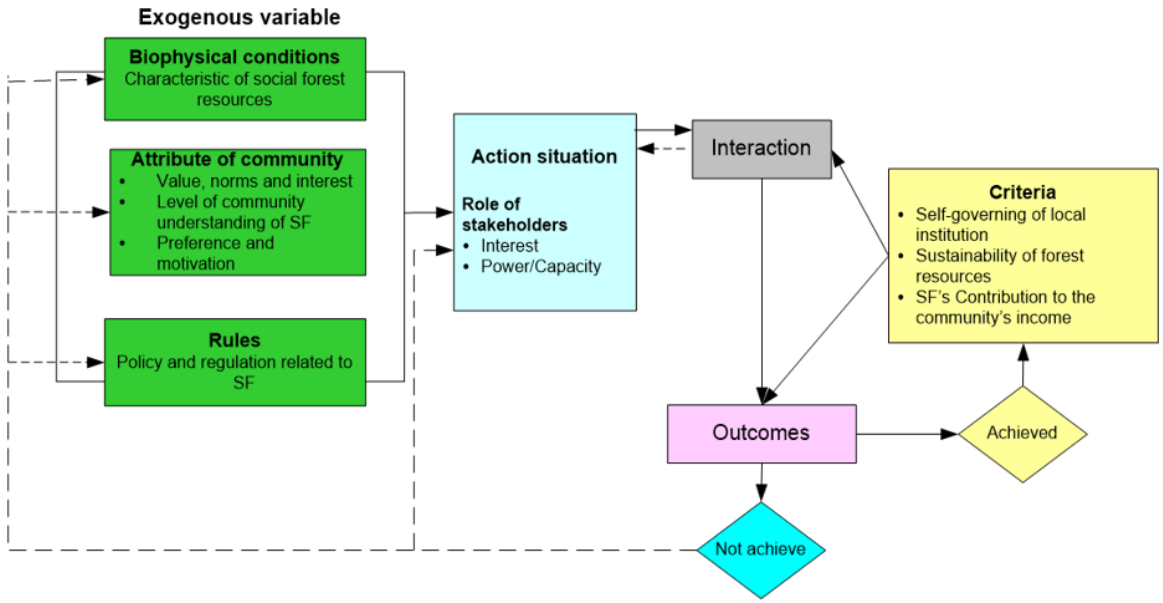


Figure 1. Theoretical Framework, Adapted from (Ostrom, 2011)

et al., 2010). Interests, in this context, include involvement in the program, the benefits of the program, how the program is organized, the readiness of stakeholders, and the suitability of the main tasks/rules. Meanwhile, power/capacity refers to the influence of authority, type of stakeholder policy, strategic resource power, expertise/specialization, and program sustainability.

The exogenous variables are inputs that form the action situations including biophysical conditions, community attributes, and rules (McGinnis, 2011). Biophysical conditions refer to resource characteristics. While characteristics of resources are related to market aspects, including the nature of excludable, subtractable, and transferable goods, which affect individual choices and actions (Ostrom, 2005).

The actions of individuals in society cannot be separated from the attributes of the community or systems in which they live. The attributes of community include a) values, norms, and interests of the community, b) level of community understanding of SF, and c) preference and motivation of community. Values, norms, and interests in society can become informal institutions that order community interactions, including their interactions with forest resources. These informal institutions can support but also hinder the performance of formal institutions (Claver & Knocking, 2015). Furthermore, rules in use include policies and regulations related to social forestry, both at the government and at the local level (community level), which also simultaneously affect the interaction and performance of SF.

The outcome of the SF acceleration policy is assessed through three criteria, namely; 1) self-governing of local institutions, 2) forest resources sustainability, and 3) SF's contribution to the community's income. This outcome reflected the role of stakeholders in action situations in facilitating or empowering the local community of SF. The sustainability of forest resources is an ecological objective of SF that can be evaluated using land cover change analysis. Meanwhile, the economic aim of the SF is to contribute to the community's income, which can be assessed through business units established by community groups that promote community income. Subsequently, the self-governance institution is one of SF's social goals that can be evaluated using the design principle of long-enduring institutions (Ostrom, 1990). However, it needs to be adapted to the research context. In this study, the self-governance institution of SF was assessed through several indicators; a) active community participation, b) fairness in resource use, c) community attitudes to the forest, d) the role of local institutions in planning and regulating forest resource use, e) role of local institutions in monitoring forest, f) the role of local institutions in applying local sanctions, g) the role of local institutions in conflict resolution, and h) increasing institutional capacity.

III. MATERIALS AND METHODS

A. Study Site

This study examines 20 SF permits of Central Sulawesi Province, covering ten village forests (Hutan Desa/HD) and ten community forestry (Hutan Kemasyarakatan/HKM) distributed across 6 Regencies of Central Sulawesi Province. Determination of the locations of this study reflects the attribute of community and distribution of biophysical conditions as part of exogenous variables. The research location is presented in Figure 2.

