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Economic Benefits and Stakeholder's Role In Community Forest Management In Rembang Regency, Central Java Province

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis manfaat ekonomi masyarakat pesanggem Desa Sale di Kabupaten Rembang, Jawa Tegah, yang didapatkan dari pemanfaatan usahatani jagung dan untuk menganalisis peran stakeholder dalam pelaksanaan Pengelolaan Hutan Bersama Masyarakat (PHBM) di Desa Sale. Sumber data diperoleh menggunakan metode accidental sampling untuk menentukan jumlah responden dan metode purposive sampling untuk key informan yang masing masing berjumlah 48 orang dan 14 orang. Metode analisis yang digunakan menggunakan R/C ratio, co-management, dan analisis stakeholder. Hasil penelitian menunjukan bahwa nilai R/C usaha budidaya jagung dan sapi masing masing memperoleh nilai 1,96 & 1,70 artinya layak untuk dijalankan; kolaborasi antar stakeholder dalam pelaksanaan PHBM berdasarkan evaluasi co-management dikategorikan sudah baik ditunjukan dengan nilai 4; sedangkan stakeholder yang memiliki pengaruh dan kepentingan tinggi pada kuadran II atau key player yaitu Lembaga Masyarakat Desa Hutan (LDMH), Perum Perhutani, Pesanggem dan Dinas Pertanian. Hasil penelitian ini menunjukan pengelolaan CFM telah berjalan dengan baik dimana bentuk usaha tani sebagai wujud kolaborasi dengan masyarakat memiliki prospek usaha yang layak; evaluasi pelaksanaan co-management juga menunjukan hasil yang baik. Selain itu stakeholder yang terlibat telah menjalankan perannya sesuai tupoksi peran dan kepentingan masing-masing.

ABSTRACT

This study aims to analyze the economic benefits of the Pesanggem Desa Sale community in Rembang Regency, Central Java, that is obtained from the use of corn farming, and to analyze the role of stakeholders in the implementation of CFM in Sale Village. Sources of data were obtained using the accidental sampling method to determine the number of respondents and the purposive sampling method for key informants, each of which amounted to 48 people and 14 people. The analytical method used is using the R/C ratio, co-management, and stakeholder analysis. The results showed that the R/C value for the cultivation of corn and cattle obtained a value of 1.96 & 1.70 respectively, meaning that it is feasible to run, and collaboration between stakeholders in implementing CFM is categorized as good, indicated by a value of 4, while stakeholders who have influence and interest high in quadrant II or key player, namely Forest Village Community Institution (FVCI), State-Owned Forestry Company (SOFC), Pesanggem and Agriculture Office (AO). This study indicates that CFM management has been running well where farming as a form of collaboration with the community has decent business prospects; evaluation of the implementation of co-management also showed promising results. In addition, the stakeholders involved have carried out their roles according to their respective roles and interests.

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1. Introduction

Forests provide protection against biodiversity that protects the soil and regulates the hydrological cycle, atmospheric temperature, and help in coping with the impacts of climate change (Müller, Olschewski, Unterberger, & Knoke, 2020). However, increasing population and urbanization trends affect increasing rates of deforestation resulting in natural disturbances in atmospheric and climate patterns, thereby increasing natural imbalances that endanger human life (Ali, Riaz, & Iqbal, 2014)