B. Methods

Data for this study were collected in 2018. The method of data collection included field observation, structured interviews with respondents, in-depth interviews, Focus Group Discussion (FGD) with SF group members, and study documentation. Structured interviews were conducted with 30 respondents from each of the 20 SF groups to collect data on the impact of SF on community economic improvement and communities' dependence

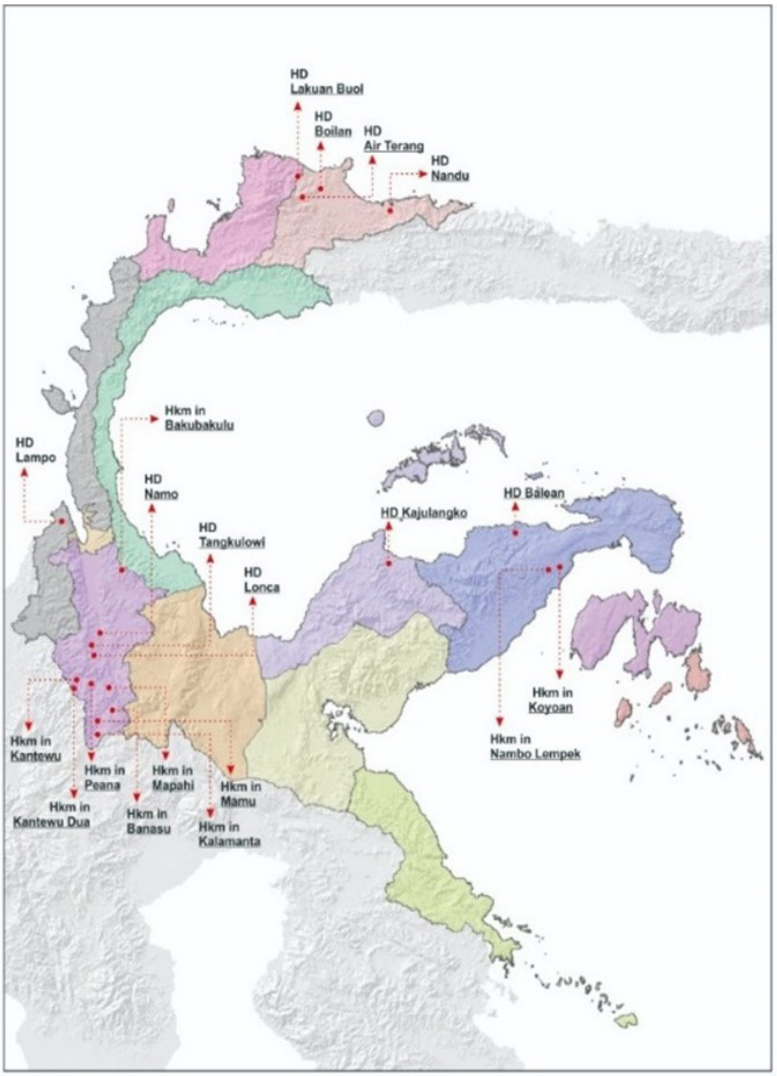


Figure 2. The research Location

on forest resources. These Respondents were randomly selected from SF group members. In-depth interviews with key informants were conducted to collect the action situation data of the implementation of the SF acceleration policy and the self-governing of local institutions. Informants in this study were stakeholders involved in implementing SF policies in Central Sulawesi Province, including the SF acceleration working group, field facilitators, and group managers of village forest and community forestry. Field observations were carried out to study forest cover, encroachment activity, and forest resources condition of SF. This research also conducted document studies on regulations, activity reports, and supporting data on related government agencies, village governments, and other supporting data related to SF.

C. Analysis

This study applied the IAD framework to classify and identify relationships among components, and data analysis was carried out at each component level that affects the outcome of SF policy. This study applied qualitative and quantitative data analysis based on each study's components. The requirements data and analysis methods are presented in Table 1.

Table 1. Data requirements and analysis methods

Variables	Data Requirements	Data collection techniques	Analysis Methods
The impact of SF on community economic improvement	▪ The existence of the SF business unit ▪ Performance of the SF business ▪ Increase in community income ▪ Income comparability ▪ Contribution of SF utilization business income to household income	Interview with respondents	Descriptive analysis ▪ Income analysis $\pi = TR - TC$ ▪ Income comparability $t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$ ▪ Contribution to household income $P_{(x)} = \frac{P_2 - P_1}{P_1} x\ 100\%$
The impact of SF on forest sustainability	▪ Forest cover change ▪ Encroachment intensity	Imagery analysis and field observation Imagery analysis, field observation, and interviews with respondents	▪ Land cover analysis ▪ Descriptive analysis of encroachment
The impact of SF on the self-governing of local institutions	▪ Local community participation ▪ Equity in the use of forest resources ▪ attitudes in supporting forest sustainability ▪ the role of local institutions in planning and regulating the use of forest resources. ▪ the role of a local institution in forest monitoring ▪ the role of a local institution in graduated sanction ▪ the role of a local institution in conflict resolution ▪ institutional capacity	Focused group discussion, in-depth interview with respondents	▪ Institutional analysis ▪ Likert scale; 1= low, 2 = moderate, 3 = high. ▪ Category self-governing of local institutions is figured from the mode value.
action situation	▪ Support of the stakeholder ▪ Facilitation for institutional precondition process ▪ The planning process	in-depth interview	▪ Qualitative descriptive analysis
Exogenous Variable	▪ Forest resources condition ▪ Communities' dependence on forest resources ▪ Policy and regulation related to SF	Interview with respondents, and observation Interview using a questionnaire Secondary data	▪ Descriptive analysis ▪ Descriptive analysis ▪ Content Analysis

IV. RESULT AND DISCUSSION

A. The Action Situation of SF in Central Sulawesi

The SF policy was set as one of the priority programs of the Central Sulawesi provincial government in the forestry sector since 2017. The Regional Government of Central Sulawesi Province has planned the SF Program into the Regional Medium-Term Development Plan of Central Sulawesi. The SF target of the Central Sulawesi provincial is to issue SF permits covering an area of 100.000 hectares within five years, as presented in Table 2.

Based on this target, most SF submissions have received approval from the Minister of Environment and Forestry. As of December 2023, a total of 188 locations, covering an area of 113.769,81 hectares, already received

Table 2. Forest area allocation target for SF in Central Sulawesi

Description	Years				
	2017	2018	2019	2020	2021
Forest area allocation target for SF	20.000 Ha	40.000 Ha	60.000 Ha	80.000 Ha	100.000 Ha

Source: Regional planning of Central Sulawesi, 2017

Table 3. The progress of the SF permit in Central Sulawesi Province until 2023

Schemes	Number of Permits	Area (ha)
Customary Forest (*Hutan Adat/HA*)	6,00	17.501,00
Village Forest *(Hutan Desa/HD)*	78,00	62.560,32
Community Forest *(Hutan Kemasyarakatan/HKm)*	68,00	29.898,82
Community Plantation Forest *(Hutan Tanaman Rakyat /HTR)*	27,00	3.195,00
Forestry Partnership (*Kemitraan Kehutanan*)	9	614,67
Total	**188,00**	**113.769,81**

formal approval. These schemes involved the participation of 35.923 households belonging to forest community/farmer groups. The most widely developed SF schemes were village forests and community forestry. The progress of the SF permit in Central Sulawesi Province until 2023 is presented in Table 3.

Strategies and policies related to SF that were set in the Regional Medium-Term Development Plan of Central Sulawesi were intended to empower communities around forest areas and their capacity to manage SF by developing appropriate technology in forest management through various SF schemes. To achieve this target, the local government of Central Sulawesi has formed the Working Group for the Acceleration of Social Forestry (Kelompok Kerja Percepatan Perhutanan Sosial/Pokja PPS). Stakeholders involved in the working group include local apparatus organizations, the Forest Management Unit (FMU), the Technical organization of the Ministry of Environment and Forestry, non-governmental organizations, environmentalists, and academics.

The central government has a dominant authority and administrative control in deciding social forestry permits (Rakatama & Pandit, 2020; Tajuddin et al., 2019). In the Ministry of Environment and Forestry Regulation Number 9/2021, it was stated that the Central Government could delegate the approval for SF permits to the Governor, as long as the provincial government has included social forestry in the regional medium-term development plan, has a regional SF regulations, and has a regional revenue and expenditure budget of at least 35% of the total forestry budget for SF. The previous rule (P.83/2016) did not specify the minimum quantity required. The Regional Government of Central Sulawesi Province, consequently, was not granted a delegation with the authority to issue licenses. Local governments' sole authority is to participate in the technical verification of SF proposals.

The SF program development action in Central Sulawesi province involved stakeholders in the Working Group for the Acceleration of Social Forestry. Stakeholders who have a high role in facilitating FS development in Central Sulawesi province were Forest Services, FMU, and NGO. The roles of the stakeholders in the SF development actions in Central Sulawesi are described in Table 4.