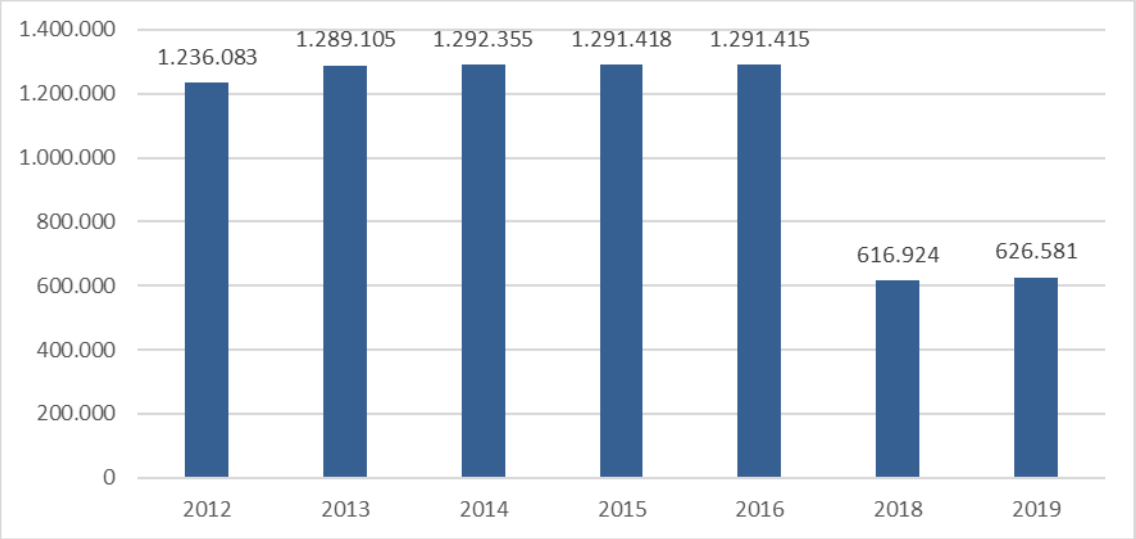

Figure 1 Forest Area Size by Regency / City in Central Java Province (hectare)

Figure 1 shows the total area of forest in Central Java Province. Based on the table, it can be seen that there has been a decrease in the total area of forests in Central Java Province, especially in 2018. This is due to changes in land cover due to human activities in utilizing land, resulting in a reduction or increase in land cover ((Ministry of Environment and Forest, 2020).

Efforts to control deforestation are one of the principles in upholding inclusive growth where sustainable development efforts are needed for the welfare of society by paying attention to environmental aspects (Pouw & Gupta, 2017; Ge et al., 2020). Community dependence on forests will help reduce the overexploitation of resources. According to (Bončina, Simončič, & Rosset, 2019) forests have multifunctional benefits, namely productive concerning the economy where the forest is a source of livelihood; protective related to ecology and the environment; and social related to welfare. An ecological balance between forests and communities is needed by supporting the role of local communities in forest protection and management (Soman & Anitha, 2020).

Social Forestry has been regulated in the Minister of Environment and Forestry Regulation No.83/MENLHK/SETJEN/KUM.1/10/2016) which aims to improve the quality of life of the community by providing legal access to the community in managing forests. Forest management based on this regulation adheres to the principles of justice, sustainability, legal certainty, participation, and accountability. Community forest managementis a new paradigm that improves the forest management system to be more sustainable, productive, and fair in its management so that it remains the main supporter of community life, both at the village and national levels (Gatiso, 2019; Jafari et al., 2018). This program also forms empowerment that better guarantees the success of forest management provides greater benefits to rural communities and encourages community participation in overcoming forest disturbances (Apipoonyanon, Szabo, Kuwornu, & Ahmad, 2020; Puspita, 2016).

The area of Forest Management Unit (FMU) Kebonharjo forest in implementing Community Forest Management (CFM) around 17,739.10 hectares located in three administrative areas, namely Rembang Regency, Blora Regency, and Tuban Regency. One of the Forest Village Community Institutions (FVCI), reksa wana kumala, has the largest forest in FMU Kebonharjo with an area of 807.9 hectares. Sale village communities get economic benefits from the implementation of CFM activities because they get a source of income from forest protection and forest land use in the lap area of the Forest Area Management Section) Sale. Demands for community participation and empowerment in forest management by providing legal access to the use of forests cause community dependence on forests so that it creates a sense of forest ownership and indirectly contributes to the availability of natural resources from the implementation of

joint forest management. Apart from active community participation in the implementation of forest management, collaborative governance among stakeholders based on a bottom-up system will also influence policy implementation by involving the active participation of actors (McIntyre & Schultz, 2020; Marques et al., 2020). So, this study aims to analyze the forest utilization by Pesanggem for corn farming and cattle farming, and analyze the role of stakeholders in the implementation of community forest management on the land of FACC Sale forest.

2. Method

This research uses observation and quantitative data analysis methods, namely by using descriptive statistics. This method is used to explain the respondent profile, analysis of income and R/C ratio, co-management analysis, and stakeholder analysis by conducting in-depth interviews with several stakeholders related to CFM activities and understanding CFM activities.