Table 4. Stakeholders role in the development of SF in Central Sulawesi

Stakeholder	Roles in the development of SF	Level of roles
Forestry Services of Central Sulawesi	a, c, h	High
FMUs of Central Sulawesi	a, b, d, e, f, g, h	High
Technical implementation Unit of MoEF	a, c	Moderate
University	h	Moderate
NGO	b, e, f, g	High

Description: a = site preparation, b = group preconditions for SF licensing, c= verification of licensing proposals, d = facilitation of planning preparation both business management plans and annual management plans, e = facilitation and strengthening of the capacity of SF management groups, f = utilization and forest resource management, g = SF business development, h = monitoring and evaluation

The high interest of Forestry Services and FMUs in SF is due to the suitability to their main tasks. In addition, the head of the Forestry Service is the Chair of the working group for the Acceleration of SF in Central Sulawesi. The Forestry Service has the power to influence and sustain the program of SF and it has the role in site preparation, verification of licensing proposals, and monitoring and evaluation activities. Meanwhile, FMUs have a critical role in promoting community-based forest management (Massiri et al., 2020). The role of FMUs at the site level is also dominant in preparing the site for SF, group preconditions for SF licensing, facilitation of planning preparation for both business management plans and annual management plans, facilitating and strengthening the capacity of SF management groups, utilization and forest resource management, SF business development, and monitoring and evaluation.

The role of NGOs is also high in the action situation of preconditions for SF licensing, facilitation, and strengthening of the capacity of SF management groups, utilization, and forest resource management, and in SF business development. Some local NGOs had group strengthening programs, but many were not sustainable. Budi et al. (2021) also revealed that NGOs' dominant role could strengthen the capacity of SF local institutions.

B. The Outcome of The SF Program

Conceptually, the SF policy is expected to achieve three goals (Bong et al., 2019); 1) sustainability of forest resources with indicators of increasing forest land cover and decreasing deforestation and degradation, 2) equity, namely justice for rights and responsibilities, and benefits obtained from forest resources, 3) efficiency by supporting local needs and overcoming problems high enforcement cost of forest resources. It is in line with the concepts and indicators that we use in assessing the outcomes of the SF program, namely forest land cover, which is the ecological pillar of SF's goals, contribution to the local communities income, which is the economic pillar of SF's goals and self-governing of the local institution which is the social pillar of SF's goals.

1. Self-governing of the local institution

SF policy is a form of devolution in forest management (De Royer et al., 2018; Meijaard et al., 2021). The SF development policy's target is not only at the stage of completing community legal access to forest resources but also encouraging local communities to manage and utilize forest resources independently. That way, the SF development action is a series of community empowerment activities in forest management to realize the local institutions' autonomy (Erbaugh, 2019; Massiri, 2022).

This study revealed that the action situation of SF development generated varying outcomes for the SF management's institutional independence. The Village Forest Management Institution (LPHD) tended to be better than the HKm farmer groups. HKm farmer groups' institutional independence was in the low to

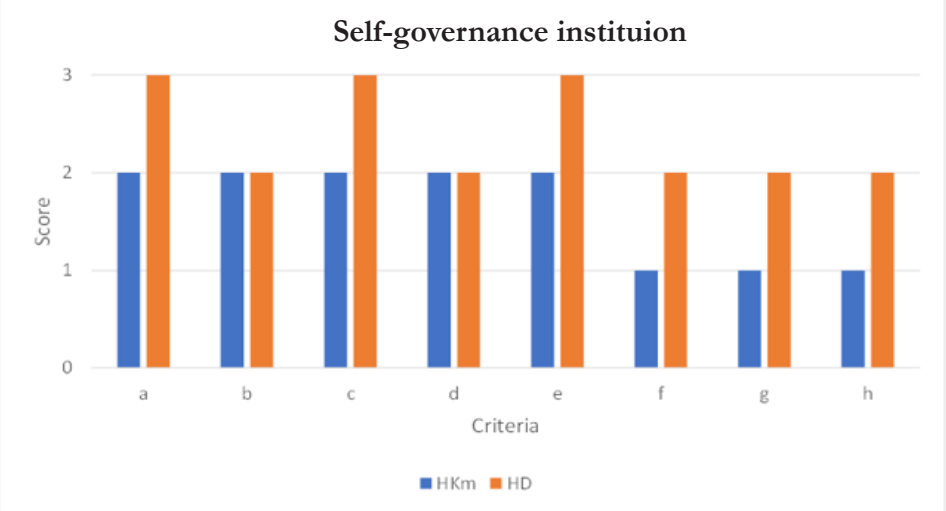


Figure 3. Institutional independence of SF

Table 5. Performance of Self-governance of HKm Groups

Indicator	HKm Group										Category
	HKm in Nambo Lempek Village	HKm in Koyoan Village	HKm in Bakubakulu	HKm in Peana Village	HKm in Kantewu Village	HKm in Kantewu Dua Village	HKm in Mapahi Village	HKm in Banasu Village	HKm in Mamu Village	HKm in Kalamanta Village	
Active community participation	1	1	2	2	2	2	2	2	2	2	Moderate
Fairness in resource use	1	1	1	2	2	2	2	2	2	2	Moderate
Community attitudes to the forest	1	1	1	2	2	2	2	2	2	2	Moderate
Role of local institutions in planning and regulating forest resource use	1	1	1	2	2	2	2	2	2	2	Moderate
Role of local institutions in monitoring forest	1	1	1	2	2	2	2	2	2	2	Moderate
Role of local institutions in applying local sanctions	1	1	1	1	1	1	1	1	1	1	Low
Role of local institutions in conflict resolution	1	1	1	1	1	1	1	1	1	1	Low
Local institutional capacity	1	1	1	1	1	1	1	1	1	1	Low
Score	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**Moderate**

Notes: 1= low, 2 = moderate, 3 = high category self-governing of local institutions is figured from the mode value.

medium category, while the LPHD institutional independence was generally in the medium to high category, except for HKm Nupabomba which hads not received any guidance or institutional strengthening programs.

This research revealed that the HKm group institution's roles were low in implementing sanctions, conflict resolution, and funding networks. The HKm group management's existence did not resolve conflicts, violations of regulations, and unable to provide funding to support forest management. It was found that several group managements did not understand their duties and functions in supporting forest management.

The HKm group management's weak role in carrying out forest management activities was related to resource characteristics as an exogenous variable that will determine the outcome. The characteristic of forest resources in the HKm area was quasi-private property, although de jure it is a state-owned forest area. The community's position in the forest area is as proprietor. In de facto, most of the forest areas that were granted the HKm permit have previously been controlled by the local community. The community had cultivated forest land to support their daily needs, even before it was granted a legal permit through HKm. In these resource characteristics, decisions on resource use were based on personal decisions.

The market aspect was the primary consideration for the community in determining land uses. The collective choice decision in groups did not work. Forest and land-use decisions were not determined by group decisions but were dominantly based on market-oriented personal decisions Therefore, forest management planning in HKm areas in Central Sulawesi should consider more market aspects that support the community's income and forest area sustainability.

In the context of Forest Village management, this study revealed that LPHD institutions in Central Sulawesi province could increase the community's participation in forest management, reinforce the communities' attitudes toward forest sustainability, and increase forest monitoring. However, this study also found that several LPHDs were not optimal in planning and regulating forest resource use, implementing sanctions for any violation, resolving conflicts, and providing funding.

Based on the institutional point of view, the characteristic of resources in HDs is a communal property managed by the village government. The local community has equal opportunities to utilize forest resources as arranged by the village forest management institution. The characteristics of this resource affect the outcome of institutional performance. The weakness that needs attention for common property is building internal agreements with community administrators and members,

Table 6. Performance of self-governance of HD Institution

Indicators	HD Scheme											Category
	HD Lakuan Boul	HD Air Terang	HD Boilan	HD Nandu	HD Lampo	HD Nupabomba	HD Lonca	HD Namo	HD Tongkulowi	HD Kajulangko	HD Balean	
Active community participation	1	3	3	1	3	1	3	3	2	2	3	High
Fairness in resource use	2	2	2	2	2	1	2	2	2	2	2	Moderate
Community attitudes to the forest	3	3	3	3	2	1	2	2	3	2	3	High
Role of local institutions in planning and regulating forest resource use	2	3	3	2	3	1	2	3	2	2	3	Moderate
Role of local institutions in monitoring forest	2	3	3	2	2	1	3	3	1	1	3	High
Role of local institutions in applying local sanctions	1	2	2	1	2	1	2	2	2	2	2	Moderate
Role of local institutions in conflict resolution	3	2	2	3	2	1	2	2	2	2	2	Moderate
Local institutional capacity	2	3	3	2	2	1	2	3	2	1	2	Moderate
Score	**2**	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**2**	**3**	**Moderate**

Notes: 1= low, 2 = moderate, 3 = high. Category self-governing of local institutions is figured from the mode value.

especially if the number of village communities grows large. Therefore, it is necessary to strengthen local institutions. Strengthening the HD institutions that should be optimized is applying sanctions for violations and resolving conflicts at the local level independently. The capacity to apply local sanctions and resolve conflicts are prerequisites for realizing a self-governing institution (Massiri et al., 2019; Paudyal et al., 2017).

2. Land Cover Change in the SF Area

Deforestation and forest degradation are major problems encountered by forest managers in Indonesia. One of the SF program goals is to increase forest land cover or reduce deforestation and forest degradation through local communities' support However, this study found that deforestation and forest degradation still occurred in both HKm and FV areas. The deforestation and forest degradation in the HKm area is higher than in HD, as presented in Figure 4.

The forest degradation rate from 2016 to 2018 in HKm reached 6,12%, while HD was only 1,12%. Forest degradation in SF areas was higher than deforestation. The level of deforestation in the HKm area was 1,46%, while in the HD area it was 0,75%. Even though the deforestation and degradation levels tend to be different between HKm and HD, statistically, it was not significant. The local community was dependent on forest and land resources, while the institutional capacity of SF was weak, particularly in forest monitoring and graduating sanctions to violators. The action situation for strengthening the local institution's capacity of SF in the province of Central Sulawesi was still focused on the facilitation of permits but not yet on post-permit actions. The Dynamics of land cover in the SF areas are presented in Table 7 and Table 8.