The location of this research is at FVCI Reksa Wana Kumala which is in Sale Village, Sale District, Rembang Regency. The location of this research was determined with the consideration that in Sale Village there are activities of the Joint Forest Management Society and FVCI Reksa wana kumala as one of the good FVCIs and has a large enough sharing fund and has a large enough impact on the surrounding community. Sampling in this study used the snowballing sampling. Snowballing techniques include non-probability sampling, and the number of respondents is determined gradually until the number of respondents reaches the point where the information obtained is homogeneous (Sekaran & Bougie, 2017). the total number of respondents is 48 people. . The total number of respondents is 48 people. Whereas, the number of key informants, is 14 informants using a purposive method based on criteria, namely having influence and dependence on the implementation of CFM. Respondents referred to in this research are pesanggem who participate in forest management and are involved in CFM activities. Meanwhile, the key informants used in this study were stakeholders who played a role in CFM activities, namely State-Owned Forestry Company (SOFC) FMU Kebonharjo, Village Government, FVCI Reksa Kumala, Government, NGOs, wood distributors, academics.

This study uses R/C ratio analysis which is used to calculate the ratio between revenue and costs to determine the magnitude of the advantages and disadvantages and the feasibility of an agribusiness project (Dwikurnia, Asnidar, & Asrida, 2017). R/C ratio is calculated by the formula:

$$\text{R/C ratio} = \frac{Total\ Revenue}{Total\ Cost}$$

If the R/C ratio is greater than 1 (R/C > 1), then the farming business is feasible to develop, and vice versa; if the R/C ratio is less than 1 (R/C < 1) then the farming business is considered unfeasible. Meanwhile, if the R/C ratio is equal to 1 (R/C = 1), then the farm is break-even which not to any profit or loss.

CFM, in its implementation, involves a collaborative relationship between the government (SOFC, village government, FMU, FACC) and village communities (Pesanggem and FVCI). Community forest management, in this case, carries out the principles of Co-management where there are partnership arrangements, management integration, and division of power levels to deal with various sustainability problems in forest management. Pomeray & Williams, 1994; Susilowati, 2001; Waridin et al., 2020) measured the co-management performed on key persons based on 11 key conditions. 11 key conditions consisting of 1) clear boundaries, 2) membership needs to be determined, 3) group cohesion, 4) existing organizations, 5) benefits exceed costs, 6) participation from influential communities, 7) Enforcement of management rules, 8) Legal right to organize 9) Cooperation and leadership at the community level, 10) Decentralization and delegation of authority 11) Coordination between government and society. Each key condition is evaluated using a Likert scale (1-5), namely 1 (very bad), sour (2), moderate (3), good (4), and very good (5). The evaluation was carried out based on field observations and discussions with several key person components, and then a judgment was made by researchers to measure the success of implementing co-management in the CFM program (Carlsson & Berkes, 2005; Kirana, Susilowati, & Viswanathan, 2016; Susilowati, 2001)

The stakeholder analysis used in this study was used to describe the interests and influence of each stakeholder involved in CFMactivities at FVCI Reksa wana kumala. Stakeholder analysis mapping consists of 4 quadrants, namely context setters, key players, subject, and the crowd (Fetoui, Frija, Dhehibi, Sghaier, & Sghaier, 2021; Isa, Sugiyanto, & Susilowati, 2020; Pamoray & Rivera-Guieb, 2006). . Stakeholder analysis is carried out by identifying, and classifying stakeholders and then providing an assessment of the interests and influence of stakeholders with a rating scale of 0 (not important) to 4 (very important).

3. Results and Discussion

Agriculture activity is one form of community forest management implementation in Sale Village managed by FVCI Reksa Wana Kumala in the working area of KPH Kebonharjo. The Sale' village community or called Pesanggem (farmers who work on forest agricultural land belonging to Perhutani) use the forest land for agricultural activities like corn farming and cattle farm.

Table 1. Respondents' Socio-Economic Characteristics

(Characteristics)		*(Frequency)*	*(Percentage)*	*(Remarks)*	
(age)	40-50	16	33%	Mean =	55.52
	51-60	19	40%	Max =	70
	61-70	13	27%	Min =	40
(level of education)	SD	27	56%	Mean =	7.88
	SMP	12	25%	Max =	12
	SMA	9	19%	Min =	6
(type of productive business)	*(corn farmer)*	35	73%		
	(cattle breeder)	13	27%		
(corn land area)	0,25	19	40%	Mean =	0.61
	0,5	16	33%	Max =	1
	1,0	13	27%	Min =	0.25
(the number of livestock holdings)	1-3	5	38%	Mean =	3.62
	3-6	8	62%	Max =	6
				Min =	2

Source: Primary Data Processed, 2020

Respondents in this study consisted of farmers who carried out farming under teak trees belonging to State-Owned Forestry Company and raised livestock, called pesanggem.

The number of respondents in this study was 48 people. The characteristics of the respondents in this study varied, based on Table 1, it can be seen that the average respondent in this study was more than 50 years old with the majority of the level of education equivalent to elementary school (SD), namely 56%. Respondents (as many as 70% of all respondents) in this study are corn farmers, and the rest are farmers. the average farmer's land area is 0.61 hectares, while the average number of cattle farms is four cows.

R/C Acceptance Analysis

R/C analysis in this study provides an overview of how community forest management encourages community participation in protecting the forest. If the calculation results of the R/C of corn and cattle farming are feasible (revenue is greater than the cost), then the business is considered profitable for the Pesanggem, which will strengthen the sense of belonging to the forest.

The calculation of R/C for cow productive business can be seen in Table 2. Corn farming was chosen by the pesanggem because corn is a type of crop that can be planted on dry land, most maize farmers in Indonesia plant corn on dry land (Fermadi, Prasmatiwi, & Kasymir, 2015). Corn is also a plant that is easy to manage, does not require intensive care, and can be planted in almost any type of soil (Metwally, Safina, El-Killany, & El-Salheen, 2020).

The income of a farm productive business is obtained from the volume of corn sold multiplied by the selling price of the corn. Corn forest farmers sell all their corn without consuming it themselves. Corn production costs consist of fixed costs and variable costs. Fixed costs consist of land rent and depreciation of equipment. Variable costs consist of seed costs, inorganic fertilizer costs, organic fertilizer costs, pesticide costs, transportation costs, and tractor rental.

The analysis results show that the income of corn farmer respondents per planting period is 213,000,000 IDR, whereas the average income of each respondent is 6,085,714 IDR. while the total production cost of corn farmer respondents (fixed cost and variable cost) is 108,888,000 IDR, where the average production cost of each corn farmer respondent per planting period is 3,111,086 IDR.

Table 2. R/C Ratio of Corn Farmers (per planting season)

Remarks	**Total (IDR)**	**Average**
Revenue Cash Receipt	IDR 213,000,000	IDR 6,085,714
	IDR 213,000,000	**IDR 6,085,714**
Cost		
(Fixed cost)	IDR 36,006,000	IDR 1,028,743
(Variable Costs)	IDR 72,882,000	IDR 2,082,343
Total Cost	**IDR 108,888,000**	IDR 3,111,086
R/C	**1. 96**	**1. 96**

Source: Primary Data Processed, 2020

The productive corn business is declared profitable and feasible to run. This can be seen from the comparison of total income and total cost which is greater than one, namely 1.96 for every Rp 100 costs incurred, the forest farmer earns an income of Rp 196.

The results of this study are following the research of (Waridin et al., 2020) where the R/C value of padaan village forest farmers (FVCI who receive sharing funds) is profitable and feasible to be cultivated by forest farmers.

Another productive business owned by Pesanggem is the cattle business which can be seen in Table 3. Revenue from the productive business of cows is obtained from the number of cows sold multiplied by the selling price of cows. Cattle oduction costs consist of fixed costs and variable costs. Fixed costs consist of depreciation of cages and depreciation of equipment. Variable costs consist of costs for livestock seeds, electricity use, water use, livestock medical costs, and animal feed costs. The analysis results show that the income of the respondents of cattle breeders per livestock period is 318,000,000 IDR, whereas the average income of each respondent is 24,461,538 IDR. while the total production cost of cattle rancher respondents (fixed cost and variable cost) is 187,543,000 IDR, where the average production cost of each cattle farmer respondent per livestock period is 14,426,385 IDR.

Table 3. R/C Ratio of Cattle Farming Members

Remarks	**Total (IDR)**	**Average**
Revenue Cash Receipt	IDR 318,000,000	IDR 24,461,538
	IDR 318,000,000	**IDR 24,461,538**
Cost		
(Fixed cost)	IDR 27,533,000	IDR 2,117,923
(Variable Costs)	IDR 160,010,000	IDR 12,308,462
Total Cost	**IDR 187,543,000**	IDR 14,426,385
R/C	**1.70**	**1.70**

Source: Primary Data Processed, 2020

Livestock productive business is declared profitable and feasible to run. This can be seen from the comparison of total income and total cost which is greater than one, namely 1.70 for every IDR 100 cost incurred, the farmer earns an income of IDR 170. The results of this study are in accordance with the research of (Waridin et al., 2020) where the R/C value of rural breeders in padaan village (FVCI that gets the sharing funds) is profitable and feasible to be cultivated by cattle breeders.