Deforestation and forest degradation reflected the performance of institutions at the local level. This finding confirms that community-based forest management positively affects community subsistence, equity, and security, resulting in forest cover loss due to changing land functions (Harbi et al., 2020). This situation confirms that providing access without strengthening the institutional capacity at the local level has not significantly impacted forest sustainability. Providing access should be supported by strengthening the community's capacity both in terms of utilizing forest resources and in terms of regulating and protecting forests (Massiri et al., 2015).

In addition to deforestation and forest degradation which reduce forest areas' function, there was also an increase in land cover from alloy cropping and shrubs to the secondary forest in the HKm and HD areas. This situation occurred because some SF permit areas were not managed intensively and some areas were fallowed by the local community.

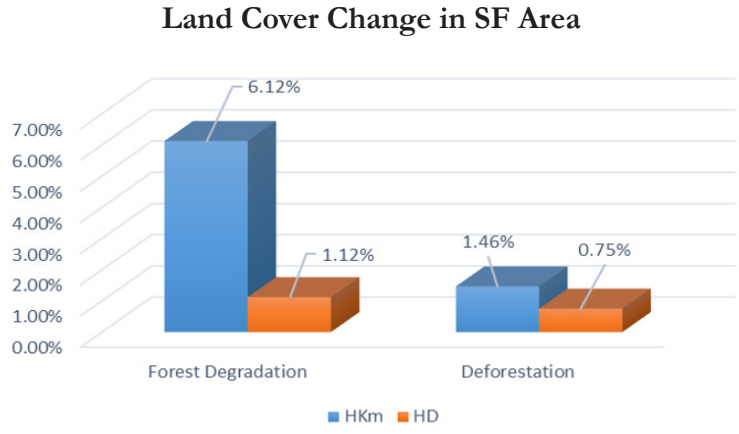


Figure 4. Land Cover Change in SF Area (Imagery analysis and field observation)

Table 7. Land cover dynamics in the HKm Area

Community Forestry	Land cover change			Situations
	Land use types in 2016	Land use types in 2018	Land Changes (Ha)	
HKm in villege of Nambo Lempek and Koyoan	Alloy cropping	Secondary forest	51,04	Reforestation
HKm Lestari Permai in the Bakubakulu village	Primary forest	Secondary forest	86,61	Degradation
	Primary forest	Alloy cropping	7,53	Deforestation
	Secondary forest	Alloy cropping	9,35	Deforestation
	Secondary Forest	Shrubs	37,72	Deforestation
HKm in Banasu Village	Primary forest	Secondary forest	55,63	Degradation
HKm in Mamu Village	Primary Forest	Secondary forest	16,75	Degradation
	Shrubs	Secondary forest	52,53	Fallowed to secondary forest
HKm in Kalamanta Village	Shrubs	Secondary forest	12,49	Fallowed to secondary forest

Table 8. Land use dynamics in the HD Area

Village Forest	Land Use Dynamics			Situations
	Land use types in 2016	Land use types in 2018	Land Changes (Ha)	
HD Lampo	Secondary forest	Dryland agriculture	24,34	Deforestation
HD Namo	Primary forest	Bare land	12,86	Deforestation
HD Lonca	Primary forest	Secondary forest	55,13	Degradation
HD Nupabomba	Primary forest	Secondary forest	13,36	Degradation
	Secondary forest	alloy cropping	25,83	Deforestation
HD Balean	Alloy cropping	Secondary forest	25,79	Fallow to Secondary forest

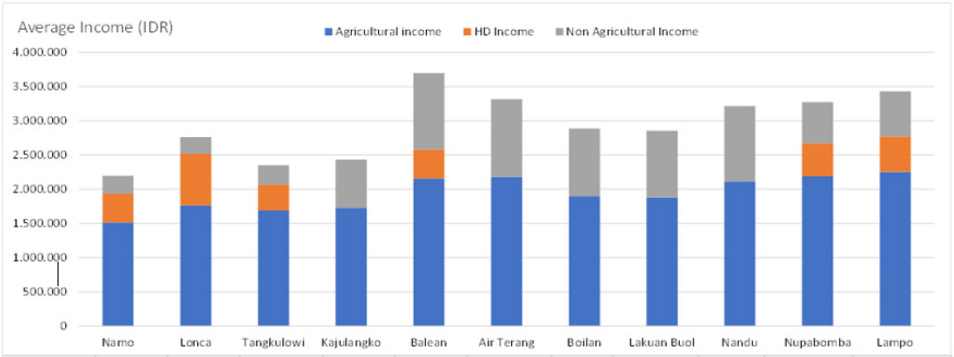
3. SF Contribution to Local Community Income

The purpose of providing legal access for the community to manage and utilize forest resources is to increase the community's income around the forest area. However, this research revealed that the SF program through the HD scheme has not contributed significantly to the income of local communities around forest areas. In contrast to the HKm scheme, land use in the HKm area has contributed significantly to HKm group members' income.