Co-management analysis of corn business management

The co-management analysis in this study is used to determine the collaboration of each stakeholder involved in the CFM program at FVCI Reksa wana kumala. The co-management analysis was carried out by measuring 11 key conditions for collaborative-based forest management in Sale Village, Sale

District, and Rembang Regency. The following Table 3 shows the measurement results of 11 key conditions in the CBFM program at FVCI Reksa wana kumala.

Table 4. Co-management Analysis of Community Forest Management's Sale

No	*(Key Conditions)*	*(Conditions in the Field)*	**Evaluation (Value 1 – 5) *(Conditions in the Field)***
1	*(Clear management boundaries)*	• The managed area has different physical boundaries so that the community can know about it	4,8
		• The community can understand and observe boundaries based on the existing ecosystem	
		• The community manages the land according to the agreed boundaries	
2	*(Membership needs to be determined)*	• Only people who are members of the FVCI have the right to manage the forest in restricted areas	3,6
		• FVCI members and communities participate in forest resource management	
		• The number of FVCI members is not too large, because it can limit the effectiveness of decision making	
3	*(Group cohesion)*	• The managed area is close to the Forest Village Community Group	3,9
		• High level of homogeneity (kinship, ethnicity, religion, customs, beliefs, ideology)	
		• Understand the problem, strategy, and results	
4	*(Existing organization)*	• Forest Village Communities, both those who are members of the FVCI or not already understand the traditional community-based system	3,7
		• The Forest Village community already understands the existence of the organization	
		• Forest Village Communities (FVCI) as representatives of stakeholders and resource users participate in forest management.	
5	*(Benefits outweigh costs)*	• Compliance with community-based management exceeds the investment costs for activities	3,6
		• The existence of expectations from individuals that come from participation	
		• Individuals get bigger profits from the capital issued.	
6	*(Participation from influential communities)*	• People who collect information about forestry also make decisions about management arrangements	3,2
		• Management arrangements largely affect the individuals who make and change their arrangements.	
		• Individuals understand and are affected by the drafted rules.	
7	*(Enforcement of management rules)*	• All Forest Village Communities can enforce laws and regulations.	3,1
		• Simple forest resource management rules	
		• Forest village members and communities understand the rules in theory and their application.	
8	*(Legal right to organize)*	• The government has regulations to define and clarify responsibilities and authorities	3,5
		• The organization/group has legal rights in making and arranging arrangements according to their needs	
		• Forest village communities or FVCI members apply existing regulations/norms in the implementation of CFM.	

No	*(Key Conditions)*	*(Conditions in the Field)*	**Evaluation (Value 1 – 5)** ***(Conditions in the Field)***
9	*(Cooperation and leadership at the community level)*	• Communities actively have the willingness and incentive to participate (money, time, energy) in forest resource management	4,5
		• In the management process, there are groups of individuals who have responsibility for leadership	
		• The most suitable forms of cooperation here are namely: 1) Implementation of coaching and training activities 2) Discussion	
10	*(Decentralization and delegation of authority)*	• The government has established policies/regulations for the decentralization of administrative functions	4,2
		• The existence of delegation of responsibility/authority with a partnership approach in forestry resource management.	
		• The delegation of authority/responsibility is well structured.	
11	*(Coordination between government and society)*	• Coordination in monitoring management arrangements, conflict resolution, and strengthening enforcement of local regulations by adopting a partnership approach, coordination is carried out by: a) Local Government, please specify: b) Community, please specify: c) College, please specify:	3,6
		• The partnership approach will facilitate coordination between stakeholders	
		• The partnership approach facilitates monitoring of management and conflict resolution from multiple stakeholder levels	
Total Score			**41,7**
Average Score			**3,79**

The results of the measurement of 11 key conditions in the CFM program at FVCIReksa wana kumala, Sale Village in Table 3 are obtained with a total score of 41.7 or with an average score of 3.79 or close to 4 on the Likert scale. This shows that the forest management program activities with the community in Sale Village are in a good category. This condition shows that the concept of forest management with the implementation of the CFMprogram from SOFC is already good. These results are consistent with the research of (Waridin et al., 2020) where the management of the CFMprogram in Padaan village and Sumberejo village, Blora Regency has stakeholder collaboration in the good category.