The average HD contribution in increasing the community income was only 9,43%. This low contribution had a close relation to the capacity of LPHD. Some HDs have not been managed and utilized, and most HD managers have no productive business units. The ability to benefit from resources is mediated by the bundle of powers that includes: access to technology, access to capital, access to the market, access to knowledge, and access to authority (Peluso & Ribot, 2020; Ribot & Peluso, 2003). Income contribution of the HD in Central Sulawesi Province which has carried out non-timber forest product utilization activities was 19,03%..

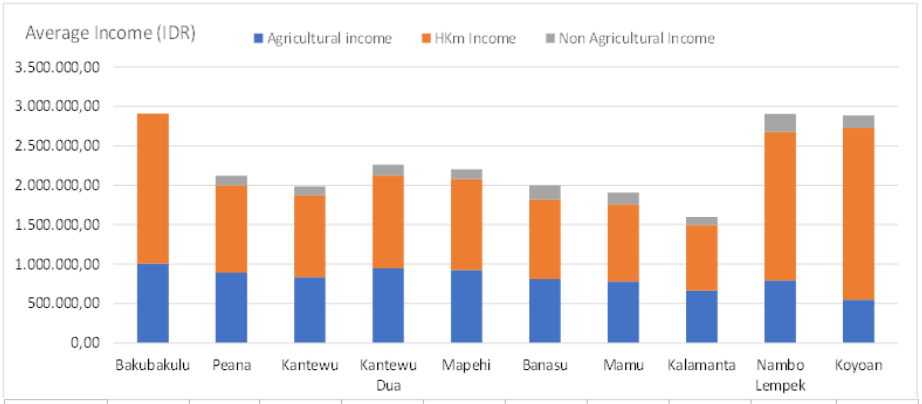
The average income of HD's areas from forest resource utilization was IDR 379.543 to IDR 753.531 per month. (US$1 ≈ 15.410 IDR). This finding confirms that forest resource utilization activities in the HD area have not been implemented optimally. Most of the HD licenses in Central Sulawesi were issued in 2017, except for HD Namo and HD Lonca, which had licenses in 2013 and 2014.

The average contribution of the HKm area in increasing the local community's income was 56,38%. However, this contribution did not originate from the HKm group, but it was obtained from individual community land-use activities based on the market's demand. The forest resource utilization has not yet been implemented based on the management plan. This research reveals that land-use decisions in the HKm area were not a collective decision of the group but rather a personal decision. The



	Namo	Lonca	Tangkulowi	Kajulangko	Balean	Air Terang	Boilan	Lakuan Buol	Nandu	Nupabomba	Lampo
Average HD Income Contribution (9.43)	19.03%	27.31%	16.15%	0.00%	11.33%	0.00%	0.00%	0.00%	0.00%	14.75%	15.19%

Figure 5. Income contribution of HD



	Bakubakulu	Peana	Kantewu	Kantewu Dua	Mapehi	Banasu	Mamu	Kalamanta	Nambo Lempek	Koyoan
HKm Income Contribution (56.38%)	68,26%	52,38%	52,36%	52,22%	52,49%	50,59%	51,19%	52,06%	64,79%	67,44%

Figure 6. Income contribution of HKm

community uses land in the forest area to meet their daily needs.

Farmers' income from forest utilization activities in HKm areas was generally higher than income from agricultural activities outside HKm areas. This condition confirms that, in general, the communities strongly depend on land resources in the HKm area to support their daily needs. The income level of farmers from land use in the HKm area was IDR. 831.323 to IDR. 2.169.000 per month. The average farmer's income from land use in the Hkm area was IDR. 1.326.750 per month (US$1 ≈ 15.410 IDR).

C. The role of stakeholders and exogenous variables in the SF policy

SF's policy outcomes of Central Sulawesi have not been optimal based on several of the criteria i.e; self-governing of local institutions was still in the moderate category, forest resources sustainability has not been achieved, and SF's contribution to the community's income was in a low category. These outcomes were attributed to the weakness in the action situation for the acceleration of SF policy. The SF development action in Central Sulawesi Province was more concentrated on licensing facilitation, even though several stakeholders have assisted in strengthening the capacity of

groups in the utilization of forest resources. However, strengthening these groups' capacity was still concentrated in a limited number of locations, and some were also not implemented in a sustainable and integrated manner. The SF program development's action situation has not significantly impacted the community income and preserving forest resources.

Based on the IAD framework (Ostrom, 2011), the internal structure of an action situation consists of actors, positions, and actions. This study adopts the terms the roles of stakeholders, including their interests and capacities. Stakeholders that have played a high role in SF development in Central Sulawesi were the Forestry Service, FMUs, and NGOs. The forestry office's role focuses on the administrative aspect, while FMUs and NGOs' role focuses on mentoring and outreach activities to the community. Unfortunately, FMUs and NGOs have limited funding capacities and personnel to carry out assistance activities to community groups.