Stakeholder Analysis

Stakeholder analysis is used to foster understanding among stakeholders involved in CFM activities, it is important to explore attitudes and differences in perceptions between these stakeholders about community forest management) (Poudyal, Maraseni, & Cockfield, 2019; Uddin, Hossain, Chen, Siriwong, & Boonyanuphap, 2019). Stakeholders involved in CFMin Sale Village consist of; Sale Village government, Agriculture office (AO), NGOs, SOFC, Timber Businessman (Business), Pesanggem, and Academician. According to Isa et al., (2020); Mafruhah et al., (2020); Riadh, (2021), In analyzing stakeholders, they are grouped into key players, context setters, subjects, and crowd. The following Figure 2 shows the stakeholder mapping matrix in the CFM program at FVCIR eksawana Kumala.

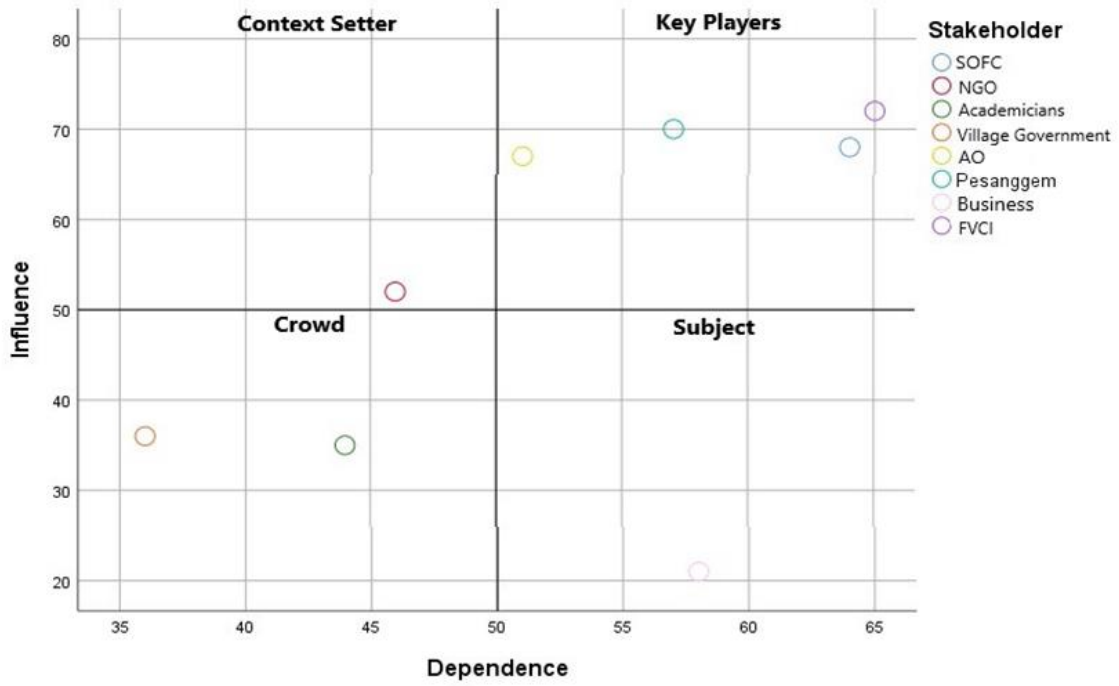

Figure 2. Stakeholder Mapping Matrix in the CFM program at FVCI Reksa wana kumala

Figure 2 shows the matrix of relationships between stakeholders which is divided into 4 quadrants. Quadrant 1 is a context setter, where stakeholders in this quadrant have a high influence but a low level of importance. Stakeholders included in this quadrant are NGOs. Quadrant 2 or key players in this study have high influence and importance. Stakeholders included in this study have a high influence on the success of the CFM program at FVCI Reksa wana kumala. Stakeholders in this quadrant are AO, Pesanggem, FVCI, and SOFC. Quadrant 3 or subject, has high importance and low influence in CFM activities. Stakeholders in this quadrant are business. In this case, the businessman has an interest in supplying wood which will then be sold or distributed to consumers. Quadrant IV, or crowd, has low importance and influence. Stakeholders included in this quadrant are village officials and academics.

Analysis of stakeholder roles and interests through the mapping in Figure 2 provides knowledge to evaluate stakeholder interactions and cooperation in CFM implementation. Based on the analysis of roles and interests in Figure 2, the stakeholders involved in the CFM program have carried out their roles following their respective duties and responsibilities. Actors who have contributed to the successful implementation of CFM, to be precise, are in the position of key players, namely AO, Pesanggem, FVCI, and SOFC. The reason is that these four actors have active interactions with other actors in various programs, so they greatly affect the cooperation of other actors.

4. Conclusions

Sale village communities, both members and non-members of FCVI, receive economic benefits in implementing CFM through the acquisition of corn cultivation business. An economic evaluation of corn cultivation carried out by forest village communities is categorized as feasible to run because based on the acquisition of an R/C value of 1.96 while the cattle farming business obtains an R/C value of 1.70. Forest village communities who are members of the FVCI together with SOFC collaborate actively in protecting, protecting, and managing the forest. Apart from SOFC, there are other stakeholder actors such as NGOs, government, wood business distributors, and academics who have a role that influences either directly or indirectly in the implementation of CFM. Collaboration between stakeholders in the management of CFM shows that the results of the implementation of CFM have been good, shown by the average score of 3.79 or close to 4 on the Likert scale. Stakeholders who have high influence and interest in the success of the CFM program at FVCI Reksa wana kumala based on stakeholder analysis, namely, FVCI, SOFC, Pesanggem, and AO The four actors' performance must be maintained to continue to support the successful implementation of CFM. Then there are several actors such as NGOs, village governments, and academics who need to increase their involvement in implementing CFM. Based on the results of in-depth interviews with key people, there are some recommendations for enhancing their involvement in implementing CFM: NGOs can create programs to shape the interest of village communities to participate in CFM actively; village

governments can provide support in the form of physical facilities and their active role in the CFM program; then academics can become consultants in the development of CFM programs to form tourist villages.

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Reference

Ali, A., Riaz, S., & Iqbal, S. (2014). Deforestation And Its Impacts On Climate Change An Overview Of Pakistan. *Papers on Global Change IGBP*, *21*(1), 51–60. https://doi.org/10.1515/igbp-2015-0003

Apipoonyanon, C., Szabo, S., Kuwornu, J. K. M., & Ahmad, M. M. (2020). Local participation in community forest management using theory of planned behaviour: evidence from Udon Thani Province, Thailand. *The European Journal of Development Research*, *32*(1), 1–27. https://doi.org/10.1057/s41287-019-00219-1

Bončina, A., Simončič, T., & Rosset, C. (2019). Assessment of the concept of forest functions in Central European forestry. *Environmental Science and Policy*, *99*(November 2018), 123–135. https://doi.org/10.1016/j.envsci.2019.05.009

Carlsson, L., & Berkes, F. (2005). Co-management: concepts and methodological implications. *Journal of Environmental Management*, *75*(1), 65–76. https://doi.org/10.1016/j.jenvman.2004.11.008

Dwikurnia, Asnidar, & Asrida. (2017). Analisis Kelayakan Usaha Home Industry Kerupuk Opak di Desa Paloh Meunasah Dayah Kecamatan Muara Satu Kabupaten Aceh Utara. *Pertanian*, *1*, 39–47.

Fermadi, O., Prasmatiwi, F. E., & Kasymir, E. (2015). Analisis efisiensi produksi dan keuntungan usahatani jagung di kabupaten ogan komering ulu timur sumatera selatan (. *JIIA*, *3*(1), 107–113.

Fetoui, M., Frija, A., Dhehibi, B., Sghaier, M., & Sghaier, M. (2021). Prospects for stakeholder cooperation in effective implementation of enhanced rangeland restoration techniques in southern Tunisia. *Rangeland Ecology & Management*, *74*, 9–20.

Gatiso, T. T. (2019). Households' dependence on community forest and their contribution to participatory forest management: evidence from rural Ethiopia. *Environment, Development and Sustainability*, *21*(1), 181–197. https://doi.org/10.1007/s10668-017-0029-3

Ge, T., Qiu, W., Li, J., & Hao, X. (2020). The impact of environmental regulation efficiency loss on inclusive growth : Evidence from China. *Journal of Environmental Management*, *268*(666), 110700. https://doi.org/10.1016/j.jenvman.2020.110700

Isa, M., Sugiyanto, F. X., & Susilowati, I. (2020). *Integrated analysis of adaptation and mitigation on coastal flood*. *5*(2010), 39–56.