The Central Sulawesi provincial government's target of allocating SF of 100.000 ha to improve the community's economy around the forest has the potential to backfire. It could even threaten the sustainability of forest resources if the role of stakeholders in the action situation is not regulated and strengthened. The local government should organize multi-stakeholder roles to strengthen the capacity of the SF group by considering the interests and power of the stakeholders, including the involvement of district local governments. Apart from a structural approach through structuring roles, local government should also expand network governance through a communication approach in multistakeholder dialogue among all stakeholders concerned with SF Development. The role of local government in network governance is to have an equal position with other stakeholders (Meuleman, 2008).

At the site level, facilitators are needed to assist community groups in arranging forest resources planning and capacity building. Strengthening facilitators' capacity should be focused on the program to increase their knowledge and skills in assisting farmer groups to formulate forest utilization activities that support forest sustainability while assuring the improvement of the community's economy. Access to capital and information is also crucial for local communities to benefit from the SF program (Ragandhi et al., 2021). In addition to providing legal access to forest resources, stakeholders also play a role in empowerment actions to facilitate increasing community access to capital, knowledge, and information.

In addition, factors that should be considered in strengthening group capacity are exogenous variables. The potential of forest resources, community dependence on forest resources, and policies or regulations related to SF are exogenous variables that simultaneously determine farmer behavior and SF outcomes. Characteristics of forest resources and community dependence on forest resources are different in each location. In the HKm area, the characteristics of forest resources are quasi-private property, even though it is a state forest area; while in the HD area, it is a communal property managed by the village government. These characteristics have implications for SF outcomes. Therefore, stakeholders who are involved in implementing the SF policy should understand well the exogenous variables that will determine the performance of the SF establishment.

V. CONCLUSION

The outcome of SF policy was affected by the role of stakeholders in the action situation implementing SF policy and exogenous variables. The core of the implementation of the SF policy is community empowerment activities. It requires multi-stakeholder roles from the regional level to the site level. The role of the SF Working Group at the Provincial level only focuses on achieving the broad target. Still, the role of the SF Working Group in the empowerment process has yet to be optimal after the SF approval was issued, which is indicated by the three pillars of the SF goal not

having been achieved optimally. The extensive target of the government for the SF acceleration program can be a threat to forest resource sustainability. Furthermore, the SF program will not be able to provide economic benefits for local communities if appropriate community empowerment activities do not support it. The strategy to improve the SF outcomes should begin with arranging the roles of stakeholders and increasing their capacity to support the SF group's empowerment. Stakeholders involved in community empowerment activities at the site level should conceive the exogenous variables. The exogenous variables encompass community dependence on forest resources, market aspects, and forest resource potential are the dominant factors that specify the interaction of forest resource use in the SF area. The problem that needs to be resolved in the HKm scheme is to secure the preservation of forest area functions as a common interest, whereas the HD scheme is strengthening the LPHD capacity to intensify forest management to increase the village's income.

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Appendix

Criteria for assessing self-governing of the local institution in managing SF

Criteria	Score	Description
Active community participation	3	members of the SF group meet regularly and participate by offering comments and feedback.
	2	SF members conducting meetings, but only sometimes
	1	SF members have never met in the last year
Fairness in resource use	3	More than 50% have the same opportunity to utilize forest resources and earn income from HD businesses
	2	Less than 50% of respondents stated that there is fairness in using forest resources because they have equal opportunities
	1	More than 50% of respondents stated that it is unfair to use forest resources.
Community attitudes to the forest	3	No communities are encroaching on forest areas
	2	There are still communities that encroach on forest areas
	1	There are still many communities that encroach on forests
Role of local institutions in planning and regulating forest resource use	3	The SF management has arranged an SF management plan and annual work plan and has received approval
	2	The SF management has arranged an SF management plan and annual work plan but has yet to attain approval.
	1	The SF management has not yet arranged a plan.
Role of local institutions in monitoring forest	3	Monitoring is conducted by SF management a minimum of twice per year.
	2	Monitoring is conducted by SF management less than twice per year.
	1	The SF administration has never performed monitoring.
Role of local institutions in applying local sanctions	3	Local institutions of SF can apply sanctions to those who violate them
	2	Local institutions of SF can only give warnings, but those who violate are handed over to the authorities
	1	Local institutions of SF do not apply sanctions to violators.
Role of local institutions in conflict resolution	3	There is a conflict resolution mechanism, and local institutions can resolve conflicts.
	2	There is a conflict resolution mechanism in SF, but local institutions cannot resolve it.
	1	Local institutions do not handle conflicts within the SF.
Local institutional capacity	3	Local institutions have competence in forest management planning and access to funding and business capital.
	2	Local institutions have competence in forest management planning but do not have access to funding and business capital.
	1	Local institutions do not have competence in forest management planning and access to funding and business capital.