Jafari, A., Sadeghi Kaji, H., Azadi, H., Gebrehiwot, K., Aghamir, F., & Van Passel, S. (2018). Assessing the sustainability of community forest management: A case study from Iran. *Forest Policy and Economics*, *96*, 1–8. https://doi.org/10.1016/j.forpol.2018.08.001

Kirana, M., Susilowati, I., & Viswanathan, K. (2016). The innovation of vulnerable fisheries using ecosystem-based fishery management approach: A test case in Karimunjawa ecosystem, Central Java, Indonesia. *Jurnal Teknologi*. https://doi.org/10.11113/jt.v78.8194

Mafruhah, I., Supriyono, S., Mulyani, N. S., & Istiqomah, N. (2020). Causality between tourism industry development and the ecological sustainability in marine environment: A convergence and divergence among stakeholder with mactor analysis. *International Journal of Energy Economics and Policy*, *10*(4), 85–92. https://doi.org/10.32479/ijeep.7989

Marques, M., Oliveira, M., & Borges, J. G. (2020). An approach to assess actors' preferences and social learning to enhance participatory forest management planning. *Trees, Forests and People*, *2*(June), 100026. https://doi.org/10.1016/j.tfp.2020.100026

McIntyre, K. B., & Schultz, C. A. (2020). Facilitating collaboration in forest management: Assessing the benefits of collaborative policy innovations. *Land Use Policy*, *96*(June 2019). https://doi.org/10.1016/j.landusepol.2020.104683

Metwally, A. E.-A. A.-R., Safina, S. A., El-Killany, R., & El-Salheen, N. S. A. (2020). Productivity of corn and soybean under solid and intercropping plantings with different levels of irrigation water in egypt. *Agrica*, *9*(2), 137–146. https://doi.org/10.5958/2394-448X.2020.00020.6

Ministry of Environment and Forest. (2020). Hutan Dan Deforestasi Indonesia Tahun 2019.

Müller, A., Olschewski, R., Unterberger, C., & Knoke, T. (2020). The valuation of forest ecosystem services as a tool for management planning – A choice experiment. *Journal of Environmental Management*, *271*, 111008. https://doi.org/10.1016/j.jenvman.2020.111008

Pamoray, R. ., & Rivera-Guieb, R. (2006). *Fishery Co-Management : A Practical Handbook* (Vol. 50). Ottaw: International Development Reseach Centre.

Pomeray, R. s, & Williams, M. J. (1994). *Fisheries Co-management and Small-scale Fisheries: A Policy Brief*. Makati, Philippines: International Center for Living Aquatic Recources Management.

Poudyal, B. H., Maraseni, T., & Cockfield, G. (2019). Scientific Forest Management Practice in Nepal: Critical Reflections from Stakeholders' Perspectives. *Forests*, *11*(1), 27. https://doi.org/10.3390/f11010027

Pouw, N., & Gupta, J. (2017). Inclusive development: a multi-disciplinary approach. *Current Opinion in Environmental Sustainability*, *24*, 104–108. https://doi.org/10.1016/j.cosust.2016.11.013

Puspita, M. D. (2016). Studi Evaluasi Terhadap Kebijakan Pengelolaan Hutan Bersama Masyarakat (PHBM) di Kabupaten Pemalang Tahun 2012-2014 (Studi Kasus Desa Surajaya Kabupaten Pemalang). *Journal of Politic and Government Studies*, *5*(August), 1–43.

Riadh, H. (2021). Intelligent tourism system using prospective techniques and the Mactor methodology: a case study of Tunisian tourism. *Current Issues in Tourism*, *0*(0), 1–23. https://doi.org/10.1080/13683500.2021.1937072

Sekaran, U., & Bougie, R. (2017). *Metode Penelitian Bisnis* (6th ed.; D. A. Halim, Ed.). Jakarta: Salemba Empat.

Soman, D., & Anitha, V. (2020). Community dependence on the natural resources of Parambikulam Tiger Reserve, Kerala, India. *Trees, Forests and People*, *2*, 100014. https://doi.org/10.1016/j.tfp.2020.100014

Susilowati, I. (2001). Prospect of Co-Management Approach in Managing Fisheries in Indonesia : Closer Look On Ikan Larangan (Forbidden Fish Farming) System In West Sumatera. *Journal of Coastal Development*, *5*, 41–45.

Uddin, M. N., Hossain, M. M., Chen, Y., Siriwong, W., & Boonyanuphap, J. (2019). Stakeholders' perception on indigenous community-based management of village common forests in Chittagong hill tracts, Bangladesh. *Forest Policy and Economics*, *100*, 102–112. https://doi.org/10.1016/j.forpol.2018.12.005

Waridin, W., Dhea Safira, R. K., Susilowati, I., Wijajanti, K., & Purwanti, E. Y. (2020). Economic Evaluation on the Application of Collaborative Forest Management (CFM). *Economics Development Analysis Journal*, *8*(4), 292–301. https://doi.org/10.15294/edaj.v8i4.36124